

EUROPEAN communications

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Can telecom systems really help save our planet? Braden Allenby, Environment, Health & Safety Vice President for AT&A tells Elizabeth Howard how technology and the environment can go hand in hand.

'The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been moulded by the environment. Considering the whole span of earthly time, the opposite effect in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species – man – acquired significant power to alter the nature of the world.'

Rachel Carson, *Silent Spring*

If there is a defining moment in placing the environment in the realm of American public policy, it was in 1962 with the publication of Rachel Carson's book, *Silent Spring*. Ms. Carson wrote about her belief, that man had too little awareness of his part in nature and would eventually destroy the planet. Americans, more specifically the Congress, took note. A few years later, in 1970, the Environmental Protection Agency was formed.

By the 1980s, as technology began enabling globalisation and transforming the world, everyone seemed to take their eyes off the environment. In addition to the rampant environmental degradation in the socialist countries of Eastern Europe and the Soviet Union, there were a number of industrial accidents. The poisonous gas leak at the Union Carbide pesticide plant in Bhopal (1984), a nuclear power plant explosion at Chernobyl (1986) and the Exxon Valdez 40 million gallons oil spill into Prince Edward Sound, an area noted for its wildlife and natural beauty (1989). In 1995,

Greenpeace activists occupied the discarded Brent Spar oil platform in the North Sea, which was owned by Royal Dutch Shell, as a protest against sinking it into the sea. The public outcry and boycott that followed the Greenpeace occupation forced Shell to reverse their decision. Yet, as Dr. Braden Allenby comments, 'Brent Spar is a case where Greenpeace was reacting on an ideological rather than a science background.'

By the mid-1990s, industry was beginning to recognise the role of sustainable development in continued economic growth. Dr. Braden Allenby is one of the pioneers leading the way in the United States. In a meeting at Columbia University he talked with me about the American perspective into industrial ecology and the role telecoms can play in the achievement of sustainable development.

EH: You are one of the pioneers in the area of industrial ecology. Who are your colleagues and can you describe the evolution of the field?

BA: The Japanese started looking into industrial ecology as a possible model for the evolution of their economy in the early 1970s, but none of those early attempts really caught fire. In 1989, an article appeared in *Scientific American* about industrial systems as ecosystems. That's where I got the idea.

There are now people working on this issue at universities such as M.I.T., Georgia Tech, Columbia, Yale, Princeton, Harvard, as well as a few people in the Federal government. There are a lot of activities going on in this area because so many things fit into the idea of industrial ecology. Life-cycle assessment, for example, is part of a family of methodologies

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that have been fairly widely used in the United States. The IEEE has had 'Design for Environment' conferences since the early 1990s. And a lot of research on the topic is being done and funded by the AT&T Foundation.

EH: In your book, *Industrial Ecology: Policy Framework and Implementation*, you point out that in the next decade, the population will almost double from about 5 billion to between 8.5 to 10 billion people. Describe how 'earth systems engineering' will be required to accommodate for the increase in population.

BA: It is not clear. We don't have the data to know what the earth's carrying capacity will be, given a certain set of cultures and a certain technology level, but we do know that it will be very difficult to support this increase in population unless we make significant efforts to do so.

The interesting thing about earth systems engineering is not that it is necessarily a forward-looking, radical concept. After all, we are already looking at a world that is dominated by human activities. But what is now occurring is the unplanned result of millions of independent decisions. And since we know that we already impact these global systems, we should at least do it better and more responsibly. That's why we need to begin developing the ability to do 'earth systems engineering' consciously right now, even though we clearly don't have the science, the institutional basis or the ethical basis to do it yet.

EH: Who is going to play the role of catalyst in bringing together government, business and citizens to engineer the new system? Clearly, it cannot be achieved by one sector.

BA: It's going to have to happen on a lot of different levels. There's going to be a lot of activities that occur within firms – things like choosing energy efficient equipment and teleworking to reduce emissions from commuting. But government will play a role because firms do not have the skills and scope to manage all the aspects of the process.

While technology feeds into this system, there should also be a decentralised institutional structure to guide the overall system. Such an institutional evolution is required because there are too many factors to be engineered or managed in our traditional, centralised way.

EH: Do you think the meeting of the oil industry, where companies are getting together to collaborate on working together to look at issues like climate control, is indicative of what we will see more and more?

BA: Possibly, but not necessarily. This is because companies

can basically take two approaches. They could either work together to figure out how to respond to a challenge, or they could decide that the gaps between themselves and other companies are too wide to cross. The latter approach is more likely to occur, particularly in areas like sustainable development and climate change. What is happening with a concept like sustainable environment, which brings in both social and environmental dimensions, is that the gap between the leading companies and trailing companies is widening. Petroleum is one of those sectors where you can see that difference clearly. British Petroleum and Shell, clearly, have a much more progressive approach on global climate change and on social issues than many of the other petroleum companies. That makes it very difficult for trade organisations to pool together industry members and emerge with one coherent view that represents the entire industry. As more powerful pressures start pulling sectors apart, there will be a breakdown within the industry. But I think the telecommunications industry can escape these kinds of problems.

EH: Within the context of an environmentally constrained world, what advantages does the telecom industry have?

BA: Since the environmental impacts associated within the telecommunications industry are relatively small, we are able to begin focusing on what services we can create or provide that will enable our customers to make major advances in their environmental efficiencies. Telework is an obvious example. But you can go beyond that and start thinking about things like how the Internet can function to replace other kinds of activities that require more material and energy.

EH: What are the economic opportunities for the telecom firms with an eye toward environmental issues?

BA: There are some companies that are beginning to tie sustainable development into their core businesses. To some people – some environmentalists – it's a turnoff. But I think that it's the best way to ensure that something gets done.

If I'm talking to a business audience of telecommunications professionals, I'm not going to tell them that they have to save the world. It's not a relevant dimension of their activities. Rather, I would remind them, 'By the way, in an environmentally constrained world, you are going to be substituting information for other inputs into the economy at an enormous clip, and you guys have to be smart enough to make money off it.' That's different, that's appropriate.

But it's not easy. When the Clean Air Act Amendments were passed in the United States, for example, they imposed a commute restriction in areas where air quality was impaired. Essentially, that was the Federal government coming to ►

the telecommunications industry and saying, 'Here's the telework market, take it.' And yet, no telecom company really took advantage of it. Why? Because institutions, just like people, have limited perception. For virtually all firms that I can think of, the perception has not broadened to think of the environment as a strategic dimension of their business. Most telecom managers don't have any interest in sustainable environment. But, in a way, that's okay, because their competitors will, and they will succeed.

The telecom industry is an enabling sector for the achievement of sustainability, assuming we can get there. Even if those within the industry do not see the opportunities, fundamental shifts in technology and economics is going to make it happen. If you look at the trends of cost per telecommunications services across the map, they are all going down, almost exponentially. There are enormous economic incentives to substitute telecommunications and electronic-based services for other kinds of inputs into the economy.

EH: Since we've been focusing on American companies, are there European telecom companies that have scenario-planning departments that consider the long-term impact potential of their technology? Perhaps in countries where the Green Party is very active?

BA: I think it's clear that European companies, as a whole, are more sensitive to the so-called 'triple bottom line' than American companies. The European social democratic culture is more comfortable with thinking about social, economic and environmental efficiency, while American companies only tend to think about economic efficiency.

With that said, most of the big American companies that I am familiar with have very active charitable arms, which support numerous activities on the social side as well. For example, AT&T sponsored an employee beach cleanup in New Jersey yesterday. So, you can't really say that American firms don't think about it, but I think the way it is perceived and expressed by an American firm tends to be different.

EH: Where are we in the technology revolution?

BA: I think it's complex enough that nobody really knows what is happening with that. When you consider the question of the information revolution and sustainable



You can keep your hat on?
Dr Braden Allenby,
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development, the relevant question is: Where are the decisions made that have an impact – for example, what kind of sustainable world do we actually want? I think the decisions are made implicitly in social systems in ways that we do not yet understand.

EH: Does man understand his role in nature? Can we engineer a system or are there boundaries? Catastrophic events, for example?

BA: In a traditional sense, an engineered system is one that is understood well enough so that if you know your inputs, you know your outputs. Right now, we just don't have the institutions or the science and technology to integrate the wide variety of activities and systems to achieve a common goal – sustainability. Managing earth systems is thus very

different from the kind of processes we imply today when we say engineer or manage. What is meant by 'earth systems engineering' is not management and control. Rather, it's more like a dialogue with the ecosystem than trying to engineer or manage it in a traditional sense. ■

Dr. Braden Allenby is currently the Environment, Health and Safety Vice President for AT&T, and teaches at Columbia University. He also serves as the Vice-Chair of the IEEE Committee on the Environment, was co-chair of the first Gordon Conference on Industrial Ecology and is a member of the Advisory Committee of the UNDEP Working Group on Product Design for Sustainability. He is the author of several book on the topic of industrial ecology including the most recent, Industrial Ecology: Policy Framework and Implementation. Opinions expressed herein are those of Braden Allenby, and not necessarily those of any other institution with which he is affiliated.

Elizabeth Howard is the principal of Elizabeth Howard & Company, an international corporate communications and marketing consulting firm, founded in 1987. Observations, a newsletter published by the company, can be found on the website, www.elizhowardco.com. Elizabeth also teaches a course entitled: 'Multinationals in the Global Village: How Technology and Ethics Affect Corporate Behaviour,' as an adjunct professor at Columbia University. Julia Sun contributed to the editing of this interview.