



Structuring Information for Designing the Future

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I'll talk a bit about the future of IT.

Your program says that I'll tell you how to forecast the future, not just the content of my forecasts. So I'm here to tell you that it's really the sociology of IT that you're weak on. In this, I hope to strengthen you in the next hour.

The era of irrational exuberance, as Alan Greenspan had it about the Internet, has moved very quickly into the era of irrational pessimism about IT. Budgets for websites and IT are little to write home about. There's an increasing sense of uncertainty about whether IT makes a difference. Meanwhile, Steve Balmer from Microsoft says that broadband won't happen any time soon.

McKinsey published a report just yesterday saying it didn't make a difference. That was fun, coming from the firm that, around the millennium, broke company history by taking equity stakes in all the dot coms that consulted it. So having been most deeply enmeshed in the dot com boom, and having boosted it such a lot, McKinsey now criticizes it more than is necessary.

Just a year ago it was impossible to read about anything in the *Wall Street Journal* apart from IT. Yet the *Journal* says that 3rd generation mobile technology will not happen. It had a lovely article titled "Combo Gadgets Don't Cut It". It meant that if you try to put the mobile phone together with the Internet, the result is disaster.

You find not only pessimism about the world economy, but also pessimism about IT. And it's just as irrational and just as short term in mentality as the original short termism that made everybody invest in dot coms.

The dot com boom was a financial bubble, not an IT bubble. There was very little real investment, apart from that made in optical fiber around the world. But despite that, everyone indicts technology for the astronomical debt that has been built up by mobile companies and particularly by European telcos.

How many of you read the *Harvard Business Review*? So, there are a few sad people in the audience! But you need to read it to know the enemy. And if you read the March 2001 issue of the *Harvard Business Review*, you will find that Harvard's Michael Porter, one of the leading gurus of management theory, says: "Internet all bad news."

Porter observes that people move around a lot when they are choosing things on the Internet. You can't keep hold of them, so switching costs are low.

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He also argues that there's no such thing as a network effect. If you buy another fax machine or buy another mobile, that doesn't add to the economies of scale and everything you can get with more users – or so Porter argues.

Porter is hostile to partnering around standards. That, he says, tends to commodify industries and leave a firm's differentiating capabilities out of the picture.

Most significantly, Porter generalizes this downbeat feeling about the Internet by saying the lesson that we've learned from it is: don't be a first mover. That's pretty serious coming from Harvard: "Let some other idiot be first". That sentiment is profoundly hostile to innovation.

When we look at the mood today, everywhere we go we find this sort of great sadness and a blue funk where we seem unable to be certain of ourselves, or to be confident that we can move forward. Even before the events of September 11th, you had self doubt: Jospin of France could put himself at the head of the anti-globalization movement because he didn't feel good about globalization. Tony Blair was under enormous pressure because health care and education is so poor in Britain.

Now that we've had America's Pompeii, of course all these fears and foreboding about the future have fed through to the world of IT. The word is that it was fantastic, but that it should pretty much become simply part of the furniture now.

So in fact the big changes are not really in IT budgets, nor even in IT, but in us. Our subjective feelings about each other and about IT have been transformed. Even before September 11th, we felt more alienated. At work we felt more individualized by market forces. We felt more vulnerable.

By sociology I don't mean how many blacks or Asians or women use IT. I mean the sociology of relationships, of perceptions and of power. So in fact the chief sociological change is the new sense of vulnerability that we all harbour – even if unconsciously. That makes us feel that the pace of change is very, very fast.

"You know the only certain thing is change. Expect the unexpected." If I hear that one more time from a management guru...you all know there's one thing that doesn't change: that terrible way of beginning a speech.

Of course there are changes in the outside change world. There is objective change. But our vulnerability makes us particularly sensitive to that. It's us who are changing fastest. And that is what makes every management guru begin in this same old flat-footed way. And if we feel this, and begin by saying everything is so uncertain, of course it's much harder to gain a sense of the future. And if you have no sense of the future, it's very hard to plan innovations, to be really innovative as graphic designers. So I want to help you be that today.

I'm a forecaster. And of course you might well ask: how can you forecast the future James? Well, let me tell you that you can.

In 1986 I went to the then centre of British wealth creation, the North Sea. For the Economist, I wanted to look at safety on a Shell platform in the North Sea: it's a very interesting environment. It's a helipad. It's a factory. It's a hotel. It's a chemical works. It's a restaurant. It's a hospital. It's men without women.

I found out that the most dangerous time on the North Sea is in fact when there's a shutdown. When there's a shutdown, all sorts of unskilled people come on to the site. They work for 16 hours a day, against the law. They are in an enormous hurry to get that black gold coming on-stream once again. And in that hurry and in that sleeplessness and in that unskilled environment, mistakes tend to happen.

I nearly got sued by Shell for what I wrote. That was in the days when it was not yet fashionable to be sued by Shell. Yet, just two years later, the Piper Alpha oil platform explosion took place in exactly the shutdown conditions that I had described.

So when everybody else will tell you that you can't plan the future, don't rush to believe them. They will say: we don't want to be a bit male and 'left brain'. We've got to get in touch with our feminine side. Intuition must be king.

I say: enough of that. I'm here to uphold some old-fashioned Enlightenment values called rationalism, humanism and universalism.

You are not all different. If a man came in through that exit door saying I've got spores of anthrax, you would find that you all behaved remarkably similarly. For all the differences in ethnicity, gender and sexual orientation gathered together in this room, you would find that you behaved the same.

So I want to say you can predict the future a bit. You can at least lower the role of pure intuition. If you don't believe me there's a cover story I did for a magazine in 1988 looking at e-commerce. In 1988 it was called teleshopping; in those days we didn't know about e-commerce. And then I went to the Henley Center for Forecasting before moving to the client side with Philips, a Dutch company based in Eindhoven – the Columbus, Ohio of the Netherlands.

Philips is very good technologically. It invented everything; but it marketed nothing. And it had a sort of "technology push", tunnel-vision view of the future. Great people in white coats doing great research.

The Philips worldview is a species of what we call, in sociology, technological determinism – the view that the future of society is fundamentally determined by technology. Here technology is the independent variable, and society the dependent variable.

Churchill said: "We shape our buildings; thereafter, they shape us". He was not all wrong: it's clear that a building like this does shape our psychology. But what I'm here to tell you is, that a deterministic, technology-based view of the future doesn't do justice to the fact that we make the technology, that we are the prime movers, that we and you are the independent variable.

You will find even if you go down to the pub now after September 11th, after the dot com collapse, and say to the man in the pub, 'what's the future?', he will probably reply: 'the Internet', or "biotechnology" – even now. But that isn't just the future. We determine the future.

Now there two aspects of technological determinism: One of them really loves technology and has a utopian view of the future – although, as we will see in a minute, that approach has been qualified in recent years. That's technophilia.

The other aspect is technophobia. And if you take technology as your dominating variable, you will find that when you're optimistic one day, it's quite easy to have that irrational pessimism the next day, because you've taken the wrong target – technology. I'm a physicist. I love technology. Some of my best friends are technologists, right? But, let's get it straight.

So let's just have a look at the history of our perceptions of technology. Go back to the Reagan era, the “can do” era – the epoch of Star Wars, Mk I. In that period you can read John Naisbitt, who coined the phrase “high tech, high touch”. He's had a book out 18 years later called High Tech, High Touch. And he maintained even in 1982 that convergence between tele-

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coms, computers and consumer electronics had already happened. He's one of the best known forecasters in the US. [If you're in forecasting or want to enter it, you've got to check out the other forecasters.] He was a very optimistic, very technophilic.

The defining article about innovation in the past 20 years is not by a forecaster, but a management guru – Peter Drucker (“The discipline of innovation”, published in the *Harvard Business Review*, May-June 1985). And he said, very rightly (and you will know it from your own careers in design): you've got to recognize incongruities. For the great thing about fantastic design is as soon as you've seen it, you think “ah, why didn't somebody think of that before?”. Because there was something fundamentally incongruous that somebody has solved – incongruous in the logic or rhythm of a process, or incongruous between assumptions and realities.

Drucker gave the example of ocean freighters. Everybody thought the way to beat airfreight was to make the propellers in ships go faster. Then they worked out that the real bugbear of freight shipping was not when you were traversing the Atlantic: it was when you were in port. And so in the '60s you will find they developed roll on, roll off containerization and that really put sea freight back on the map.

Drucker's is a very interesting and useful article. But you will find in the middle of the “can do” era, that Drucker takes a leaf from Ernst *Small in Beautiful* Schumacher.

Drucker says: don't be too ambitious with innovation. Don't go too far. Don't be too grandiose. That's quite something to say in the middle of the Reagan Star Wars era. And he warms to the point and suggests: “IT? Forget it.” It takes 50 years to develop, things go wrong and you can't easily predict the outcome of the R&D process that surrounds it. Drucker had little time for computers. That's also significant because computers were very important in the '80s. Even before you were born they were important.

And it's only really with the run-up to the dotcom boom that the technology push vision of the future, the upholding of technology, really returned to the stage in discussions on innovation.

Clayton Christensen's *The innovator's dilemma* (1997) is a very good book – even though much of it is about the hard disk drive industry. You will find that he is very into disruptive technologies. That's where the phrase comes from. And what he's talking about is new entrants who attack the dinosaurs and prepare to do some loss leading market initiatives. Often, but not always, they're really the dotcoms. Christensen's doesn't describe them as dot coms, but he is upholding technology in a refreshing way – in fact, for the first time really since Drucker denigrated it in the mid 1980s.

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So here we have technophilia. Yet the problems with it are very simple. With technophilia the future is a thing. Not a social creation, but a thing that happens to you with technology. It's not something that you make happen.

Second of all, innovation itself is stripped of its organizational, cultural and personal elements – of its social dimensions. It is reduced to technology. Big mistake.

However if you look at our technophobes, you'll find them worse and more influential, especially as the years go by. Now, it all begins a long time ago, with Mary Shelley's *Frankenstein*; also, with Fritz Lang's *Metropolis*. But today I think we've reached a different kind of technophobia.

In 1938 Thomas Watson Sr., the founder of IBM, coined the slogan “THINK” and that was really radical in those days. The new slogan at IBM is, at least apocryphally, “THINK AGAIN”. So what we find is that there's a perception of risk that really begins in 1986, the year of Chernobyl, and is pioneered by our German environmentalist friends.

Especially in the downturn of the early 1990s, technology is denigrated. It's market demand that's instead given praise for much of the 1990s. In the *Harvard Business Review*, an article titled ‘Marketing is everything’, by Regis McKenna (January-February 1991), says that it's users who should determine the future, and that we can check them out with IT – with an IT version of focus groups. By looking at page impressions and hits and all of those things, that will help us innovate. We can learn how to innovate by orienting not to our technology, but to market demand and market users.

Also important was an article in the very same issue of the *Harvard Business Review*, titled ‘Research That Reinvents the Corporation’ by John Seely Brown of Xerox. He said that if you want innovation, if you want new products, if you want new graphics, you must do ethnography with users.

Now with much of this stuff, there was nothing wrong. We need technology to find out about people and, after all the top-down excesses of the past, it was right to investigate users.

But if you push it too far, you will find the doctrine just as limiting in terms of innovation as that of technology push. And it's particularly limiting when, if you go to users now, you will find that their sensation of risk is enormous. Especially after September 11th, but once again that has only reinforced existing social trends.

We know that the genetically modified tomatoes have landed and are on all our front lawns and are about to eat us. There is that sense of risk, even though nobody has died of genetically modified foods, right? You might like to know that only one person has died of anthrax in the United States. Similarly only four people died in the Hatfield rail disaster in Britain. But you only need one or two people to die nowadays. Leave aside the thousands on the roads or the thousands from coronary thrombosis or whatever, you just need one person to die. Or in the case of GM foods, no people to die.

All you need is a few casualties, or rumours of casualties, for a panic to go around society. You and I might differ on GM foods. But I put it to you that wherever you go, you're worried about what you're going to encounter. You're worried you're going to encounter bedbugs in a London hotel.

Now you may not know some of these acronyms. ADHD: attention deficit hyperactivity disorder – what you've got while I'm talking. DVT: Deep vein thrombosis. Orthorexia: not eating the wrong food, but being obsessed with eating the right food. Disco TB: the tuberculosis you pick up at tonight's disco.

So wherever you look, you find this estrangement from the world that we've created. The feeling is that humanity has made technology and therefore has built a cancer on this natural planet. It was earthy. It was maternal. And now these male guys have come and ruined it with their technology and their big corporations and so on. A very dominant view. And it confirms to me that the sensation of risk which we've all felt since September 11th, is a very deep run and long standing symptom of a malaise in Western capitalism.

I would argue that the pace of innovation has been much slower in the past 20 years than it ever was, say, in the last 20 years of the 19th century. But if you can't develop wealth in a serious and sustained fashion, you will suffer a crisis of self confidence and you feel ashamed to be a member of the western elite, as many do today. That's why George Bush puts on those shoes when he goes into a mosque. And Tony Blair can't go anywhere without carrying an ostentatious copy of the Koran with him. Oh no, no. We're not anti Islamic while you bomb you. We're not anti Islamic. We won't say that. That sense of self doubt, that sense of risk is very big and it's going to last a long time. As early as the '90s it was clear that if you were too ambitious, too risk taking, too in your face, like Margaret Thatcher, then you ran the risk of becoming a bag lady. The feeling was: Pride comes before a fall, so what we need is a softer, more feminine, more touchy-feely environment. What I have elsewhere called the Hilaryization of the world, where you say that I'm firing you, but that this hurts. And I think it's bullshit and I think we need the

clash of views and the polemical approach and the Voltairean “I disagree with what you say, but I defend to your death the right to say it.” I think we need much more of that in the graphics world. Even in Canada where everybody agrees on everything. I think we need a whole lot more because the stakes are very high. September 11th showed that. And unless we’re clear about history and we’re clear about the role of humanity, and that involves IT, we won’t get it right.

So the take we make on the ‘80s is too much, too far, too fast. The take we make on the 20th century is really if you’re too ambitious, the result is the Gulag or the Holocaust. So when we look at IT now, we find that again McKinsey and everybody who favoured one to one marketing in the ‘90s, has now concluded that you cannot personalize things through the internet. No matter what Amazon has done and they know what you’ve been reading last week and what you’d like to read next week. No. We cannot have mass customization.

“So wherever you look, you find this estrangement from the world that we’ve created. The feeling is that humanity has made technology and therefore has built a cancer on this natural planet.”

Now I never bought all of this in the first place. If you read my pamphlet Cult IT (www.ica.org.uk/index.cfm?articleid=1021), I pointed out in 1999, during the dot com boom, that IT was becoming a cult, not a rational enterprise. I attacked the productivity impact, so called, of IT.

By the same token, I didn’t agree that personalization or mass customization were at all easy. You only have to look at your junk mail to realize the banks understand nothing about you. Even today, let alone what you’re going to do tomorrow, right?

But now I’ve got to come out in favour of personalization. And really when you look at what needs to be done...this is the latest direct mail I’ve had from British Airways. They’ve managed to personalize it – but now McKinsey finds the moment to say no, don’t be more personal, don’t be ambitious. And Porter finds a moment to say don’t be first.

So it’s not surprising that, in this climate of hostility toward IT, that the Internet was celebrated as a means of communication for the families of those who died on September 11th... yet at the same time it was denigrated as the means by which the hijackers communicated and organized. Then that’s why this photograph, with the Arabic “Hurray, we won”, caused such a stir. The commentary on the IT dimensions of September 11th highlights the two dynamics of technophilia and technophobia.

So what is the problem with technophobia? The problem with technophobia is, once again, that the future becomes something high tech that happens to you – not something that you can make happen. As I’ve hinted, the formal target of criticism is technology. But when the greens go on about us being a cancer on the planet, they are really saying that it’s we who are the guilty party. And instead of innovation in this framework, you have nervous frustration where you

shouldn't even go out of your homes tomorrow morning because there is a risk that anthrax will get you. There is a risk. In fact I wouldn't leave this room if I were you because the risk of being outside the room is probably bigger than staying here with me.

So I think you can see that the hostility to technology in fact reveals a hostility to humanity. That's why I'm a humanist. Not in the touch-feely Hilary Clinton sense, but in standing up for your ability to innovate, to create change, to bring progress, to improve the world.

Of course, you will create more problems in that process. So what's new? Problems don't represent an innovation. What is innovative really is the hostility to technology and by the same token the hostility to ambition and innovation, which tend to be regarded as a sort of macho enterprise.

Here are two examples of how this risk consciousness, sociology of risk, molds IT; how it's society that determines the priorities of IT, not IT that creates the priorities of society.

The first is mobile data — in the corporate context, not the consumer context. When you look around in mobile data, there are all of these wonderful devices that are coming around and able to do lots of clever things like Linux. And it's fantastic the opportunities there. If you take Britain, the number of people working at home is actually finally rising. If you're British you just don't work in the study at home, you work in the kitchen and above all you work in the garden, because that's what we Brits do. And if you work in the garden you need a mobile. In fact you need a mobile all around the house. People do not work just in their study. They don't have a study a lot of the time.

So there are all of these opportunities for mobile data. Wouldn't corporate life be a bit easier if graphics was even better than what it is at Amsterdam Schiphol, where it is a whole lot better than at London Heathrow? Couldn't this airline data be collected and put together on my mobile? Wouldn't it be useful in the occasional flood that we have?

Norwegians now give mobile phones during confirmation ceremonies. Discussions at the Sunday lunch table in Norway are between 19 year olds agreeing that 8 year olds should not have a mobile phone. Families used to row about cigarettes — you know, Johnny's too young and all of that. Now they row about mobile phones.

So there's a generation growing up alongside all of these devices, alongside these work trends. It's a generation that's very open to mobile phones and mobile data.

But what's the climate that we find? Well, first of all a lot of graybeards in human factors tell you that the mobile interface is very poor. And they're right. This is the 'Why Oh Why???' school in IT. I used to do it when nobody else did it. Now everybody else is doing it, I've dropped it.

I've dropped my complaints because it just isn't good enough to say that because corporate intranets are very poorly organized, that they are a bit like the Third World, where anything goes — that they're the wild East and all that.

If you do e-commerce you can at least measure the sales. If you do an intranet you just do a dazzling demo to board members and they say "Great!" and there's no testing of it. It might follow, therefore, that the mobile intranet will turn out to be a kind of Third World on wheels. It could be even more disorganized and even wilder and impossible, so people imagine.

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Fears of this sort, and particularly fears about the security of mobile data, are everywhere – even though there is at present little mobile data to speak of. The fears are many because fear is the main mode of propulsion of Western culture today. I hope you’re going to write that down because we’ve got to fight it.

The fear is: if you’ve got all of these different devices, integrating them is going to be impossible. If you’ve got all of these different people who are in China and America and Europe, they’re not going to be able to work together because they’ve got all of these different cultures and languages and time zones and they each need their own personalized interface and so on. And anyway if you do give mobile data to people, they’re going to leave their corporate secrets in a telephone box and a rival is going to pick them up. It won’t just be P & G going through the dustbins of Unilever, something which happened recently. That really tells us a lot about innovation at P & G. They’ll be going through the telephone boxes to get their innovations.

Then, of course, mobile data is very dangerous because a lot of longhairs will hack into your systems from outside (as if you could not protect them with a firewall!). And there is the fear that if I put my personal data with my corporate data in my mobile, then my employer’s going to know all about my private life. But in my view, all these fears about mobile business-to-employee relations over corporate intranets are uncalled for. Worse, if neuroses about corporate security and personal privacy go unchecked, they will impede what looks like being a very important workplace innovation.

Now you may say, “yes but look James that mobile phone is making me work 24 hours a day.” I say that is technological determinism. I say if you are not guilty of nervous prostration, you can turn the phone off. And what makes you work 24 hours a day is society, is employers, not a mobile phone.

If you think I’m exaggerating, take a look at the famous management guru Charles Handy. He doesn’t want telework. He doesn’t want mobile work. He wants face time.

Now I like face time. I love meeting managers face to face, even if that usually happens when I get fired. Now there are all of these articles in the *Wall Street Journal* saying when you fire people, don’t do it by email. Do it by face time.

Fantastic! Yes, I like face time. But to say no to mobile data is to say no to the future of work. It is to turn back humanity’s global division of labour. It is to put back the course of progress before 1776 and Adam Smith’s *Wealth of nations*.

Everywhere you go people are now complaining that mobile data and laptop holidays really are a dangerous thing. In America a fantastic writer, David Brooks, author of *Bobos in Paradise*, has also attacked ‘wireless man’ as a kind of dumbed down individual who wants a prompt every 15 seconds.

Such people exist, but they are a minority. To view the future of mobile data just as a kind of ratrace is profoundly pessimistic. There will be problems with mobile data, but look at the opportunities:

Unified messaging. You just get one number on your card. Less work for typographers, but good news for the rest of us.

Working across time zones in a global manner.

Doing your expenses while you're on the move.

Reorganizing quickly so that when you do take new staff on – unlike Nortel, which just fired 30,000 – you can equip them very, very quickly with mobile rather than cabled devices.

You can get out to customers more and spend less time in meetings. Above all: perhaps when we've got one device that does a lot of stuff for us on our person, we can start to look at the content of communications – what the words mean as opposed to the form in which you get the words, or the images. That's important.

Graphic designers! Think content, content, content! Please read the copy. You know this, but you must hear it again now. That's the opportunity that mobile data gives us, not to concentrate on is it a PDF or a JPG or any of that rubbish, but just what is the content of what you're saying.

So I'm very optimistic about mobile data. I think it'll go beyond the yuppie class. And notice it's not mobile phones that fragment work, it's the fragmentation of work that brings about mobile phones. That is the opposite of the technological determinist argument.

Of course, there's a reason why companies don't want to adopt mobile data. So long as Western capitalism is in a blue funk, and you don't have a strategy beyond the next quarterly results, you're going to be very nervous about giving all your sales people and your employees a Microsoft tablet PC. Because if all it's got is graphics of the sand dunes of the Middle East and no strategy, no priorities, just a management funk, it's obvious that, as Samule Goldwyn said a long time ago, a wide screen just makes a bad piece of management strategy twice as bad. And that may be why employers are not adopting it.

A second example of risk consciousness molding IT is that of play. Today, as a form of therapy, play is preferred to progress. And that really is a very disturbing trend. Now what we find is because innovation is so hard to do, because R & D is not a matter of caprice, but takes millions of dollars and is a very stressful enterprise, we find that it's all too easy to get into a displacement activity distinct from innovation.

It's all too easy to mix innovation up with creativity. After that, it's all too easy to mix creativity up with play.

Now we were going to have Simon Waterfall from Deep End Advertising speak. At Deep End they had the obligatory table football game in the reception area. Unfortunately, however, Simon couldn't come because Deep End has collapsed.

So you may want to play. You may want to wear Play just as much as graphic designers want to wear black. But compared with innovation and work, play is the first step to decline and destruction.

You can see it very clearly with Accenture where they feel they have to have the corporate hula hoop there just to show how creative they are around the office... while they take your money. Even stodgy Commerzbank has to have playful dining interiors.

Here the world is interpreted as just consumer experience: a kind of thespian world where we're all struggling for customer delight. Myself, I would like something that worked, but there are all these marketing people that want to give me delight instead. And the doctrine is very much centered on making the user experience dramatic.

All of these things reinforce the older generation in their desire to get in touch with the younger generation. That's why I'm so sick of hearing, from US management gurus, the speech opening: "You know my son, he can do just wonderful things with a PC. He's just so brilliant. He knows all this stuff that I don't know." It's rubbish. Even these gurus have read some books. Their sons, however, haven't read any books.

Before, then, we all dignify the urge to play, we need to look at just how pervasive it is. Games, gaming, play, becoming really infantile in every way: it's a big trend in Western society. It says: I don't feel good about being an adult. I want to become a creature of emotions and short attention spans. That trend is profoundly inimical to innovation.

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If you don't believe what I'm saying, look at the wider play you can do with the 88 alternative remedies offered to you by Boots and Granada tv in Britain. Acupressure, aromatherapy, bio-rhythms. Pick one, perm three, drop another. It's just playing.

You can play with your health or you play around Europe being fitter and having the body beautiful. Play is just a form of therapy that appears to be more dynamic than, say, chill-out zones in offices. But it's just as deadening to innovation.

Recently, I learned a new phrase in Italian, *sono stressato*. I am stressed out. That's new. It reflects the panic and the fear and the anxiety, the self-doubt, that exists even in Italy where they never used to be stressed out. In the past, Italians just asked for polenta at the end of the day. Now they've got to buy *The little book of calm* in Italian, where they read that it's OK to leave the achievement of perfection to somebody else.

If you're doing your research properly and you're thinking about sociology, you're going to look at the US Bureau of Labor Statistics. In the forecasts that the Bureau makes, you will find that the five top fastest-growing occupations in the States are all in IT.

Now look at the next top five fastest growing occupations. They are:

Para-legals and legal assistants. These people make sure that you can sue everybody when you've drunk that too-hot McDonald's coffee and then you can get recognized for your victimhood and all of that stuff. You can also set up a campaign for all of those who've been burnt by McDonald's coffee and so on.

Personal care and medical assistants.

Social and human service assistants – a category I quite like to meet in the privacy of my own home! I'm not quite sure what they do, but I'm pretty sure it's profoundly therapeutic!

Now you could say that correlation is not causation. So just because you've got all of these IT jobs spreading doesn't necessarily mean that we are going to need more therapists (although you could occasionally be forgiven for thinking that!). But one thing is certain. Just as fears may impede the growth of mobile data, so play and other, more familiar forms of therapy will strongly inform the future of IT.