

## **Toffler Interview: Information Technology Seen as Power to Workers**

*Mercury News Staff Report: Alvin Toffler, author of "Future Shock" (1970), "The Third Wave" (1980) and "Powershift" (1990), continues to write and consult with businesses and governments around the world about the transition to the computer age. Later this month, he will address the South Korean National Assembly on "The importance of information technology and telecommunications to Korea in its moment of economic crisis." Toffler spoke recently with Mercury News Staff Writer Miranda Ewell. Here is an edited transcript of that interview:*

**Q:** As part of the Third Wave -- the rise of information technologies and the knowledge economy -- you talk about "de-massification" in government, politics and business. Spin out a little what that will mean -- means now -- in the business sphere.

**A:** If we start with manufacturing, we can clearly see a shift from mass production toward what we call mass customization. And what we now call mass customization is simply a step toward where we believe we're going, which is full customization on demand. That is, any customer who wants a product customized will be able to get it customized, at little or no extra cost. And the reason for that is very simple, although seldom analyzed.

In the traditional factory . . . it was very expensive to introduce even the slightest change. Once we began to introduce information, or intelligence, into the production process, the cost of making change becomes radically reduced. So now, a few lines of code or a little punch of the button is enough to provide a customized or partially customized product.

**Q:** What replaces the old ways? You talk about "flex firms" and movie-style projects where people with certain expertise come together just for that project.

**A:** Ever since the beginning of independent production in Hollywood, back in the '50s, we began to see movies being made by pick-up crews rather than by a studio, which was the Hollywood analogue to the factory. Make a movie, and then fire everybody, and then get together in a different configuration for the next movie. It's essentially a transient or temporary organization, which is constantly reconfiguring itself, and I believe that is more and more the case. Because of the acceleration of change, we see a shift from permanence to the temporary.

**Q:** Talk about the evolution of money in the new economy.

**A:** In a First Wave world, in an agrarian age, money had a function apart from exchange. The reason for that was there was no standard form of money. What you had was a form of money that had other usefulness. For example, in Asia, where rice was money, if you couldn't get the guy to trade something, you could at least eat it.

It wasn't until much later that we developed essentially Second Wave money, money of the age of print. Now, obviously, we're moving toward electronic surrogates for money. You can't touch it, and in the form it's in, it doesn't mean anything else. It's not useful for anything else. So now, it's clearly possible to go back to what existed prior to the Industrial Revolution.

The Industrial Revolution saw the spread of paper money, but it also saw standardization of money. In the United States, up until about 1863, you had literally thousands of different currencies. And in 1863, the government said, "All those don't count; we're going to have one standard form of currency."

Now, what that meant was that one dollar bill was just as good as the next dollar bill. Now, we'll move, I believe, to the possibility and the likelihood of a return to multiple currencies. We'll be able to program money. We'll give Johnny a card that Johnny can use to buy school lunches, but it'll be preprogrammed to prevent the purchase of soft drinks or too many carbohydrates. In fact, we now have surrogates for money, like frequent flier points.

**Q:** You talk about knowledge being a form of currency in the future. I wonder if people will be assigned a certain worth, based on their knowledge or their genius -- "This person is worth, say, \$100,000" -- and they then can buy and trade based on that value. Doesn't that happen already with entrepreneurs?

**A:** Exactly. I believe we have examples now of investors who invest in the future profit stream of a rock singer or a football player.

**Q:** Computers have been seen as either the ultimate machine, or the catalyst for overthrowing the machine age spawned by the Industrial Revolution. You seem firmly in the latter camp. But what makes you believe the rise of information technology will lead to things like worker empowerment and companies valuing the intellectual capital of their employees -- and not, for instance, a supra-mechanistic, robotic future?

**A:** I don't see a contradiction between robotics and what I'm saying. I think we'll have a very robotic future -- but we won't be the robots. If you go back to the literature and the social critics of the industrial age, like Huxley and Orwell, their image of the future was a human race reduced to robotic behavior. And the reason was they were making a linear extrapolation from what they saw around them. What they saw was "Modern Times" and Charlie Chaplin. Robotics will help us eliminate a lot of that.

And as to why I believe in worker empowerment: I don't think it happens because the people at the top are nice guys. I think it happens because you can't get the output you want in a different way.

**Q:** You say the three sources of power are wealth, violence and knowledge. What about sex?

**A:** There's no doubt about the power of sex as a driving instinct in the human species. But I would say sex is a goal. Power comes from the ability to withhold something that someone else wants.

**Q:** In an age of uncertainty, is identity something we cling to for reassurance? Is authenticity itself a weird sort of sentimental holdover from earlier waves?

**A:** I think authenticity is fake. The environment about which we make choices is much more complex and fast-changing and diverse. And I think that you have people going through multiple or sequential identities.

**Q:** Do values endure through the different waves you talk about?

**A:** Values change with social change and cultural change. Joggers were an invention of the '60s. Now taking care of your health, being physically fit, is a value. That never used to be a value.

**Q:** What about things like love?

**A:** We all need others. We all want some belonging. We all would like to have companionship.

**Q:** Can't we devise machines that will give us those feelings?

**A:** Yeah, I think so.

**Q:** Would that be sufficient?

**A:** Depends on how good the machines are.

**Q:** You say it's no longer about capitalists vs. communists, or rich vs. poor, but fast vs. slow. People talk about the incredible pace of modern life and the toll it takes on them. Isn't there a limit to speed-up?

**A:** Unless we genetically change our own neural transmission rates, there is a limit to how much we can handle. If you go beyond that point, people will begin to deteriorate and feel stressed and harassed and join cults. So realistically there are limits.

**Q:** What's the Fourth Wave?

**A:** The Fourth Wave is the result of the convergence of information technology and the biological revolution in genetics. When these two things fully converge, we're talking about an explosion of economic and social changes beyond anybody's imagination. That's likely within a generation.

**Q:** Has your own understanding of the changes that are happening affected how you conduct your personal life and your work life?

**A:** Well, we don't wake up in the morning saying, "What are we going to do today that's Third Wave?" And I confess a tremendous affection for a lot of Second Wave things, such as Bauhaus architecture. I don't believe we have any Third Wave architecture. Don't get me started on post-modernism!