

CGEY Center for Business Innovation

CBI Network Book Review

Lawrence Lessig

*The Future of Ideas: The Fate of the Commons in a
Connected World*

(New York: Random House, 2001)

ISBN 0-375-50578-4, 352 pp.

Think how different the world would have been if our electric grid weren't what they call an end-to-end system. What if you had to get permission from the Edison Electric Company every time you wanted to plug a new appliance into the outlet? Or let's say you were an inventor, and you had just come up with something you were calling the television, and you hoped that people would be allowed to buy it. Well, not without permission from old Edison Electric, they wouldn't.

Now, fast forward to the 1960's. Paul Baran of the Rand Corporation is trying to convince the Department of Defense that AT&T's telephone network would not be secure enough in the event of a major accident, or a small nuclear incident. The DoD decides that he's right, and it asks AT&T to build this new system that would be based on packet-switching instead of the telephone network's circuit-switching. AT&T's response, according to John Naughton's *A Brief History of the Future*, is blunt: "First, it can't possibly work, and if it did, damned if we are going to allow the creation of a competitor to ourselves."

We all know how the story ends. The Department of Defense builds the Arpanet, which morphs into the Internet. In 1961, network architects Jerome Saltzer, David Clark, and David Reed describe the architecture of the Internet as "end-to-end." The role of the

network is just to transmit data, and all the intelligence is located at the edges of the system or in the applications. In the late 1980's, Tim Berners-Lee and a group of scientists at CERN create the World Wide Web, a set of protocols for displaying documents that are hyperlinked on the Internet. And then all innovation breaks loose.

So what was it about the Internet that allowed it to burst upon the scene and spread so quickly? What made all that innovation possible? The fact that its end-to-end architecture made it impossible for anyone to control what other people were doing. "Technically," commented Berners-Lee, "if there was any centralized point of control, it would rapidly become a bottleneck that restricted the Web's growth, and the Web would never scale up. Its being 'out of control' was very important." This out-of-control design had a couple of very important consequences: the network supports innovation that no one had even imagined, and the network is a neutral platform that cannot discriminate between incumbents and innovators.

The Future of Ideas, by Stanford law professor Lawrence Lessig, argues that free and open resources have always been critical to innovation, and that the Internet is rapidly becoming a lot less free. "...At just the time that the Internet is reminding us about the extraordinary value of freedom, the Internet is being changed to take that freedom away. Just as we are beginning to see the power that free resources produce, changes in the architecture of the Internet—both legal and technical—are sapping the Internet of this power. Fueled by a bias in favor of control, pushed by those whose financial interests favor control, our social and political institutions are ratifying changes in the Internet that will reestablish control and, in time, reduce innovation on the Internet and in society in general."

Adam Smith argued that society benefits most when individuals are allowed to pursue their self-interest. But this has not usually been interpreted to mean that individuals and corporations should own and control access to everything. Streets and parks are seen as

commons, available for the use of everybody, subject to certain guidelines. I need to have a driver's license to get on the highway, but I don't need permission from General Motors to drive my Toyota.

In 1968, biologist Garrett Hardin coined the phrase “tragedy of the commons” to describe the unfortunate ends of many things held in common. Every, say, shepherd, does what is in his own best interest, and in the end, the common meadow is hopelessly over-grazed. As game theory and the prisoner's dilemma would predict, what is in each individual's best interest is not what is in society's best interest. More recently, University of Michigan law professor Michael Heller and Nobel Prize-winning economist James Buchanan described the “tragedy of the anticommons,” where anybody has the right to prevent others from using a shared asset. Before 1968, the US telephone network was a type of anticommons. Both regulators and AT&T management could veto what went over the network. The result? “Who would waste his or her time developing for that system,” writes Lessig, “when any development would require convincing so many quasi bureaucrats before it could even be tried?”

Lessig's core argument in *The Future of Ideas* is that the golden age of the Internet was the result of an “innovation commons.” The structure of the Internet—the conduits, the code, and the content—was open. The people who owned the pipes didn't control what people sent over them. Software like Linux was created outside the realm of copyright, so anybody could use it and even modify it. And the content was, legally or not, widely used and shared. But now, changes in industry and in law are making the Internet a much less open environment.

This is the tragedy. Innovation often comes from outside the ranks of current market leaders, as Clayton Christensen showed in *The Innovator's Dilemma*. In the old world of AT&T, innovation was centralized in New Jersey, at the remarkable Bell Labs. But if you were an innovator in, say, Finland, and you wanted to contribute to the future of

telecommunications, you had to do two things: get AT&T to give you a job, and move to New Jersey. But the Internet changed all that. Innovation could come from anywhere. Anybody, with credentials or not, could contribute. The gatekeepers to innovation all got fired. Unfortunately for us and our children, the gatekeepers have come back. This can only mean that the burst of innovation that lifted stock prices and the GDP might start running out of steam.

This isn't a question of left versus right, of government regulation versus the free market. Take the case of radio spectrum, which is becoming an important conduit for Internet traffic. Nobody created it. It is a limited resource, subject to congestion if not exhaustion. What is the best way to decide who gets to use it? Hard-line leftists would say leave it up to the government: license it to the most responsible users. Hard-line rightists would say the market is the best vehicle for allocating scarce resources: have an auction. But hold it right there. Why didn't anybody say anything about sharing? What if spectrum is something like space on an Ethernet or a highway that can be shared, subject to certain rules of behavior?

If this is true, expect more innovation when you have less gatekeeping. Also, expect the current gatekeepers to think this is a bad idea. Machiavelli, darling of the left and right alike, wrote that “innovation makes enemies of all those who prospered under the old regime, and only lukewarm support is forthcoming from those who would prosper under the new.” Not only do current owners—I mean licensees—of bandwidth oppose the various proposals for shared spectrum, the regulators at the Federal Communications Commission do too. They say that more study is needed, which proves that spectrum is an anticommons. Innovation in using spectrum is not coming from the current users. Instead, as *The Innovator's Dilemma* predicts, the innovation is happening at the periphery. The often overlooked country of Tonga is the site of one shared-spectrum experiment. Native American reservations are another. Being outside the control of the entrenched powers, they have less incentive to stay with the existing approaches.

The Future of Ideas links several issues that are part of a larger problem. Changes in corporate ownership of the cables that carry the Internet, changes in copyright and patent law, and changes in how software is written and shared will collectively have an effect on the pace of innovation. A more restrictive view of property rights is adding a needless burden to the economy. If you are filming a movie, and someone is drinking a Coke, you'd better have gotten a clearance from Coca Cola's legal department to use their "intellectual property." The concept of "fair use" that is central to copyright law has gotten watered down. It seems that anything that can be tracked can be owned. Even though Coca Cola is putting its product and its logo into the public sphere, it is vigorously asserting its property rights at the same time. And what Disney's lobbyists have done, perpetually extending the length of time Mickey Mouse remains under copyright, is somewhere between unseemly and unconscionable.

Are the people running Disney and Coke and AOL Time Warner and Viacom and all the others so bad? Are they really doing anything wrong? Not at all. They have been employed by their shareholders, in a sense, to maximize the value of their firms' assets. They are just doing their job. But on the other side of the table, in the political sphere, people are not doing their jobs. Assets in the commons should be managed for the long-term benefit of everybody, and innovation and the infrastructure of the Internet are two of the most important assets that our society has. By entrusting them entirely to people and corporations with different interests is sure to produce different results than society might have liked.

Lawrence Lessig has made a valuable contribution to the innovation commons with *The Future of Ideas*. The book manages to be pessimistic without being a turn-off. It contains some of the clearest, most complete retellings of the basic stories of the information age. And how can you fault a book that has sixty pages of footnotes? Overall, the book doesn't read so much like a legal brief as like an anguished cry: "We move through this

moment of an architecture of innovation to, once again, embrace an architecture of control—without noticing, without resistance, without so much as a question.”

Reading this book, you may come to fear that the golden age has slipped away, and it is our carelessness that is to blame. Innovation is a commons, and commons need to be protected. But the environment that produced the Internet has become polluted, perhaps irrevocably, and what was once possible is getting harder and harder. One astute observer wrote: “If people had understood how patents would be granted when most of today’s ideas were invented and [had] taken out patents, the industry would be at a complete standstill today.” The astute observer? Bill Gates, writing in 1991.

— David S. McIntosh