

Spin Cycle

By PAUL DUGUID

The Master Switch

The Rise and Fall of Information Empires.

By Tim Wu.

Knopf. tkpp. Tk\$.

What Technology Wants

By Kevin Kelly.

Viking. Tkpp. Tk\$.

According to Tim Wu, David Sarnoff, president of NBC, liked to spin “vainglorious tales for reporters and historians,” not unlike “the ancient Chinese emperors who rewrote history as soon as they came to power, to prove they had had Heaven’s mandate all along.” In *The Master Switch*, a history of “information empires,” Wu is happy to pierce the vainglory of modern technological emperors like Sarnoff. In their place, however, he offers an almost heavenly account of what he sees as our true benefactor, the free market.

The crux of Wu’s narrative is what he calls “the Cycle,” the “oscillation of information industries between open and closed.” The market, Wu argues, has, from the birth of the telephone to the flourishing of the Internet, driven innovations in communications technology. Capitalist competition, the story goes, spurs innovation through what the economist Joseph Schumpeter described as “gale[s] of creative destruction.” In the communications industry, these gales bring down barriers to communication, allowing wider and, Wu assumes, wiser political discussion; interpersonal communication becomes increasingly free from impediments and control. What does not been free from impediments and control, Wu argues, is the path to openness. Corporations that become successful with one generation of technology have a tendency to try to protect their position by smothering the next generation in its cradle. They wage shameless patent wars, set standards favorable to their technologies, monopolize available infrastructure and enlist the help of government regulators. Simultaneously, governments are almost predisposed to stifle both innovation and markets. We face, Wu believes, critical decisions about how the Internet will be managed (the topic of his earlier, co-authored book *Who*

Controls the Internet?), which in turn will influence the dynamic between openness and control. If we turn against the market and make the wrong choices, he claims, “the consequences will be staggering.” “Which is mightier: the radicalism of the Internet or the inevitability of the Cycle?”

A professor of law at Columbia University and a contributor to *Slate*, Wu makes his case with prosecutorial and journalistic flair. His suitably villainous defendants are led by AT&T, which has put its hands on major communications innovations across the twentieth century, either to control them, when that was to AT&T’s advantage, or to throttle them, when it was not. AT&T emerged from Alexander Graham Bell’s experiments with the telephone and achieved almost total control over that technology from the 1920s until the company was dismantled by court order in the 1980s. Furthermore, during that period, as Wu adroitly shows, AT&T used control of phone lines to influence the development of radio, whose early experiments travelled along the phone lines. In the process, AT&T set up the National Broadcasting System, which in time spawned Sarnoff’s RCA and NBC, each of which inherited AT&T’s monopolistic bent and carried it into television. AT&T also used its power and wealth to inhibit development of almost anything it perceived as a threat to its phone system, from the answering machine (and with that, tape recording) to the elegantly simple but far more disruptive phone jack, which would have given devices not approved by AT&T (such as modems) access to the phone network.

The break up of AT&T into the “Baby Bells” in the 1980s seemed finally to put a stake through Ma Bell’s heart. But of course she never had one, so in the hands of Ed Whitacre, a master monopolist (who was tapped by the Obama administration to bring GM back from bankruptcy), AT&T was rebuilt to form, with Verizon, into a powerful telephone duopoly for the new millennium. The spirit of Ma Bell, Wu warns us, is back. As in the past, it is distracting the public from its monopolistic tendencies with appealing toys such as the iPhone, which like AT&T’s old phones, only allows approved and commercially non-threatening connections to its devices. And it is seducing the government, Wu suggests, by offering access to private communications when, as in the “war on terror,” the government wants to intercept more of

our correspondence than courts are willing to approve.

Co-conspirators in Wu’s indictment include the Hollywood studios (represented primarily by Adolph Zukor of Paramount), the broadcast networks (led by Sarnoff), and the cable guys (epitomized by Ted Turner of CNN). Less notorious and therefore more intriguing suspects include Thomas Edison, portrayed here not as the conventional hero of American inventiveness, but as a patent monopolist; Bell Labs, the AT&T research arm, also more typically praised for its innovation, but here condemned for suppressing any new idea that might challenge Ma’s monopoly; and finally Apple and Steve Jobs, damned for the iPhone and iPad, which are “closed” to applications that lack Apple’s approval.

Wu’s witnesses for the prosecution form an interesting panel of lesser-known names. They tend to be lone innovators who have led us towards openness only to be thwarted by monopolists once the Cycle turns: Julius Hopp and Lee De Forest, early radio enthusiasts; John Logie Baird, Charles Francis Jenkins and Philo Farnsworth, television pioneers; Ralph Lee Smith and Fred Friendly of early cable television; and most shockingly Edwin Armstrong, who developed FM broadcasting techniques but was pushed to suicide by Sarnoff’s betrayal. Finally, to offset Apple’s malignity, Google appears as kind of character witness for open technology in the age of the Internet.

Wu has some supporting counsel, particularly the economists Schumpeter and Friedrich von Hayek. Like both, Wu links innovation to free markets, and like Hayek, who could see a slippery slope coming before most of us could even find our feet, he suspects any non-market organization to be regressive. Move one inch towards some kind of vertical integration or centralized control, Wu seems to think, and true to Hayek’s predictions we will slide down the greasy ramp to serfdom. Wu turns intermittently to a hostile witness whose testimony recalls the notion of “Godwin’s Law.” On the Internet, this “law” is used as shorthand for arguments that invoke Hitler as a trump card. Wu offers us the Goebbels variation, putting Hitler’s propaganda minister on the stand several times to drop the unsubtle hint that if you give government a slice of the communications spectrum, soon enough martial music and fanatical speeches will dominate the airwaves.

Like any prosecuting attorney, Wu tells a story that sets aside complexity. Yet many of his villains (including Bell, Zuckor, Turner and Jobs) started out as valiant entrepreneurs before becoming monopolists. The pattern makes one wonder whether Wu's good-guys—Hopp, Jenkins and the rest—are simply losers in a nasty competitive world rather than angels who would have remained committed to openness, win or lose. The recurring tendency towards monopoly may, after all, be less the result of corporate villainy and government corruption and more a fundamental characteristic of Schumpeterian capitalism—in which case, Wu's innovative capitalism may need government to enforce the rules and temper monopolistic tendencies, while rewarding innovators with quasi-monopolistic intellectual property. For all its inefficiencies and corruptions, government is in fact a key player in both sides of the Cycle, a twist in the story that Wu is reluctant to acknowledge. Remarkably, his celebration of market-driven innovation sidesteps the well-known fact that government subsidy and academic research, not capitalist innovation, produced the Internet. It was, moreover, a European-funded public research laboratory (CERN) that created the World Wide Web; a federally funded laboratory (NCSA) that produced the first viable web browser, Mosaic; and a public university (Berkeley) that “opened” UNIX software code and fought AT&T in court when the latter tried to keep it “closed.” These are bedrock technologies of the Internet, besides which Google, Facebook and Twitter are mere homesteading cabins, but they get little showing in Wu's account.

Wu's distrust of government institutions is just as apparent in his portrait of the BBC. This government-protected, quasi-monopolistic media organization has undoubtedly been tactically subservient to political masters, trigger-ready in its smugness and monopolistic in its attitudes. And it's easy, as Wu does, to make fun of the patrician condescension of its first governor general Lord Reith. But if we are looking for alternatives to “mass-produced culture,” as Wu seems to be, the BBC deserves a more even-handed account. Compare BBC programming with the remarkably unimaginative output of commercial radio, whether from the networks, from Sirius or Clear Channel, or even from the low-power stations that inspire Wu, and the BBC appears remarkably open and innovative. While

reading *The Master Switch*, I listened to the “Proms,” an annual musical festival that Reith brought under the sponsorship of the BBC in 1927 and which now is streamed for free by the BBC across the Net. This year, some seventy-six live concerts featured music from John Adams to Richard Wagner played by orchestras from the Danish National to the Penguin Café. Some twenty contributions were from composers born after 1950; eleven of the pieces were world premiers. Harold Innis, the media historian, argued that Reith's BBC offered an important counterweight to the partisan interests of commercial media. For all its many faults, it still does.

If public broadcasting is a little more complex than Wu's free market-or-hierarchy argument, so too is Google. Wu portrays Google as a champion of an open communications system, one that encourages innovation on the Net and eschews any form of monopolization. Google's ideals, he argues remain “radical...utopian, even vaguely messianic.” Yet it's noteworthy that Wu, who deplors the baneful effect of advertising on radio and television, manages to discuss Google without raising the company's dependence on advertising and the challenge it poses to “open” and unbiased search. As a couple of tech guys once explained, “advertising funded search engines will be inherently biased towards the advertisers and away from the needs of the consumers.” Sergy Brin and Larry Page, Google's founders, took this stance when, like so many of Wu's heroes, they were Davids taking shots at search-engine Goliaths. Like the tales Sarnoff spun to historians, the image that Google's founders now convey of a firm benignly organizing the world's information and doing no evil belies Brin and Page's earlier observation and Google's near monopoly of Internet search.

Wu's faith in Google as a defender of an open Internet has suffered with the recent revelation that Google, Verizon and AT&T have been meeting secretly with the FCC to restrict, it is suggested, “Net neutrality” and so carve up the space of future innovation. In a piece for *Slate*, a disenchanted Wu implored those at Google who still believe in its founding principles to “take back the firm.” But the attempt to game Net neutrality is likely to be part of company strategy rather than the sign of unprincipled leadership. If Wu expects innovation to be driven by market calculation, he can't expect Google to have a soul any more than

we could expect AT&T to have a heart.

While Wu seeks to persuade us that we face a zero-sum choice between, for example, Apple's way or Google's, his passing references to an underlying “deep structure of the Internet” suggest he may think the choice is superficial: underneath, the Internet may know where it is going. This is certainly Kevin Kelly's belief in *What Technology Wants*. Despite devoting a section of his book to “Choices,” Kelly, a founder and now “senior maverick” of *Wired* magazine, offers few: the word *inevitable* turns up approximately every fifth page. As in his earlier books, Kelly has come not to offer choices, but to lay down rules, outline laws and plot irresistible trajectories so that we can embrace them and sing (or tweet) hosannas.

Kelly was an acolyte of Stuart Brand and worked on Brand's counterculture clearing-house tome, the *Whole Earth Catalog*. Both Brand and Kelly tend to aphorism, and among Brand's most pithy is the observation that “information wants to be free.” Brand's notion of freedom has become the catechism of digital libertarians; Kelly instead found a credo in the idea that information has wants. In his first book, *Out of Control* (1994), he wrote excitedly about a conceptual artist who built robots and asked “what the robots want.” Some fifteen years on, Kelly has developed the notion of “wants” into a broader discussion about technology in general.

Its wants, he believes, are evident deep in its historical path. Beginning as a crude tool subservient to humans, but no less a part of evolution, technology has become increasingly sophisticated and now approaches a “tipping point” in which the “technium” (Kelly's term for the “greater, global, massively interconnected system of technology vibrating all around us”) “branches off from its precursor, the mind of the human animal,” and becomes a self-sustaining system, feeding off the “explosion of information and knowledge.” At this point, its “ability to alter us exceeds our ability to alter” it. Technology, it seems, is now controlling both itself and us under its own power—a claim he justifies by describing a robot that can plug itself into a power outlet.

Kelly's argument at best seems more likely to reassure the converted than to persuade the skeptical. Nevertheless, it would be unwise to set it aside entirely. It raises important questions, and is a case study of bad answers to them. We do live in a world of

increasingly autonomous technology. Machines have a speed and calculative power that humans cannot rival. Kelly sees these as higher states of evolution to which he wants us to cede choices and decisions. But in so doing, we are also and more speciously ceding responsibility. If we can attribute the decision to the machine relatively easily, we can't do the same with the consequences. When computers crash the stock market, when drones kill innocent civilians, or when oil platforms explode killing oil workers and destroying the environment, though it may be convenient it should not be acceptable to shrug our shoulders and say, That's what technology wanted. If we built the machines, though ensuing choices may not be ours, responsibility for the choices and their consequences is.

Visitors to the 1933 World's Fair in Chicago were freed from such responsibility by an adage inscribed above the entry gates: "Science Explores, Technology Executes, Man Conforms." These six words neatly convey the credo described by Kelly over 400 pages. They also suggest that beneath Kelly's cyber-pieties lurks an old and ugly idea. Some thirty years before that World's Fair, H.G. Wells had forecast the dark linings of such evolutionary, futuristic fantasies in his book *Anticipations*. Wells notes how the "world-wide spreading of swift communication" has "an air of being processes as uncontrollable by such collective intelligence as men can at present command, and as indifferent to his local peculiarities and prejudices as the movements of winds and tides." This observation could be Kelly's. But Wells goes on to ask how this new world will treat people who can't or won't assent to the new efficiency of the autonomous machine:

And for the rest, those swarms of black, and brown, and dirty-white, and yellow people, who do not come into the new needs of efficiency? Well, the world is a world, not a charitable institution, and I take it they will have to go. The whole tenor and meaning of the world, as I see it, is that they have to go. So far as they fail to develop sane, vigorous, and distinctive personalities for the great world of the future, it is their portion to die out and disappear. The world has a purpose greater than happiness...and that purpose aims not at man as an end, but works through him to greater issues.

It's hard to resist invoking Godwin's Law here. Kelly doesn't propose any of the nefarious schemes against "backward" races hinted at by Wells, but the vision he sets out of a technological revolution unfurling without interference from a minimalist state is very much like the scenario outlined by Wells. His indifference to questions of responsibility and morality is much the same, so it is not unreasonable to argue that what Wells's "world" wanted may look very much like what Kelly's "technium" wants. The only difference is Wells's unblushing directness.

Kelly and Wu speak for a new technocracy, and their books epitomize its libertarianism and its frustration with the political system. Both seem at best hostile and at worse indifferent to politics. Wu sees government as inherently corrupt and best avoided, whereas Kelly treats it as irrelevant to the unfolding of his technium. Wu and Kelly claim that the smoothly self-regulating dynamics of markets and technological innovation can supersede the unmanageable modern state and its conflicting interest groups (upper and lower classes, labor and capital, left and right, public and private). But it's likely that such a scenario would lead not to a world without politics but rather to one dominated by market-servile technocrats insisting that in a technological society, they alone would make the best leaders. That note was struck by the presidential campaign of Ross Perot (founder of Electronic Data Systems) and was implicit in the recent electoral campaigns of Meg Whitman (former CEO of eBay) and Carly Fiorina (former CEO of Hewlett-Packard). If such technocrats ever succeed, I suspect that their policies would cater less to the wants of technology than to those of technocrats, especially the ones who have amassed large personal fortunes. What they want won't be what the rest of us want, or need.

Paul Duguid teaches at the School of Information at the University of California, Berkeley, and is a professorial research fellow at Queen Mary, University of London.