INTRODUCTION

THE GOSPEL OF GOOGLE

In the beginning, the World Wide Web was an intimidating collection, interlinked yet unindexed. Clutter and confusion reigned. It was impossible to sift the valuable from the trashy, the reliable from the exploitative, and the true from the false. The Web was exciting and democratic—to the point of anarchy. As it expanded and became unimaginably vast, its darker corners grew more remote and more obscure. Some had tried to map its most useful features to guide searchers through the maelstrom. But their services were unwieldy and incomplete, and some early guides even accepted bribes for favoring one source over another. It all seemed so hopeless and seedy. Too much that was precious but subtle and fresh was getting lost.

Then came Google. Google was clean. It was pure. It was simple. It accepted no money for ranking one page higher in a search than another.

And it offered what seemed to be neutral, democratic rankings: if one site was referred to more than another, it was deemed more relevant to users and would be listed above the rest. And so the biggest, if not the best, search engine was created.

This, in brief, was the genesis of the enterprise known as Google Inc. Like all theological texts, the Book of Google contains contradictions that leave us baffled, pondering whether we mere mortals are capable of understanding the nature of the system itself. Perhaps our role is not to doubt, but to believe. Perhaps we should just surf along in awe of the system that gives us such beautiful sunrises—or at least easily finds us digital images of sunrises with just a few keystrokes. Like all such narratives, it underwrites a kind of faith—faith in the goodwill of an enterprise whose motto is "Don't be evil," whose mission is "to organize the world's information and make it universally accessible and useful," and whose ambition is to create the perfect search engine.

On the basis of that faith—born of users' experiences with the services that Google provides—since the search engine first appeared and spread through word of mouth for a dozen years, Google has permeated our culture. That's what I mean by *Googlization.* It is a ubiquitous brand: *Google* is used as a noun and a verb everywhere from adolescent conversations to scripts for *Sex and the City.* It seems that even governments are being Googlized, or rendered part of the vast data storm that Google has taken as its challenge to organize and make available.[1]

Google puts previously unimaginable resources at our fingertips— huge libraries, archives, warehouses of government records, troves of goods, the comings and goings of whole swaths of humanity. That is what I mean by the Googlization of "everything." Googlization affects three large areas of human concern and conduct: "us" (through Google's effects on our personal information, habits, opinions, and judgments); "the world" (through the globalization of a strange kind of surveillance and what I'll call *infrastructural imperialism*); and "knowledge" (through its effects on the use of the great bodies of knowledge accumulated in books, online databases, and the Web).

Google consequently is far more than just the most interesting and successful Internet company of all time. As it catalogs our individual

and collective judgments, opinions, and (most important) desires, it has grown to be one of the most important global institutions as well. As we shift more of our Internet use to Google-branded services such as Gmail and YouTube, Google is on the verge of becoming indistinguishable from the Web itself. The Googlization of everything will likely have significant transformative effects in coming years, both good and bad. Google will affect the ways that organizations, firms, and governments act, both for and at times against their "users."

To understand this phenomenon, we need to temper our uncritical faith in Google and its corporate benevolence and adopt an agnostic stance. That is, we need to examine what Google has told us about itself, its means, and its motives as it makes the world anew in these ways, and to interrogate and evaluate both the consequences of Googlization and the ways we respond to it.

One way to begin is by realizing that we are not Google's customers: we are its product. We—our fancies, fetishes, predilections, and preferences—are what Google sells to advertisers. When we use Google to find out things on the Web, Google uses our Web searches to find out things about us. Therefore, we need to understand Google and how it influences what we know and believe.

Because of our faith in Google and its claims of omniscience, omnipotence, and benevolence, we tend to grant Google's search results inordinate and undeserved power.[2] These results offer the illusion of precision, accuracy, and relevance. Psychologists at the University of California at Berkeley have even published a study claiming that Google's Web-search technique mimics the way human brains recall information.[3] So it is understandable that we have come to believe that Google's search rankings are a proxy for quality of information, simply an extension of our collective judgment. But this belief is unhealthy and wrong. The rules of the game are rigged in certain ways, and we need a much clearer idea of how this is done.

If I can convince you that we should be concerned about the ease with which we have allowed everything to be Googlized, I hope I can lead you to consider some remedies as well. I am confident we can find ways to live more wisely with Google. My argument comes from a

perspective that is too often lost in accounts of the details of technological innovations and their effects on our daily lives: the pursuit of global civic responsibility and the public good. Hopes for a more enlightened future rest in our ability both to recognize the assumptions embedded in our faith in Google and to harness public resources to correct for them. So this book is also overtly political. It calls for a reimagination of what we might build to preserve quality information and deliver it to everyone. It examines the prospects for the creation of a global public sphere, a space between the particular domestic spheres where we live most of our lives and the massive state institutions that loom over us—a space where we can meet, deliberate, and transform both the domestic and the political. We can't depend on one or even a dozen companies to do that equitably and justly. Google seems to offer us everything so cheaply, easily, and quickly. But nothing truly meaningful is cheap, easy, or quick.

After years of immersion in details of Google's growth, I can come to only one clear judgment about the company and our relationship with it: Google is not evil, but neither is it morally good. Nor is it simply neutral—far from it. Google does not make us smarter. Nor does it make us dumber, as at least one writer has claimed.[4] It's a publicly traded, revenue-driven firm that offers us set of tools we can use intelligently or dumbly. But Google is not uniformly and unequivocally good for us. In fact, it's dangerous in many subtle ways. It's dangerous because of our increasing, uncritical faith in and dependence on it, and because of the way it fractures and disrupts almost every market or activity it enters— usually for the better, but sometimes for the worse. Google is simulta- neously new, wealthy, and powerful. This rare combination means that we have not yet assessed or come to terms with the changes it brings to our habits, perspectives, judgments, transactions, and imaginations.[5]

Faith in Google is thus dangerous as the airplane and the automo- bile have proved dangerous in ways their pioneers did not anticipate in the 1920s. These technologies of mobility and discovery are dangerous not just because they physically endanger their users but because we use them recklessly, use them too much, and design daily life around them. Thus we have done tremendous harm to ourselves and our world. As early as 1910, the technologies of motorized transportation

were impressive and clearly revolutionary. It was not hard to see that human life would soon be radically transformed by the ability to move people and goods across continents and oceans in a matter of hours. Only a few years later, life on earth was unimaginable without these systems, and by the close of the twentieth century, the entire world was reorganized around them.

The dangers arose because we let the automobile companies and airlines dictate both public discourse and policy. The rules of the road were worked out rather quickly and almost entirely in favor of the automobile: more people became motorists, and fewer were pedestrians. Soon after World War II, flying and driving became elements of daily life for most of the developed world. Yet the externalities of both these transport systems—from global climate change to global terrorism to global pandemics—have left us wondering how we made so many bad decisions about both of them. We did not acknowledge all the hazards created by our rush to move and connect goods and people, and so we did not plan. We did not limit. We did not deliberate. We did not deploy wisdom and caution in the face of the new and powerful. We did not come to terms with how dangerous planes and cars really are. Even had we acknowledged the range of threats that they generate, we would not have wished for a world without them. But we might well have demanded better training, safeguards, rules, and systems early on and thus curbed the pernicious results while embracing the positive, liberating effects they have on our lives.

We have designed our environments to serve cars and planes instead of people. Our political systems have been used to favor and subsidize these industries, even as they have been held up as models of free enterprise. And thus we have become dangerously dependent on them. We began to recognize the problems that they posed only in the 1960s and now are all too aware of them. But it's far too late. As Elvis warned us, "Fools rush in."[6]

Google and the Web it governs are nowhere near as dangerous as our automobile system. People aren't made ill or run over by Web pages. Nonetheless, blind faith in Google is dangerous because Google is so good at what it does and because it sets its own rules. Unlike the

automobile, which regularly kills people, Google causes damage mostly by crowding out other alternatives. Because of its ease and power, because it does things so cheaply and conveniently, it may cause us to miss opportunities to do things better. Google's presence in certain markets, such as advertising or book search, retards innovation and investment by potential competitors, because no one can realistically wrest attention or investment from Google. And when Google does something adequately and relatively cheaply in the service of the public, public institutions are relieved of pressure to perform their tasks well. This is an important and troubling phenomenon I call *public failure.*

The power of this young company is so impressive, and its apparent cost to its users so low (close to free), that the strongest negative emotion it generates in the United States is unease; anger at Google (as well as use of and dependence on Google) is much stronger in Europe. We see so clearly how it makes our lives better, our projects easier, and our world smaller that we fail to consider the costs, risks, options, and long-term consequences of our optimistic embrace. That is what the following chapters set out to do.

LIVING AND THINKING WITH GOOGLE

As with any system of belief, ideologies underlying the rise of Google have helped shape the worldview of those who created it as well as those who use and believe in it. For some, seeking wisdom and guidance in navigating the world in the early years of the twenty-first century, Google looks like the model for everything and the solution to every problem.[7] To most people, Google seems helpful and benevolent. For some would-be reformers, particular practices of the company demand scrutiny within the faith. For apostates, Google has fallen from its heights of moral authority.[8]

Google's ideological roots are well documented.[9] Google's founders and early employees believe deeply in the power of information technology to transform human consciousness, collective and individual. Less well understood are the theories that inform how Google interacts with

us and how we interact with Google. Increasingly, Google is the lens through which we view the world. Google refracts, more than reflects, what we think is true and important. It filters and focuses our queries and explorations through the world of digitized information. It ranks and links so quickly and succinctly, reducing the boiling tempest of human expression into such a clean and navigable list, that it generates the comforting and perhaps necessary illusion of both comprehensiveness and precision. Its process of collecting, ranking, linking, and displaying knowledge determines what we consider to be good, true, valuable, and relevant. The stakes could not be higher.

For those of us who trudge through torrents of data, words, sounds, and images, Google has become a blessing.[10] More than guiding us to answers and opportunities, it filters out noise: it prevents us from being distracted by the millions of documents that *might* serve our needs by guessing fairly accurately what we *do* need. So it's almost impossible to imagine living a privileged, connected, relevant life in the early twenty-first century without Google. It has become a necessary—seemingly natural—part of our daily lives. How and why did this happen? What are the ramifications of such widespread dependence?

To answer those questions, we must ask some other hard questions about how Google is not only "creatively destroying" established players in various markets but also altering the very ways we see our world and ourselves.[11] If Google is the dominant way we navigate the Internet, and thus the primary lens through which we experience both the local and the global, then it has remarkable power to set agendas and alter perceptions. Its biases (valuing popularity over accuracy, established sites over new, and rough rankings over more fluid or multidimensional models of presentation) are built into its algorithms.[12] And those biases affect how we value things, perceive things, and navigate the worlds of culture and ideas. In other words, we are folding the interface and structures of Google into our very perceptions. Does anything (or anyone) matter if it (or she) does not show up on the first page of a Google search?

Here are some of the big questions facing us in the coming years: Who—if not Google—will control, judge, rank, filter, and deliver to us essential information? What is the nature of the transaction between

Google's computer algorithms and its millions of human users? How have people been using Google to enhance their lives? Is it the best possible starting point (or end point) for information seeking? What is the future of expertise in an age dominated by Google, bloggers, and Wikipedia? Are we headed down the path toward a more enlightened age and enriching global economy, or are we approaching a dystopia of social control and surveillance?

IMAGINEERING GOOGLIZATION

This book employs what I call a "technocultural imagination."[13] A person who relies on a technocultural imagination asks these sorts of questions: Which members of a society get to decide which technologies are developed, bought, sold, and used? What sorts of historical factors influence why one technology "succeeds" and another fails? What are the cultural and economic assumptions that influence the ways a technology works in the world, and what unintended consequences can arise from such assumptions? Technology studies in general tend to address several core questions about technology and its effects on society (and vice versa): To what extent do technologies guide, influence, or determine history? To what extent do social conditions and phenomena mold technologies? Do technologies spark revolutions, or do concepts like *revolution* raise expectations and levels of effects of technologies?

The chapters that follow attempt to answer such questions. The first two chapters explore the moral universe of Google and its users. I don't really care if Google commits good or evil. In fact, as I explain below, the slogan "Don't be evil" distracts us from carefully examining the effects of Google's presence and activity in our lives. The first chapter argues that we must consider the extent to which Google regulates the Web, and thus the extent to which we have relinquished that duty to one company. The company itself takes a technocratic approach to any larger ethical and social questions in its way. It is run by and for engineers, after all. Every potential problem is either a bug in the system, yet to be fixed, or a feature in its efforts to provide better service. This attitude masks the

fact that Google is not a neutral tool or a nondistorting lens: it is an actor and a stakeholder in itself. And, more important, as a publicly traded company, it must act in its shareholders' short-term interests, despite its altruistic proclamations. More important yet, Google is changing. Each week brings a new initiative, a new focus (or a new distraction) for the company, and a new enemy or challenge. Such rapid changes, and the imperatives of corporate existence, are the subjects of chapter 2.

One of the great attractions of Google is that it appears to offer so many powerful services for free—that is, for no remuneration.[14] But there is an implicit nonmonetary transaction between Google and its users. Google gives us Web search, e-mail, Blogger platforms, and YouTube videos. In return, Google gets information about our habits and predilections so that it can more efficiently target advertisements at us. Google's core business is consumer profiling. It generates dossiers on many of us. It stores "cookies" in our Web browsers to track our clicks and curiosities. Yet we have no idea how substantial or accurate these digital portraits are. This book generates a fuller picture of what is at stake in this apparently costless transaction and a new account of surveillance that goes beyond the now-trite Panopticon model. Google is a black box. It knows a tremendous about us, and we know far too little about it. The third chapter explains how we fail to manage the flows of our personal information and how Google fails to make the nature of the transaction clear and explicit.

Google is simultaneously very American in its ideologies and explicitly global in its vision and orientation. That's not unusual for successful multinational corporations. Microsoft is just as important a cultural and economic force in India as it is in the United States. Google, however, explicitly structures and ranks knowledge with a universal vision for itself and its activities. This comprehensiveness generates a tremendous amount of friction around the world—not least in the People's Republic of China. Between 2005 and 2010 the Chinese government regularly shut down portions of Google's services because the company just barely managed to remain in the good graces of the Communist Party. Yet for all its deftness in dealing with China, Google for years drew criticism from global human rights groups for being part of the problem, rather

than part of the solution, in China. Then, in early 2010, the company surprised the world by giving the Chinese government exactly what it wanted: Google shut down its Chinese-based search engine while leaving intact those portions of its business that supply jobs and revenue to Chinese nationals. This move left Chinese Internet users with fewer sources of information, did nothing to reduce the stifling level of censorship, and put government-backed search engines in firm control of the Web in China. This was an empty and counterproductive gesture. By choosing to be a passive, rather than active, partner in Chinese censorship, somehow the company drew applause from human rights organizations. The fourth chapter covers the trials of Google as it has tried to apply a single vision of information commerce to a wide array of cultural and political contexts across the globe.

In chapters 5 and 6 the book considers the consequences of Google's official mission statement: "To organize the world's information and make it universally accessible." In chapter 5 I assess the controversial Google Books program. This program, launched in 2004, was meant to help fulfill the mission of organizing the world's information, but it served several engineering and commercial goals as well. The audacity of the program, which aimed to copy millions of copyrighted books from university libraries and offer them in low-quality formats to a broad market of readers, was the first case in which Google clearly moved beyond its previously venerated status. Because of the mistakes Google made in the Books program, federal regulators and many important segments of the reading public grew concerned with the scope of Google's ambitions.[15]

In the public mind, Google's informal motto, "Don't be evil," resonates more than its formal mission statement. But the mission statement is far more interesting. It is a stunning statement. What other institution would define changing the world as its unifying task? The Web-using public has adopted Google services at an astounding rate, and Google has expanded to master widely used Internet functions such as Web search, e-mail, personal "cloud computing," and online advertising. Chapter 6 and the conclusion consider how Google is changing and challenging both the technologies and the companies that govern human

communication. The book concludes with a call for more explicitly public governance of the Internet. Such governance might take the form of greater privacy guarantees for Web users or strong antitrust scrutiny of companies like Google. The particular forms and instruments of governance are not as important as the general idea that what Google does is too important to be left to one company. But any criticisms and calls for regulation should be tempered with an honest and full account of Google's remarkable and largely beneficial contributions to our lives. Google figured out how to manage abundance while every other media company in the world was trying to manufacture scarcity, and for that we should be grateful.

As I finished this book, it seemed that the instruments that traditionally supply knowledge for public deliberation were collapsing all around us. Newspapers in the United States and Europe were closing at a startling rate. Many newspaper leaders blamed Google because it alone seemed to be making money. Book publishers were also panicking, as readers suffering from a recession steadily held back their disposable cash, and moves by Amazon, Apple, and Google to serve as cheap-book vendors generated as much anxiety as opportunity. After weighing the various claims and arguments about the fate of journalism and publishing during a crippling global recession, I conclude that we should invest heavily in a global library of digital knowledge, with universal access and maximum freedoms of use. This proposal does not entail a simple bailout or subsidy to any industry or institution. It means that we should embark on a global, long-term plan to enhance and extend the functions of libraries in our lives. So the concluding chapter of this book proposes what I call a Human Knowledge Project. It takes a broad, ecological approach to the idea that we need to infuse the public sphere with resources, energy, and incentives. It is based on the premise that we can do better than hand over so many essential aspects of human endeavor to one American company that has yet to reach even its adolescence.

The youth and inexperience of Google lie at the root of my concerns. Among our major institutions, global information-technology corporations change and adapt faster than any others. This is generally good for them and good for us. But when we grant one—or even two or

three—firms inordinate influence over essential aspects of our lives, we risk being jolted by sudden changes of direction, burned by the heat, and blinded by the light. The one thing we can't assume about such companies is that they will remain the same. The Google of 2021 will not resemble the Google of 2001—or even of 2011. Much of what we find comforting about Google may be gone very soon. The imperatives of a company that relies on fostering Web use and encouraging Web commerce for its revenue may understandably morph into a system that privileges consumption over exploration, shopping over learning, and distracting over disturbing. That, if nothing else, is a reason to worry.