# Counting the costs of progress

## As we peer into a future of rapid technological advance, it is no longer adequate to assess economic growth in isolation from its social and environmental consequences

It is all but impossible to predict the long-term future of technology, and the further ahead you look, the greater your chances of getting it wrong, PITCOM delegates heard at an entertaining session of future-gazing led by Peter Cochrane (http://www.cochrane.org.uk), former in-house 'futurologist' at BT, co-founder of Concept Labs (http://www.conceptlabs.net) and founder of Cochrane Associates (http://www.ca-global.org).

In a five or 10 year time scale, it might be possible to predict the main technology trends, Cochrane said, but looking ahead 15 years or more there were simply too many variables.

"For example, 15 years ago, people were predicting the rise of videoconferencing, but it still hasn't really caught hold. Why hasn't it taken off yet? Partly from poor service quality, size of screen, inability to gaze eye to eye." But these are improving, Cochrane said: "Already with Skype, the quality is better and you really feel that you are talking to someone, there is more emotional involvement. And perhaps in future, a shortage of oil will mean communication without travel will take off."

Nevertheless some technology trends seemed clear enough to make new predictions, he said. These included:
- Portable music devices by 2015 with large enough memories to hold every track ever recorded; and 10 years later, to hold every movie ever made;
- The replacement of broadcast TV and radio with on-demand 'podcasting';
- The rise of telecare in the home to replace hospital treatment;
- Satellite positioning technology to be incorporated into most mobile devices (all new Japanese mobile phones already feature GPS);
- 'Nanofactories' allowing people to create objects at home: "we'll be able

## "Fifteen years ago, people were predicting the rise of videoconferencing, but it still hasn't caught on

to assemble anything in our kitchen";
- Increase in the use of RFID chips, particularly in the field of logistics. The average UK truck load is 17%: four out of five trucks could be taken off the road if RFID-enabled load-sharing was implemented.

The key to extracting the most benefit from new technologies was to create the right environment for innovation, Cochrane said. This was not currently present in our risk-averse society.

"We live in a society obsessed with risk: there is always a risk analysis, but where is the 'opportunity analysis'? We are also obsessed by regulation: CEOs used to worry about return on investment, but now they are only worried about avoiding incarceration."

As the amount of information available to everyone grows at ever faster rates,

intelligent search and knowledge management tools will also become increasingly important to making the most of new developments, Cochrane said. "We now live in a world of the infinite – how do we choose? When you type in the words 'artificial intelligence' into Google, for example, you get a results page that says 'here are results numbers 1-10 of 69 million.' We need better tools than that."

Finally, Cochrane raised the hottest issue of the moment for all those looking at the future of technology: the environment. He said the current growing awareness of the social and environmental consequences of new technologies meant that it was no longer possible to assess economic growth driven by technology in purely monetary terms.

"The dollar is too simplistic to measure economic growth: we've got money, materials, and social consequences. Increasingly we will have to say, we're taking a business decision related to technology, but what will the impact be to society, what pollution will be created?"

Further perspectives on the environmental issues of IT development were added by Richard Barrington, head of public policy for Sun UK and Ireland.

He said IT was already one of the biggest causes of global warning, though few realised it. "The IT carbon footprint totals more than one billion tonnes a year, more than the airline industry,"

Barrington said. "And IT has become a major consumer of materials: it takes two tonnes of materials to make a single desktop computer weighing 1.8 kilograms, and there are more than a billion of these on the planet."

IT industry regulators in Europe are beginning to take note of these issues, said Barrington, and to look at energy efficiency.

The answer, he said, was to 'dematerialise' computing, moving to a networked server-side model where most data and software is held centrally.

"It's like what happened to answerphones – who still has an answerphone on their desk? It's now handled by a central voicemail system – the process has been dematerialised."

In a question and answer session, one delegate said he was sceptical that all IT developments in desktop computer or laptop technology were necessarily going to be damaging to the environment. "I'm not sure about those waste figures for the future," he said. "What about bio-computing? And isn't laptop power going down?"

## "Who still has an answerphone on their desk? It's now handled by a central voicemail system – the process has been dematerialised

**Contact**
Christine Stewart Munro
Administrative Secretary
PITCOM
17 Dartmouth Street
London SWIH 9BL
pitcom@csmparl.co.uk
www.pitcom.org.uk