Howard Rheingold is on the hunt again. With his last book, Smart Mobs: The Next Social Revolution, in 2001, the longtime observer of technology trends made a persuasive case that pervasive mobile communications, combined with always-on Internet connections, will produce new kinds of ad-hoc social groups. Now, he's starting to take the leap beyond smart mobs, trying to weave some threads out of such seemingly disparate developments as Web logs, open-source software development, and Google.

At the same time, Rheingold is worried that established companies could quash such nascent innovations as file-sharing -- and potentially put the U.S. at risk of falling behind the rest of the world. He recently spoke with Robert D. Hof, BusinessWeek's Silicon Valley bureau chief. Here are excerpts from their conversation:

Q: Where do you see the social revolution you've been talking about going next?

A: It's too early to say. The question is: What does it point toward? Some kind of collective action...in which the individuals aren't consciously cooperating. A market is a great example as a mechanism for determining price based on demand. People aren't saying, "I'm contributing to the market," [they say they're] just selling something. But it adds up.

Q: Can you give me some specific examples of what you mean, beyond the market?

A: Google is based on the emergent choices of people who link. Nobody is really thinking, "I'm now contributing to Google's page rank." What they're thinking is, "This link is something my readers would really be interested in." They're making an individual judgment that, in the aggregate, turns out to be a pretty good indicator of what's the best source.

Then there's open source [software]. Steve Weber, a political economist at UC Berkeley, sees open source as an economic means of production that turns the free-rider problem to its advantage. All the people who use the resource but don't contribute to it just build up a larger user base. And if a very tiny percentage of them do anything at all -- like report a bug -- then those free riders suddenly become an asset.

And maybe this isn't just in software production. There's [the idea of] "open spectrum," coined by [Yale law professor] Yochai Benkler. The dogma is that the two major means of organizing for economic production are the market and the firm. But Benkler uses open source as an example of peer-to-peer production, which he thinks may be pointing toward a third means of organizing for production.

Then you look at Amazon (AMZN) and its recommendation system, getting users to provide free reviews, users sharing choices with their friends, users who make lists of products. They get a lot of free advice that turns out to be very useful in the aggregate. There's also Wikipedia [the online encyclopedia written by volunteers]. It has 500,000 articles in 50 languages at virtually no cost, vs. Encyclopedia Britannica spending millions of dollars and they have 50,000 articles.
Q: What will all those trends produce ultimately?

A: All these could dramatically transform not only the way people do business, but economic production altogether. We had markets, then we had capitalism, and socialism was a reaction to industrial-era capitalism. There's been an assumption that since communism failed, capitalism is triumphant, therefore humans have stopped evolving new systems for economic production.

But I think we're seeing hints, with all of these examples, that the technology of the Internet, reputation systems, online communities, mobile devices...these are all like those technologies...that made capitalism possible. These may make some new economic system possible.

Q: If so, it's a good bet not all companies will be happy with the changes.

A: New digital technologies are creating a crisis in the business models of the companies that depend on having a monopoly on distribution. Look at MP3 blogs: We're now seeing bands that are saying, "Please pirate my material. Here it is." They make money from that. They get bookings from that. They build an audience on that.

Q: Are there more such conflicts and opportunities to come?

A: Assigning frequencies to license holders...is an old-fashioned scheme...based on technologies of the 1920s. We now have technologies that make it possible to use the spectrum the way packets use the Internet. Instead of having a circuit-switched analog system in which you have to have an end-to-end connection, you just send your packets out with their addresses through this network and they find their way. It's much more efficient. It makes for millions more broadcasters in the Internet space. This is all pointing to a kind of voluntary sharing of your property.

Q: Does the pushback by companies threatened by these trends, such as the record and movie companies, threaten innovation?

A: Yes. Never before in history have we been able to see incumbent businesses protect business models based on old technology against creative destruction by new technologies. And they're doing it by manipulating the political process. The telegraph didn't prevent the telephone, the railroad didn't prevent the automobile. But now, because of the immense amounts of money that they're spending on lobbying and the need for immense amounts of money for media, the political process is being manipulated by incumbents.

Q: What might keep these powerful incumbents from holding back this tide?

A: You've got to have some huge force outside of the United States, where it's getting locked down. What if China says, "The FCC doesn't rule us. We're going to stop assigning frequencies within our borders. We're going to regulate devices so that they play fair with each other, and we're going to open up spectrum." That's going to make the U.S. an economic and technological backwater.

Then there's always the idea that maybe we're just beginning to see disruptive technologies. Maybe something is just going to blow it away. Certainly we've seen that over and over again in recent decades.

Q: Where will we see that happen?

A: We now have a world out there where billions of people have in their pockets technologies for innovation that far surpass what entire industries had just a couple decades ago. If you're
talking about the communications industry, your innovation is happening with 15-year-old girls. That was where [Japanese cellular network provider NTT] DoCoMo (DCM) won big. I think the total number of text messages sent is approaching 100 billion a month. Of course, the revenues on that are only a fraction of a cent each, but multiply a fraction of a cent by 100 billion, and it begins to add up to real money.

You're seeing that now with the picturephones. People are not using them the way it was predicted. They're using them to share their days: Here's a picture of somebody's haircut. Here's a picture of somebody's melon. Look at this shoe in a store. It wasn't determined by an expensive R&D lab. It was determined in practice by young people who appropriate these devices in unexpected ways. There's nothing more inventive than a 15-year-old.

I don't think that's going away. If I was a Nokia (NOK) or a Hewlett-Packard (HPQ), I would take a fraction of what I'm spending on those buildings full of expensive people and give out a whole bunch of prototypes to a whole bunch of 15-year-olds and have contracts with them where you can observe their behavior in an ethical way and enable them to suggest innovations, and give them some reasonable small reward for that. And once in a while, you're going to make a billion dollars off it.

Q: A focus group on steroids.

A: This would be more like ethnography, where you let them loose and watch what they do. If you want to think out of the box about innovation, let's not put all of our bets on 50-year-old PhDs in laboratories. We now have dispersed the means of individual and collective innovation throughout the world.

Here's where Wikipedia fits in. It used to be if you were a kid in a village in India or a village in northern Canada in the winter, maybe you could get to a place where they have a few books once in a while. Now, if you have a telephone, you can get a free encyclopedia. You have access to the world's knowledge. Knowing how to use that is a barrier. The divide increasingly is not so much between those who have and those who don't, but those who know how to use what they have and those who don't.

Q: Some folks in the U.S. are worried about the competition from overseas that comes from that dispersal of knowledge.

A: We should have thought about it when we sold all those computers and chips overseas. These aren't just widgets. These are the building blocks of innovation.

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