Brave Cool World

Dr. James Canton Predicts the Future of Technology

Report on Business Magazine

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December 1999

Report on Business Magazine: *You talk about knowledge-based digital technology. What do you mean by that?*

James Canton: Knowledge-based digital technology is all of the stuff that is currently being talked about in terms of E-business. It's data warehouses that provide relevant customer information, it's how we develop products and services and how we collaborate with our co-workers; it's how we communicate between supplier, customer and ourselves; it's the way we display information in virtual environments. It's also the very thinking about markets – virtual private markets that can emerge given this new blended reality, this merging of physical and virtual reality. People don't realize just how fast these new complex technologies are emerging unseen. Much of how we will do business in this digital knowledge economy is going to be wireless, real time and everywhere.

Take a small thing today that's an indication of where we're going tomorrow: the distribution of music, the MP3 model. The major record companies – these are billion-dollar companies – have been brought to their knees by, if you will, a customer-led revolution that's a perfect example of the emerging digital economy. Major music stars – David Bowie, etc. – are now distributing for free songs that you can download over the Internet. Today we're distributing music and software; tomorrow we're going to be distributing entire catalogues,

entire products, and entire services over this distributed environment.

And by the way, less than 1.6% of the world is on the Internet; three-quarters of the world hasn't even made its first phone call. So this is the Middle Ages.

I've seen this wave head toward the beach over the past 25 years, but I'll tell you, the emergence of the Internet and the implications for business will change every industry. The most business-critical asset a company can have is this digital knowledge.

ROB Magazine: *You also talk about the networked planet – what you refer to as the "social neuro-web of our collective unconscious"*

JC: In my new book, Technofutures, I have about 50 scenarios about our lives in the future. One of them is something called the "megaverse." I'm forecasting that not even 15 to 20 years from today, we will have computers that surpass human intelligence. But well before that will be the emergence of the "megaverse" – the Internet will develop its own belief systems, its own behavior, and its own kind of synthetic intelligence.

I think we're talking about parallel evolution. The evolution of human beings will be influenced at a very deep level by technology – the development of synthetic intelligence, which will live in a virtual universe called the Internet. The convergence of human beings and this networked intelligence will occur in less than a decade.

Right now, we're in the Middle Ages in terms of proliferation of communication technologies. We're in the Middle Ages when it comes to understanding health, medicine, ourselves. All of this – over the next three to five years and certainly the next eight to 15 years – is going to be transformed.

ROB Magazine: *How?*

JC: Four specific power tools: The first is computers. Computers will be embedded in everything and everyone – smaller, super intelligent computers. We've got about 200 million computer chips today in computers. We've go seven billion other computer chips that most

people are unaware of, in car doors, in refrigerators, in books for inventory control. What happens when all of those seven billion get wirelessly connected? And they will.

The second power tool is networks. Internet bandwidth will be the key competitive weapon that will transform business and will be a key advantage for education and health care. It will be the key driver for telemedicine, for virtual education, for communications. Just as computer power is doubling every nine months, corporate bandwidth is doubling every six months. Now, this is North America, but as satellite telecommunications come on line . . . wireless Internet access will drive culture, education, commerce, you name it. You'll hand somebody a cell phone and it'll be attached to a satellite. Three-quarters of all the cell phones sold over the next 15 months will have Webcasting capabilities.

The third power tool is bioscience, which will extend life and unravel disease. But more importantly, this whole question of human evolution will be reinvented. We will have the tools to choose sex, extend life, clone organs, transform and unravel the DNA code. What we're going to look like, how long we're going to live and the quality of our existence are going to be transformed.

The fourth power tool is nanotechnology, the manipulation of matter at the atomic level. This is the most awesome of all and obviously could not exist without computers, bandwidth and bioscience.

ROB Magazine: *I hate to use the phrase "Brave New World"*

JC: But it really is. You can actually say that now with some certainty because of the emergence of these power tools. You couldn't say that before.

Few people are really prepared for it. It used to be that every 500 years you'd have one or two technological break-throughs – steel, or the factory or even the radio or TV. Think about the printing press. Knowledge was controlled by a wealthy elite. Monks had a monopoly on hand-designing books, which only the wealthy could afford. Knowledge was not distributed. All of a sudden, you could now print books for pennies. Knowledge could be distributed, you had a need

for schools, and you had a need for people to be able to read.

In the past 50 years there have been more technological innovations by a factor of 1,000-plus than in the previous 10,000. I'm predicting, as a futurist, that this is going to accelerate dramatically because of these four power tools.

ROB Magazine: *Aren't you failing to take into account human resistance to technology, as well as technical obstacles? After all, we've been waiting for artificial intelligence for 20 years now, and all we have is a really good chess-playing machine.*

JC: It's getting harder to deny the emergence of this future. Let's take artificial intelligence. Today, if you were to ask the average person about artificial intelligence, they would say, "Gee, I can't give you any applications." Few people realize that artificial intelligence is embedded in many objects. For instance, the camcorder, which uses fuzzy logic to bring the subject into focus, is a form of artificial intelligence. The sensory based technology that tells the refrigerator that the door is open. . . is a kind of artificial intelligence. My point is that AI has become embedded in many different kinds of products and applications. The telephone system, the TV – Those systems are mediated and constructed using different forms of artificial intelligence. Am I expecting a synthetic human to show up tomorrow? No. And I don't see that for quite a long time. But I will say that virtual personalities are already appearing on the Web . . . and we're working with companies that are building intelligent-agent interfaces. And here's the point: They don't have to be as smart as us. All they have to do is be believable and have a purpose.

ROB Magazine: *What kind of world will all of this create?*

JC: The good, the bad and the ugly.

The good side is new economic opportunities, widespread education, widespread availability of knowledge, whether it's health care, extending life, whatever.

The bad news is there's going to be privacy invasion, identity theft, data thieves that pull digital dollars out of your bank account. More

importantly, we're going to be uncomfortable with – rightfully so, and I'm warning people now to pay attention – the control that we give, the power that we yield to computer intelligence. Computers are going to do a better job of some things, but are they going to be caring? What are the implications for living in a democratic society when you have computers influencing human lives?

The ugly side of technology is that it will break down and we'll be at risk. We already have millions of dollars disappear from the financial system that get hacked away and nobody really wants to talk about it. There are perils around us, but they will become more pronounced. You can't have this utopia of a global, connected universe, where there's all this bounty, without some risks, without some obstacles, without some bumps along the way. The question is, can we stomach the bioengineered way to Nirvana? The answer may be "yes" and it may be "no" – but it's all going to happen in our lifetime.