



by Lawrence M. Fisher

**W**hen Alvin Toffler's book *Future Shock* (Random House) first appeared in 1970, Richard Nixon was in the White House, the United States was in Vietnam, and the first

personal computers were still several years away. Yet with notable prescience, Mr. Toffler wrote that the years to come would be marked by information overload, an acceleration of technological change, and a resultant social upheaval that he likened to mental illness: "Citizens of the world's richest and most technologically advanced nations will find it increasingly painful to keep up with the incessant demand for change that characterizes our time. For them, the future will have arrived too soon."

In retrospect, Mr. Toffler was less a reliable prophet than a brilliant synthesist. *Future Shock* and its successors, *The Third Wave* (Morrow, 1980) and *Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century* (Bantam, 1990) were at their best not when predicting what would happen, but when drawing from a vast array of disciplines — science,

Photograph by Vern Evans

## Alvin Toffler: The Thought Leader Interview

Thirty-six years after his book *Future Shock*, the world's most influential futurist sees the informal economy as a basis of revolutionary wealth.

**Lawrence M. Fisher**

(fisher\_larry@strategy-business.com), a contributing editor of *strategy+business*, covered technology for the *New York Times* for 15 years, and has written for dozens of other business publications. Mr. Fisher is based in San Francisco.

technology, sociology, and religion — to explain the circumstances of the world at large.

That is true as well for the new book, *Revolutionary Wealth* (Knopf, 2006), this time credited to Mr. Toffler and his wife, Heidi, who collaborated on the earlier books as well. In their latest book, the Tofflers argue that more and more economic activity takes place through processes that do not involve the exchange of currency. The rapid rise of this nonmonetary wealth system has major implications for both the global economy and for humanity in general — implications that have been unmeasured and underestimated.

That will come as no surprise to Microsoft, which now battles for market share with Linux, the free operating system software maintained by a global army of volunteer programmers, or to the entertainment industry, which successfully blocked the music file-sharing Web site Napster only to see a dozen clones rise in its place, now joined by sites offering illegal downloads of feature films. According to the Tofflers, countless other industries and institutions face waves of “prosumers,” who produce and consume

products and services outside the monetary economy. This is a historic change in the way wealth is created, the Tofflers write, spearheaded (for now, at least) by the United States.

The Tofflers also see a growing de-synchronization of society’s institutions. Financiers invent new derivatives faster than governments invent new regulations; schoolteachers working from dated textbooks struggle to retain relevancy for students who Google from cell phones; and audit firms search for a way to value increasingly intangible assets. Some de-synchronization is inevitable and even positive because it spurs innovation, the authors say, but too much risks the implosion of economies, governments, even whole civilizations.

Despite the gloomy language of some of their work, the Tofflers have never been doomsayers. Amid the current era of economic, ecological, and geopolitical anxiety, we thought it particularly worthwhile to hear the Tofflers’ vision of the years ahead. Mr. Toffler sat down with *strategy+business* at a hotel in San Francisco. The early days of the 21st century may indeed be challenging, but as Mr. Toffler, now 77,

said in opening the conversation: “What an absolutely fascinating time to be alive.”

**S+B:** Your book posits a broad definition of wealth. Why do we need it?

**TOFFLER:** I concluded that there were powerful, unrecognized interactions between the nonmoney, or “prosumer,” economy and the money economy of our world. Rather than ignoring these interactions, we need to understand that these two economies are, in fact, parts of a unified “wealth system” in which the two parts pass value back and forth.

Heidi and I are not the first people to think about these things. Gary Becker did so back in 1965 [“A Theory of the Allocation of Time,” *Economic Journal*, September 1965, reprinted in his 1976 book, *The Economic Approach to Human Behavior* (University of Chicago Press)]. “Nonworking time may now be more important to economic welfare than working time,” he wrote. “Yet the attention paid by economists to the latter dwarfs any paid to the former.”

In *Revolutionary Wealth* we identify many of the linkages through which prosumer activities,

from creating blogs and open source software to volunteering in a hospital or performing do-it-yourself projects, frequently add significant value to the money economy.

And that, as we say in the book, is a marvelous “free lunch” flowing into the money economy.

**S+B:** Economists commonly say there is no free lunch.

**TOFFLER:** Exactly. Many also still think of the money economy as a closed system. But the growing importance of knowledge and prosuming in the wealth system make the closed model obsolete.

There are all these channels between what people do without money and what goes on inside the money economy. I think they are going to multiply as the money economy creates more and more technologies that people can use to do things for themselves. For example, if you're of a certain age, you probably remember that when you wanted to get photos developed and printed, you took them to a drugstore, they sent them to Kodak in Rochester, N.Y., Kodak sent them back, and then you paid the drugstore, and took your prints home.

Now you do all that in the palm of your hand, because you have the digital camera technology that makes that possible. As a result, the market for printing and developing film is disappearing. It is moving from the money economy into the nonmoney economy.

**S+B:** How is that different from the grand American tradition of do-it-yourself, like changing your own oil or having a darkroom in the house?

**TOFFLER:** It is in that same tradition, but on an immensely larger scale. What's new these days is the

cyberstructure that allows prosumers to create value and rapidly disseminate it across the globe, where others find ways to commercialize it.

This transformation that we think of as the “new” economy actually started in the 1950s and is far deeper and more complex than most people suspect. The underlying pattern is the breakdown of Industrial Age civilization, fed by the replacement of Industrial Age technologies and sweeping cultural changes, as well.

The nature of the emergent wealth system is changing our civilization. But the reverse is also true, and to understand how these affect each other, you have to synthesize observations across all traditional academic borders, the boundaries that separate economics from sociology, from history, and so on.

### Measuring Unmeasurables

**S+B:** You use the term *prosumer* for things that seem like very disparate activities: doing your own photo printing, using an ATM rather than seeing a bank teller, volunteer work. How can those all add up to a single concept like the prosumer?

**TOFFLER:** How do you lump finance, manufacturing, services, and countless other activities under the term *economy*? The link is that they are all monetized. The term *prosumer* deals with activities that are not monetized.

Although they are very different activities, they have a powerful aggregate impact on the money economy. In fact, their very disparity points to how widespread prosumerism is, and how important it is.

Our argument to economists, and to those measuring progress and

prosperity, is: Don't underestimate it. Identify it; recognize its existence; recognize that it can take activities out of the market, the way Napster took music out of the money economy and transferred it into the non-money economy. Then iTunes used the Web to move music downloading back into the money economy, creating a very viable business that did not exist before.

**S+B:** If value is being created, but no money is changing hands, how do you measure that?

**TOFFLER:** Measuring things does not necessarily make them important, and unmeasured things are not necessarily unimportant.

On the other hand, although I'm not a mathematician or an expert on metrics, I believe everything can, in principle, be measured, at least to some degree, by measuring a “surrogate” that is presumed to be analogous to the phenomenon at hand.

In 1967, I wrote a paper for the *Annals of the American Academy of Political and Social Science* called “The Art of Measuring the Arts.” My purpose was to show exactly how we can go about measuring this seemingly unmeasurable field and its impact on the economy. For example, you can ask, looking at a country's output of the arts, to what degree is it diverse? To what degree does it meet high technical standards? How do critics and scholars evaluate it? These are categories that *can* be defined and measured.

The surrogate you choose becomes very important. For knowledge, it might be the sum total of gigabytes of data stored on an organization's hard disks, which you can measure to a reasonable approximation. But measuring bits and bytes

as a surrogate for knowledge is inadequate because they don't tell us about its content, and because every chunk of knowledge has a limited shelf life; at some point that knowledge becomes obsolete, or, as we say, turns into "obsoledge" — ideas and assumptions that have been falsified by change and surrogates or proxies that are no longer appropriate to the topic at hand. In fact, given the acceleration of change, companies, individuals, and governments base many of their daily decisions on "obsoledge."

Recently, the idea of social indicators — which became an issue in academic sociology in the 1960s — has picked up steam again and gone global as a means of identifying surrogates and ways to measure them. The chief proponent of this approach is the U.S. Government Accountability Office (GAO), headed by David Walker. I'm on the advisory board. They have a massive project, working with countries and governments all over the world, to create a coherent set of indicators that bear on noneconomic wealth.

In advanced economies, the degree of intangibility in society's property base is spiraling upward. As Baruch Lev, author of *Intangibles* and a professor of finance at New York University, points out, the life and death of corporations is now based on innovation, and that means a huge growth in intangibles. [See "The World's Most Exciting Accountant," by Art Kleiner, *s+b*, Summer 2004, [www.strategy-business.com/press/article/04203](http://www.strategy-business.com/press/article/04203).]

### Speeds of Change

**S+B:** In the book, you write of education's failure to move from the industrial age to the knowledge economy.

**Is homeschooling a prosumer response to this crisis?**

**TOFFLER:** Yes, now that you mention it. It is an important and growing form of prosuming. The parents do it themselves, because the market does not supply what they want or need, or for that matter what the market needs.

Think about how we learned to use personal computers. PC use went from zero to hundreds of millions of people who know and use PCs routinely, and nobody went to school to learn how.

Instead, chances are you found a "guru," and a guru was anyone who bought his PC a week before you bought yours. And there were user groups — volunteers passing valuable knowledge back and forth. If you agree that the PC has had an impact on productivity in the money economy, then the fact that people taught each other how to use this thing without money changing hands is another example of what a big impact prosumers can have on the money economy. Add these things together — homeschooling, teaching how to use PCs, Linux, etc. — and you begin to understand this big invisible economic force. People have written about each of these pieces, but haven't seen them as part of a huge nonmoney economy interacting with the money economy.

**S+B:** You call this shift a radical change. Was that not also true of the original Industrial Revolution? Didn't the steam engine, the electric light, the telephone, the railroad, and the automobile all change society even more fundamentally?

**TOFFLER:** Yes, they did, but society was much smaller than it is now. And the whole experience was slower: It took 300 years. It was not

global; it happened in England, then Europe and the U.S. and a few other places.

By contrast, if you look at the change today, the scale is enormous, it's increasingly global, and it's happening at what our ancestors would have regarded as an unbelievable speed. So it seems to me that it is therefore bigger, more complex, and more difficult to understand than the Industrial Revolution.

**S+B:** You describe de-synchronization as a disconnect between the rapid pace of change in the economy and the slow pace at which our institutions adapt. Many organizations have been reengineered, "leaned," and "total-qualified." Now do they need to be re-synchronized as well?

**TOFFLER:** Yes. Unfortunately, even very smart CEOs and managers have very unsophisticated views about the relationship between synchronization and de-synchronization in their firm, their industry, and in the economy and society.

Companies are spending lots of money to synchronize their internal activities and their value chains, supplier chains, and so forth. But in *Revolutionary Wealth*, we're not talking about everything being perfectly

# “Companies, individuals, and governments base many decisions on ‘obsoledge’ — knowledge whose shelf life has expired.”

synced. It can't be. Every time you synchronize operation A with operation B, you de-synchronize other operations within the company. Maybe you're turning out the gizmo faster, and that's working well, but the billing department has been left behind. This is great for the companies that are in the synchronization business, like SAP and Oracle.

Some degree of de-synchronization is, of course, necessary to keep competition and innovation going, because if everything is perfectly synced, you have a dead company or economy. But it's also clear that excessive de-synchronization can throw companies, industries, and entire economies into chaos. Indeed, you can look at the great stock market shakeouts as desperate attempts by the wealth system to re-synchronize itself.

**S+B:** The supply chains for many companies have become so extended in both time and space that the complexity becomes overwhelming.

**TOFFLER:** I think that's true. And the more you tighten those bonds, the less room you have for de-synchronization. Just-in-time delivery is a great thing, but it also means

that all the temporal tolerances get smaller. It makes the system more sensitive to disruption. It doesn't take much to knock it off its tolerances. Time, in general, has been under-studied and poorly understood in business.

## Twin Globalization Movements

**S+B:** You point out that the world went through a tremendous wave of globalization before World War I, which then ground to a halt. What might make the current wave slow down or retreat?

**TOFFLER:** *Globalization*, as it has been popularly discussed, is just another word for economic integration across borders, and lots of things could blow that off course. A war with China, for example. I don't believe that's going to happen, but if it did, it would turn a lot of globalized operations around.

Some terrible pandemic could reverse globalization, with quarantines for years preventing shipments of goods. It could be slowed by the rising levels of nationalism and nationalist politics that we see all over Latin America, and in Asia, between the Japanese and the Chinese, and between the Japanese

and the Koreans. Nationalism, to me, is the second wave of industrial-era ideology, but it's still a very powerful force.

In other words, any number of things could reverse the course of economic integration across borders. But I don't think anything is likely to stop the cross-border spread of environmental problems, sex slavery, pandemics, and a variety of other social, health, and cultural issues. These are global problems and they can't be solved by any one country. I believe we're going to see increasing globalization or integration of health activities and environmental activities, even if the money economy itself goes into reverse globalization.

**S+B:** A fascinating section of your book is the discussion of assets that are “nonrival”: those that aren't diminished by someone else's use of them. Are there any viable models for valuing knowledge assets?

**TOFFLER:** Companies everywhere are trying to put a price on certain forms of intellectual property. But if, as we say, knowledge is at the core of the money economy, then we need to understand knowledge much better than we do now.

There's a passage in *Revolutionary Wealth* that lays out 10 ways in which knowledge dramatically differs from any other resource that we're accustomed to working with. For example, it is inherently non-rival. You and a million other people can use the same chunk of knowledge without diminishing it. It is nonlinear. Tiny insights can yield huge outputs. Stanford students Jerry Yang and David Filo started Yahoo by simply categorizing their favorite Web sites. Fred Smith, also while still a student, flashed on the idea that in an accelerated economy people would pay extra for speed — and went on to found Federal Express. Knowledge is promiscuous. It mates with other knowledge. And the more there is, the more numerous and varied the possible useful combinations. And it can be stored in smaller and smaller spaces. Toshiba entered the Guinness World Records in 2004 with a computer hard drive smaller than a postage stamp. Coming soon is storage at the nanoscale, which is measured in billionths of a meter.

**S+B:** That may be why there is a backlash against science, and you call that backlash a fundamental threat to revolutionary wealth creation. Is this a new form of Luddism?

**TOFFLER:** I think there's a combination of things going on. First, I think there is Luddism, fear of the new technology. Some of that fear is appropriate; it's scary technology. We're playing with big chips. The Manhattan Project was the first time humanity could blame scientists for effects so great that they shook the world. There are now lots of technologies that could have dangerous consequences on a very large scale.

At the same time, the public *perception* of potential danger is even greater and often misdirected. Uncertainty levels are at least as high as they were at the beginning of the Industrial Revolution, when it was fashionable among intellectuals to be pessimistic.

The second factor feeding pessimism is a revival of religion — certainly in the United States, Latin America, and Africa. I attribute that, in part, to the high levels of uncertainty with which we live. Pessimism is also affected by the aging of the population, because the older the population gets, the more people we have, as a friend of mine puts it, “cramming for the finals.” They worry about their mortality.

**S+B:** Surely there's more to this than aging and uncertainty.

**TOFFLER:** I am a secular person, but I recognize that the social functions of religion are extremely important. We wrote in *The Third Wave* back in 1980 that religion had three dominant functions in society. It gave people a systemic view of the world. It gave people community; if you go to church, you assume you're dealing with good people who share your values. And it gave people structure in an unstructured environment, in which things are going crazy. People are told what to do and what not to do in very clear terms. Those are not trivial things for religion to do within society; they can be important benefits.

Since writing that book, we lost our daughter. She died after suffering through more than a decade from a neuromuscular disease, and she was quadriplegic for long stretches. I found myself going to the cemetery, which was quite near where we lived, and thinking, I wish

I could believe I'd see her again. I then realized the obvious thing that I think religious people know well and that I did not fully appreciate: the degree to which religion offers solace in times of misery and agony.

### The Politburo's Judgment

**S+B:** Elsewhere in this book, you point out that China is ahead of India in the race to the knowledge economy. India is a democratic society, an English-speaking society — those would seem to be phenomenal advantages, and yet it appears to be trailing China. Why?

**TOFFLER:** Well, the other side of democracy is autocracy, and I believe the Chinese made a very conscious and strategic move. We Americans look at China's rapid development and say it's because they've moved to a market economy. Baloney. China had nothing remotely resembling a market economy, let alone a significant Third Wave knowledge-based sector, when this whole process began.

The real reform movement started later, and Heidi and I, it turns out, played an unexpected role in China's transformation.

On January 1, 1983, we

**“The worst intellectual property rip-off we’ve ever had is the one associated with our greatest influence, which was in China.”**

entered China as guests of something called the Chinese Society for Future Studies, which had never existed until a few months before then. To a good Marxist, the pathway to the future is known — it’s capitalism, socialism, then communism. So the fact that they had created this institute inside the Chinese Academy of Social Science struck us as interesting.

We went to Beijing, Suzhou, and Shanghai, lectured about *The Third Wave*, and went home. Two years later, we were flying to Paris for a conference, and I was leafing through *L’Express* magazine, and it said the second-best-selling book in China, after the speeches of its supreme leader, Deng Xiaoping, was *The Third Wave* by Alvin Toffler. We almost fell out of our seats.

**S+B:** Why did this book — about the information-based civilization that would supplant agricultural and industrial civilization — interest the Chinese?

**TOFFLER:** We started to find out much later, when we got a visit from the Chinese sociologist who had been our guide during our 1983 trip. After we had left he had given some speeches about *The Third*

*Wave* and written some articles about it. He immediately got a frightening letter from the prime minister’s office wanting to know the names of people he’d spoken to and demanding a copy of everything he’d written. Then he got a similar letter from the office of the chairman of the Communist Party. Having lived through the cultural revolution that saw millions punished or killed for being intellectuals, he was understandably nervous about his identification with us and our ideas.

A few months after these events, we’ve been told, 3,000 copies of *The Third Wave* were published in Chinese, but were available only to senior Communist Party leadership. It was immediately attacked as Western “spiritual pollution” and taken off the shelves. But Heidi had brought over a videocassette of the TV version of our book. She had recently produced it jointly with Japanese and Canadian television channels. And copies of that program began to circulate in China.

Meanwhile, inside the Politburo there was apparently a six-month-long debate going on about party ideology and the ideas in *The Third Wave*. We knew nothing of

this at the time.

In October 1983, then Prime Minister Zhao Ziyang called the policymakers together in Beijing and said they must study *The Third Wave*. People were still afraid, so they went over his head to the chairman of the party, who at that point was Hu Yaobang. And he apparently said that too many people in the party were afraid of new ideas.

The authorities, in short, had decided the time had come to experiment with economic reform — a major break with the Communist Party’s previous ideology. They wanted mass support. As a result, both our book and our film about technological change and the emerging future became useful tools for them. Millions of copies of *The Third Wave* were printed all over China — schoolbook editions, regional and other editions. Meanwhile, cassettes of the television special reached every part of China, and even today people come up and say things like “I bicycled 10 miles to see your Third Wave film.”

**S+B** I bet you didn’t receive a penny for all that.

**TOFFLER:** The irony of this story is that the worst intellectual property

rip-off that we've ever had is the one associated with the greatest influence that we ever had. When we go to China now, people come up to us and say, "You changed China."

Just recently, to our surprise, *PeoplesDaily.com* included my name in a list of the 50 foreigners who have had the greatest impact on China in recent centuries. Unfortunately, the list omitted Heidi, without whose TV special the Chinese leaders might never have distributed the book. When she took the program with us, I was dubious about it being shown to anyone. "Don't be stupid," she said, "it will be seen at the top." And clearly it was.

Our ideas reached China and its leadership at precisely the moment when historic decisions were about to be made regarding many of the issues discussed in both our book and our film — ideas that helped them crack open the door to economic transformation.

So without our knowing it at the time, our works, pirated by the Chinese, did, apparently, help "change China."

**S+B:** How then would you distinguish China from India?

**TOFFLER:** India is "democratic."

One wonders how democratic life is for its peasants, but it has at least the trappings of a Western democracy. Yet there are certain advantages to not being a democracy. I certainly don't admire it, but China says, "We're going to create a market economy," and bang, everyone does it or else.

There may also be a religious basis for the difference between India and China. Hinduism propagated poverty as a virtue. China, as far as I know, never did that. And as we say in *Revolutionary Wealth*, people who pray for wealth may never get it, but cultures that pray for poverty usually get exactly what they pray for.

### Optimism amid Malaise

**S+B:** What about the role of the non-governmental organizations (NGOs), which have reached a level of sophistication and complexity that few people saw coming? What has driven that?

**TOFFLER:** It's a function of the acceleration of change, the demassification of the mass society, the increasing diversity within society, and the increasing diversity of products, of religious groups, of ideologies. That brings with it new opportunities, new threats, and new circumstances. Some are seen as threats, and some are seen as virtuous and valuable. One of the functions of NGOs is to be the proverbial canary in the mine, identifying future threats.

Unfortunately, too many of them focus only on threats, rather than on opportunities. Before it was known that we could use stem cells for various purposes, there was no group campaigning against stem cell use. But as soon as they were

identified publicly, there were groups campaigning against stem cell researchers and other groups screaming to defend them and accelerate their work. As the opportunities, threats, and forms of organized advocacy multiply and diversify, it becomes increasingly clear that governments can't handle all these new problems and that nobody else satisfactorily handles them, either. So NGOs are invented — often by prosumers, by the way.

**S+B:** You write that acceleration, de-synchronization, and the explosion of the knowledge overwhelming our institutions may be leading to the implosion of our society, even our civilization. Is your glass half-full or half-empty on this?

**TOFFLER:** Both. I'm American. That means I'm innately optimistic. I think our body of work, on the whole, is optimistic, but it certainly doesn't ignore the threats, dangers, and problems facing us. I see that humanity has done phenomenally well, at incredibly accelerated rates, in introducing revolutionary technologies. But that's the easy part of a transformation. Changing the social structure is much more complicated than developing a new bit of software. Bits and bytes don't have vested interests, but people do.

That reflects another fundamental example of de-synchronization — between the rate of the great technological surge and the slow pace of accommodation to social change. This gap has to be closed, and if it isn't, we are, in fact, going to see institutional Katrinas — or, rather, equivalents to the tragic response to Hurricane Katrina — in business, in government, in every conceivable field.

I think it's too easy to say the

implosion is coming. It's hard to come up with new kinds of organizational alternatives to bureaucracy, but I think we have been living and thinking with much too narrow a range of alternative organizational forms. We build bureaucracies because we know how to do that. You snap the pieces together, add some hierarchy, and you've got yourself a towering bureaucracy. There has been over the past decades a counterforce, arguing for network organization, but the result has been a very narrow choice between bureaucracy and networks. A democracy can have a subdivision that is a network, a network can have a subdivision that is a bureaucracy. They can fold into each other. And even that is much too simple; many other forms of organization could be potentially useful.

More to the point, as we wrote in *Powershift*, there are an infinite number of ways that human beings can organize themselves for collective behavior. I think we can brainstorm and come up with still more alternative organizational structures. There are glimpses of this beginning to happen, but the question is: How many more Katrinas can we stand in the meantime?

**S+B:** When I looked at *Future Shock* recently, I was surprised at your stridence. You wrote of the acceleration of the pace of change as an illness, "a cancer in history." With 35 years of hindsight, would you still describe our situation that way?

**TOFFLER:** Well, I might tone down some of the language. I was 35 years younger. But I think the basic argument of the book stands. We're always asked what we got wrong, and we did get a few things wrong. That's inevitable when you're look-

ing 30 or so years ahead.

The hardest thing to forecast is timing — when certain events would happen. We said, back then in 1970, that humanity would clone animals, and that has happened; we said that we would also clone humans, and I still think that's likely. But we were wrong in the timing. We said that these would happen by 1985. We didn't make that date up. We got it from one of the world's leading Nobel Prize-winning biologists, who happened to be rather more optimistic than he should have been.

There's another passage in the book where we talk about throw-away products, that someday we may be wearing paper clothing. And we aren't. Yet.

I always get a laugh from an audience when I say, of course, we futurists have a magic button; we follow every statement about a failed forecast with "yet."

**S+B:** Do you really think the experience of the last 35 years has been a "malaise," as you said it would be?

**TOFFLER:** Absolutely. It doesn't necessarily present itself that way, and people don't come in and say, "Well, I'm sick of acceleration," but I think they feel it. We are living with a much less orderly social environment and technological environment, and that can have physiological effects on people. Living with high uncertainty for long stretches does change your body chemistry. Just read the literature about stress and listen to what people are saying to one another. So, yes, I do see evidence of future shock in the world we face. +