The Economics of Technology Evolution

Espen Andersen on strategic IT management, European vs US management styles, and Andersen's Two Laws of the Internet.

Espen Andersen, an associate professor at the Norwegian School of Management BI, is also a research affiliate with The Concours Group and an associate editor of *Ubiquity*.

UBIQUITY: How would you basically describe yourself?

ANDERSEN: I'm sort of a Jack-of-all-trades: I teach at a business school, dabble in consulting and commercial research, and trample around and engage myself in various questions concerning technology and society.

UBIQUITY: On your Web site you say, "My long-time plan is to continue avoiding categorization and to study, practice and hopefully influence how technology strategy and organizations evolve over time." What do you think is the basic nature of that evolutionary process?

ANDERSEN: The economics of technology evolution. Underlying a lot of the societal changes since the Second World War is the fact that computation -- information processing, communications, and storage -- is becoming cheaper and cheaper, and that is changing a lot of what we can do. It's changing how organizations and humans behave. Like all technological changes, we can relatively easily forecast where the technology will go, but we get caught unawares as to what the influence will be on organizations and individuals in society. One of the things that fascinates me is that the world is becoming one place, if you will; one location; a little village.

I still remember the first time I used the Internet. That was in September 1985, and I was using something called BITNET, a network of academic institutions based on IBM mainframes. BITNET was an acronym for "Because It's There NETwork." I was just a curious kid starting to work in the IT department at the business school and our systems programmer didn't want to teach me how to use it. So he basically told me to just write "TELL LISTSERVE AT BITNIC HELP" -- and along came some documentation and I was on my way. And I was fascinated that, when I sent that

command to BITNIC (which, I think, was a server at City University of New York,) suddenly I was a member of a global community of people who were talking to each other and helping each other out around technology and other issues. I guess I just continued doing that, and continued to be fascinated by the evolution and the need to understand how businesses and society should react to it.

UBIQUITY: What was your own educational background?

ANDERSEN: I'm sort of an economics and businessperson by education, and a technologist by default. My undergraduate degree is in business and economics and I have a doctorate from the Harvard Business School in management information systems, which is, essentially, how to run IT in very large organizations.

UBIQUITY: Have you actually managed large systems?

ANDERSEN: Before I did my doctorate I spent five years working in the IT department of the business school that I work for, the Norwegian School of Management BI. I went from being a support person to being assistant director, second person in charge, during those five years. I don't know if you'd consider it large -- during those years, from '85 to '90, we grew from 4,800 students to 19,500, and from 2 locations to about 20. We had a mainframe computer and some minis and at least 1,500 PCs. We were also the first business school in Europe to require that the students have PCs, and I was in charge of that program, which was interesting.

UBIQUITY: In what way?

ANDERSEN: Well, we learned a lot. For example, we learned that a PC in those days lasted about 2 years before it was technically obsolete, but since our undergraduate program took 4, we found that after 3 years we had some rather unhappy students. On the other hand, many students who came out of that experience were much better prepared for business because they knew how to use the technology by the time they graduated. So we did them a service in terms of being able to use the technology right off the bat. They were spreadsheet-enabled, so to speak.

UBIQUITY: Since you studied in the US, you're obviously familiar with the US environment as well as the European one.

ANDERSEN: I lived 6 years in Boston. Towards the end of my graduate studies, I started working for Computer Sciences Corporation's Research and Advisory Services. I moved home to Norway in 1996, basically because my wife said to me, "We're moving back to Europe. Would you like to come?" I continued working for CSC until 1999, parallel with teaching. So I have worked with IT management and research on both sides of the Atlantic.

UBIQUITY: What would you say is the difference, if any, between the computing environment and culture in the US versus Europe and, specifically, Norway?

ANDERSEN: The business environments are different. The United States is one market and one culture. I mean, people may carp about Bush versus Kerry, or the middle versus the fringes, or the different cultures of the East, West and South -- but essentially, you're one culture.

I remember talking to a manager at a large US railroad company about culture. They had just centralized all their information technology, all their dispatching -- the management of the trains -- to one control center managing 30,000 miles of railway. He didn't know I was from Europe and said to me, "You know, now we can have a dispatcher from Texas dispatching or talking to an engineer -- that is, someone running a train -- from California. You know, think of the cultural issues, man!" And I started thinking, hey, try an Italian dispatcher and a Swedish engineer and you're going to see some *really* big differences. So, the picture is complicated in Europe, because the countries are much more different from each other than each state or region in the US.

In general, American companies are more action-oriented. They hire and fire people much easier, they move people around much more easily, and there is definitely a market for executives, both in IT and other specialties. In contrast, Europe, which most Americans tend to look at as one market, really is "too many countries", as one of my HBS professors said once.

UBIQUITY: What is the consequence of that?

ANDERSEN: In '94 I worked on a study with Jim Cash at the Harvard Business School, for CSC, where we surveyed CIOs in large corporations. One of the things we found was that a successful CIO in a US company would tend to go on to become a CIO of another company, preferably a bigger one. He or she would still stay a CIO, but change companies. In Europe, a successful CIO would tend to move on to a different business position within the same company.

Those different career paths shape how you behave. If you're an American and your next job is going to be CIO of a different company, you're much more likely to try to take credit for projects, to be action-oriented, to be externally oriented, to be faster in your decisions and perhaps less risk-averse. If you're in Europe and you know that you're going to have to stay with the same company, then you are going to be much more consensus-oriented, more team-oriented, perhaps more careful and deliberate in what technology you choose and how.

The last couple of years I have been looking more at HR and learning issues, such as how to train people, how to take care of them through HR within the notion that people are assets, and in these respects European companies are far ahead of companies in the United States. A lot of the stuff you do in the states that you consider to be new is old hat in Europe. We've done it for many years.

UBIQUITY: Like what?

ANDERSEN: Like training programs, maternity leave, work-life balance, the broader responsibilities of a company towards its employees. Partially it has to do with politics and regulation. Europe is, in fact, *not* one market for labor. It is several small markets, particularly for executives. Of course, there are lots of exceptions, but in general if you're, for instance, an excellent Spanish executive you're probably not going to take a position in Holland.

UBIQUITY: And why is that?

ANDERSEN: Well, language, culture, family reasons. It's a much bigger move. Even though it's small -- it's much shorter in distance -- the cultural differences are significant, and much larger than within the United States.

UBIQUITY: What about within the Scandinavian countries?

ANDERSEN: There already are certain companies that essentially span Scandinavia. SAS is an obvious example. Nordea is a big bank that has been merged by banks in Finland, Denmark, Sweden and Norway. So, there is more movement between the Scandinavian countries. In general, when there is movement between countries for executives it tends to be within same-language regions -- you see people moving between Germany, Austria and perhaps Switzerland, for instance. You see people moving to Britain, or from Britain to other countries within industries that are monolingual, such as oil or computers.

UBIQUITY: So tell us about your institution, which is called the Norwegian School of Management BI. First of all, what does BI stand for?

ANDERSEN: That’s a tongue twister; Bedriftsøkonomisk Institutt. It’s the school’s old name, means something like The Institute for Business Economics. It was started as a night school in 1943 and is now Europe’s second largest business school -- with a full complement of programs, from night programs to full doctorates, with 390 full-time faculty. We are kind of an anomaly in Norway, as we are the only large private school in a country where education is almost exclusively public, where we have more than half the market for the business education.

UBIQUITY: Would you recommend it to an American, let's say, who was interested in getting a PhD in some technology-related field?

ANDERSEN: I would certainly recommend it in the areas we are strong in, such as finance and strategy. However, Norway does not have a lot of technology-oriented businesses, at least not in terms of businesses that export technology to other countries.

UBIQUITY: Why is that?

ANDERSEN: It frustrates me, but the reason is fairly simple: we're so rich that we don't need to. Norway was a country that had an energy surplus even before we found oil, and now we are the second biggest oil exporter in the world. We're swimming in it. We're also outside the E.U., essentially for the same reason. We have lots of natural resources and we are loath to share them with the people elsewhere.

UBIQUITY: What's the information technology situation in Norway?

ANDERSEN: Norwegians tend to be reasonably good at inventing technology and rather poor at commercializing it. We do very little exportation of information technology that's produced here -- essentially nothing in terms of hardware, for instance: we left that to the Swedes. We're strong in a couple of areas, one of which is telecommunications and the establishment and running of telecommunications networks. Telenor, the formerly state-owned telco incumbent is now privatized and very successful in setting up and profitably running mobile phone networks around the world. A lot of the GSM mobile technology standard was developed in Norway. We also have our share of small, interesting technology companies -- Opera and Trolltech are two of them -- and, of course, the foundations of object oriented programming were invented in Norway by Kristen Nygaard and Ole-Johan Dahl.

UBIQUITY: Besides the Norwegian School of Management, you're involved with the Concours Group as well. Tell us about that.

ANDERSEN: The Concours Group is a small research and consulting company that sprang out of Computer Sciences Corporation in the 1998. We differentiate ourselves from other consulting companies in the same field by having a relatively large part of our business in the research, meeting and education programs for IT and HR executives.

We will run 6 to 8 projects a year where we define some area, recruit companies (some on a subscription basis, and some on a project-by-project basis), and research an area within a three-month period. We recruit some academics or other thought leaders, and then we talk to the companies involved; try to define what the

questions are; and try to come out with a very practical set of conclusions and frameworks for people to use. Then, at some point, we produce a report for that goes to the people who participated in the project. I think we have about 200 companies as clients around the world, mostly big companies in North America and Europe, as well other places.

It's a fairly virtual organization, with the largest location in Watertown outside Boston, and a number of smaller offices around the world. It's a very interesting group of people, many of whom have been consultants in large consulting companies or technology executives and then decided that they want to work for a smaller company with, perhaps, more personal freedom. We do a lot of advice-giving; not very much implementation; and we focus mostly around things like how to structure IT organizations, how to deal with outsourcers, how to set up learning programs for IT and use technology throughout the organization, how to do governance and how to define HR organizations. We've done a lot around shared services; how to set up shared services organizations, and so on. Management questions for IT and HR executives, I would say.

UBIQUITY: What would your basic approach be to setting up an HR or IT organization?

ANDERSEN: We have something we call an operating model, which is a sort of blueprint or framework for what processes need to be within the organization. I'm more familiar with the IT operating model than I am with HR, so I will describe that: We divide the processes into core processes -- discovering new needs for IT, fulfilling them through solution delivery, and operations of existing solutions. Then there are processes geared towards demand management -- relationship management, value management. Lastly, there are the enabling processes -- managing architecture, managing vendors, operating infrastructure, and managing the IT organization itself. You have to fashion the IT operating model and the IT organization according to what the business organization demands; what the role of IT is supposed to be. Of course, that sounds like a lot of consulting speak, my apologies.

But essentially we have a bunch of experienced consultants in how to run IT and we talk to a lot of organizations and then we talk to people who want to know what we've learned.

UBIQUITY: Do you think that IT has reached a point of maturity, and is almost mundane now?

ANDERSEN: That's basically the question that Nicholas Carr asked, and which you discussed with him in your *Ubiquity* interview. < http://www.acm.org/ubiquity/interviews/v5i14_carr.html>

UBIQUITY: Yes.

ANDERSEN: I ran a session at the Academy of Management this year on that very question. As John Seely Brown says, if IT doesn't matter for strategy then how come so many strategies fail because of IT? Yes, in principle we're moving towards IT on tap, like power, but in practice there's a lot of work to do.

UBIQUITY: What kind of work? Let's put it this way: is there any common denominator for the failures of IT in organizations?

ANDERSEN: There are many reasons. I think the most common reason for failures of IT is unclear business strategy. The organizations that are really good at running IT tend to be very clear in their business models.

For instance, one company I'm enamored with at the moment is Royal Bank of Scotland, which is an infrastructure play. They have what they call their manufacturing division, which consists of 22,000 people, running IT, HR, call centers and other shared services. And based on that organization they run many banks -- as retail-oriented brands -- and they reach out and buy banks and then integrate them into their model. They state very clearly that the central organization is responsible for keeping costs down, doing the transactions and running the business, and that the job of the people out there in the various bank branches is to grow the business, get more customers and provide services to those customers. They are

very focused in their strategy -- to the extent that they will not buy a bank if they can't integrate it.

Royal Bank of Scotland is essentially a very sophisticated strategy that sounds very simple. Consequently, while it is not easy to delivery IT to such an organization, at least there is no conceptual confusion about the role of information technology.

UBIQUITY: How do they go about the integration process?

ANDERSEN: Well, when you integrate large network-oriented companies, you can integrate the systems either by taking all the systems from one bank (normally the acquiring organization) and apply it to the acquired company, or you can do a best-of-breed -- a careful selection between the various systems in each organization. I am afraid, at least in my experience, that the steamroller version is the one that works.

Emotions aside, Royal Bank of Scotland seems to be good at that -- when they bought NatWest, a much bigger bank, they planned the integration carefully and then moved Natwest over to new systems in a matter of a few weeks. That's good management! And they've had a 13 percent compound annual growth rate for the last 6 years, yet the manufacturing division has stayed at 22,000 people the whole time. That's pretty impressive. Good IT management is absolutely strategic in that process and that strategy.

UBIQUITY: Let's go back to the subject of European management styles. Did you say that managers there tend to stay within their own countries?

ANDERSEN: Yes. You're not going to find a lot of managers coming to Norway. Those who do tend to be Swedish or English -- and married to Norwegians. On the other hand, integrating here can require some work -- since most Norwegians speak English very well. That means that if you're an English-speaking person you can probably settle here and live here for 20 years without learning Norwegian. In fact, I have colleagues who've done just that. But the general rule is that people don't physically move around to the same extent that they do in the United States.

UBIQUITY: Some might be surprised to learn that European management seems less cosmopolitan than they thought it is.

ANDERSEN: It depends on how you define "cosmopolitan". You'll find that most Europeans are very comfortable traveling around Europe and the world, but they tend to live in their own countries, and in a Norwegian company, for example, most executives will be Norwegians. In the United States things are quite different. If you go to, let's say, an Arizona company, it is not like most of the managers there have been born and bred in Arizona, they will have come from other places. American executives tend to move around within the same industry but that takes them lots of places.

Now, if you mean cosmopolitan in the sense "worldly", I would venture that, at least at a middle management level, European managers are often more worldly than Americans, simply because they have been exposed to a larger diversity of cultural and linguistic impressions.

UBIQUITY: With that kind of diversity of mind, what do you think of off-shoring, which has become a hotly debated political subject in the last year or so?

ANDERSEN: I just led a discussion on that topic in the Norwegian Polytechnic Society, and the main conclusion was that the potential political backlash to offshoring was much more dangerous than the offshoring itself.

In terms of labor economics, offshoring is relatively unimportant -- it will affect only a very small proportion of jobs, both in the USA and in Europe. I think McKinsey calculated that something like 3 million jobs could disappear off shore during the next 5 years in the United States. I don’t mean to be callous here, but 3 million jobs in this context is essentially nothing! I have been told by labor economists that the American economy loses between 25 and 30 million jobs every year, but gains 27 to 32 million jobs. So 3 million jobs disappearing over 5 years is nothing. Of course, it's traumatic to the people it happens to, but in terms of the statistical picture and what actually happens to these people, most of them get new jobs at no real financial downside, except in the transition phase. And the economy gets better for it.

Now, the interesting thing is that off-shoring might actually have a negative impact in certain European countries. In the United States there is a lot of liquidity in the labor market, and you can hire and fire people easily. That's pretty harsh, but it also means that employers are not as afraid to hire people because they know they can get rid of them if they need to. Whereas a German company, for instance, is very scared of hiring people because, if you hire them you basically have them for life. The unemployment rate is up at about 10 percent, but the real unemployment is probably much higher because a lot of people are just sitting around, basically. People who get laid off because of off-shoring (or "near-shoring" to Poland or Romania or other countries close to Germany) don't find new jobs again to the degree they do in the States. Macroeconomically, off-shoring becomes a net loss, even though the individual company may save money. But in the United States, people are re-employed fairly easily, and so for society it becomes a net gain.

UBIQUITY: Let's talk a little bit more about the role of technology in Norway.

ANDERSEN: We don't have a large technology industry, as mentioned. But in terms of technology consumption, we are among the highest consumers of technology in the world. There are more cell phones than people -- the country is almost 100 percent covered. You can basically get into a car in the north of Norway -- it's a pretty desolate place -- turn on your cell phone and drive to Rome without loosing connection. Try doing that in the United States.

UBIQUITY: What about the Norwegian people? Obviously they use cell-phones; are they interested in computer science?

ANDERSEN: No. People don't want to become engineers. It's too boring and too hard. They go into things like media instead -- the same phenomenon you find in the United States. The people who are ambitious as students tend to be the students we get from the former Eastern Europe countries, who are very hungry and want to get ahead in the world. In that respect, we're very similar to the United States.

UBIQUITY: What about your own students? Do they ever ask you for advice about what to do?

ANDERSEN: All the time. What I tell them depends on the student, of course, but in general if they're business school students, especially at the master's level, I tend to advise them to try to get into consulting companies, because if you work three years in a good consulting company you get six years' of experience. You get to see a lot of companies, you get to do a lot of things, and you get to understand business problems. You get to know how things work, although you may not get to learn how to manage people who are different than yourself.

After a few years, you will face a choice: Do you continue working in the consulting company and try to climb the pyramid, or are you going to get hired by one of your customers? Either one is a pretty good choice.

UBIQUITY: What advice do you give to your daughters? You have three of them, right?

ANDERSEN: Actually, I try not to tell them anything. I am very wary of parents having ambitions on behalf of their children. I try to encourage them to do well in school and get enough math, because math is a language that you need to understand in all walks of life. So, even if you're not interested in it, get enough that you can understand the numerical world. And then, basically, follow your own interests. It's a little bit early for the 10-year-old, but the 15-year-old and the 18-year-old already have fairly defined plans for what they want to do. Neither of them is pursuing a career I would consider, but both choices seem to be good for them.

UBIQUITY: What are their choices?

ANDERSEN: The oldest one is very interested in literature, history and societal questions. She's been writing since she was, oh, I don't know, six years old. She wants to go to a US liberal arts college, a good one, hone her skills in writing and humanistic areas -- history, philosophy and so on. And then, she doesn't know what she wants to do but she will have lots of years to figure that out. The second one wants to be a nutritionist: she decided that all by herself when she was 14, and now she's already planned out what she needs to do to get there. I don't know if she's going to end up there but she looks pretty determined, and it seems to require skills she has or can develop. I don't have a clue what the youngest one will do.

UBIQUITY: Do they know more than their father yet?

ANDERSEN: The oldest one -- certainly in her field -- knows more than I do, at least in some areas, and she's happy when she can stump her father, which is happening with increasing frequency. And when it comes to nutrition, I am sure that the second one is way ahead of me already. And the third one will not be far behind.

UBIQUITY: How shall we end the interview?

ANDERSEN: I want to end with proclaiming my two laws of the Internet, and see if there is any reaction:

The first law says that communication and computing are now free resources, and if you remember that law when you think about the use of technology you're going to do a lot better, especially if you are a CIO or other business executive thinking about how you should make use of it.

The second one I've never seen formulated anywhere, but I though about writing it out for *Ubiquity*. My second law is that every dot.com should have a dot.org to watch over it. A lot of companies are dot.coms, in the sense that they have an Internet presence with an address like companyname.com. I think their customers and other stakeholders in the company should organize and take command over the companyname.org, whatever it may be. So, let's pick a company, let's pick enron.com. If there had been an enron.org that watched over enron.com, perhaps Enron wouldn't have been in the papers quite so much.

UBIQUITY: You need to hurry up and write that up for us!

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