



Future Obstacles and Opportunities for CIOs

A Futurizon Report

May 2008

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The business environment is changing faster and faster and change won't slow down any time soon. With such rapid change, the 5 year plan is already useless, and can even be an obstacle if it ties a company down to a particular structure or investment plan that isn't easy to modify when years 4 and 5 turn out slightly different to expectation, as they often will.

IT is not a fix for bad or obsolescent business ideas, so don't blame IT when you can't compete, the basic business is probably wrong somewhere and needs to be redesigned. Also, every top company uses the best tools available, so even the best IT doesn't necessarily confer a business advantage; it just helps you stay in the game. But there is always the chance that your competitors will become complacent or make a mistake and if you are agile enough you can take full advantage. It is quite surprising just how badly some big companies use their IT systems, so opportunities often exist to take such advantage.

Most companies use IT somewhat inefficiently and waste a lot or even all of its potential. We need CIOs to think things through more systemically and be more integrated into the business so that it can react more quickly without misusing IT. In particular, the worst IT abuses are micromanagement and centralization. You need to know the cost of the system as well as its benefits; what you are losing in productivity or staff loyalty, as well as what are you gaining. So think about how much of your people's valuable time is spent gathering that supposedly valuable useful information for head office before you allow an administrator to hit send on a company-wide email making yet another regular form completion mandatory.

Centralisation is another temptation that invariably sacrifices staff loyalty and informal staff relationships with experts for control, but it is rarely obvious what benefits this control brings. Instead of asking the nice IT chap next door to help with a problem right now, a two day wait for a stranger from a central IT department means a loss of two days production. And with abundant evidence (especially in the public sector) that centralisation usually means exploding costs, late delivery, unreliability, inflexibility, undue longevity and underperformance, is it not time we abandoned the pretence that it will work this time?

It must surely be better for the CIO to evolve into an advisory service, running a federation of decentralised IT instead of centrally controlled systems. This avoids the perils of centralisation but still keeps the company working together in the same direction. And when a small part of the company targets a whole new business opportunity, it can do so with relative freedom and agility.

CIOs also need to be much smarter about security. They now need to accept that people will come into the system from all angles but they still need to work, so need a system designed to cope with 'friendly strangers'. And it really shouldn't be necessary to point this out, but it really is: if a security chief is mandated to reduced risks to a minimum, it is easy to achieve such an objective by locking everyone down so much that they can't work any more. But there is no point in security if it cripples the employees so that the company dies. Set your staff free. If they abuse the freedom, punish them. But don't impede the vast majority of good and sensible staff in doing their jobs.

Memory sticks have now reached the point where all of the files someone needs for their everyday work will fit onto a single stick on their key-ring. This can make for easier sharing of computers and facilitate staff home/office working. The next generation will use wireless USB, and it is a small jump from that to allowing data to migrate between memory sticks directly by wireless, allowing podcasting to evolve into a much more organic and transparent distribution system, driven by social applications such as entertainment and social networking. Of course, IT systems will have to adapt to the many capabilities and threats presented by these memory stick networks. Social networking easily evolves to business networking, and music sharing is no different to a memory stick than sharing business information. So locking out such technologies to avoid the threats would also lock out the many advantages they can bring.

Memory stick networks are an important step towards an era of digital jewellery, where circuitry shrinks so far that almost any IT can be incorporated into pieces of jewellery. This removes the need to decide which bits of kit you need on that business trip – you can take it all! Even interfaces are already migrating towards free space handwaving, voice and gestures, driven strongly by gaming technology. Even thought recognition is entering the market now. When the keyboard becomes just another field in a 3D head up display, we will have the ultimate in flexibility. Offices will become places where we go to meet people; we certainly won't need to go there just to do stuff on our computers. Desk with PCs will vanish in favour of comfy seating areas and coffee machines. Starbucks is already in that space of course!

As people become more accustomed to using virtual worlds, more businesses will spring up on such platforms. Ambient intelligence, simplicity, and virtual worlds will bring enormous opportunities for

those companies agile enough to stay in business. Convergence will cause boundaries to blur between industries. As edges become blurred, some parts of the company will expand organically into new territories while other parts shrink as they either become obsolete or captured by competitors. The ultimate convergence is between the real and the virtual. Today they are still very separate, but as positioning technology improves, as head up displays (HUDs) become commonplace, and as games technology, the web, entertainment and sports all converge with shopping and business environments, the world will cease to be divided between real and virtual and the two will merge. Dual environments allow virtual objects and beings to be overlaid on our field of view in the real world. We won't have to go to a computer to interact with a virtual world, we will be able to do so any where we are just by moving around. Digital plants, animals and aliens will inhabit our shopping malls, amusing us as we shop, and we will see people's avatars if we prefer them to their actual physical appearance when we talk to them. Indeed, while videophone still refuses to take off, we might well find that avatars and HUDs will succeed.

The relationship between employer and employee is also changing. As technology increasingly permits, there will be lots more freelancers, and most of the elite will freelance and charge high fees. Working for several companies at once will be their norm, and it will become very difficult for companies to attract permanent staff in key positions, even as other workers are reduced on the global stage to abundant commodities. Virtual companies will increase, and open source business software could provide a platform for these virtual companies. It has never been more important to be agile, and above all, agility needs flexibility. So the most important message to the IT department: give me the tools, get out of my way and let me do my job!

ABOUT THE AUTHOR

Ian Pearson graduated in 1981 in Applied Mathematics and Theoretical Physics from [Queens University, Belfast](#). After four years in Shorts Missile Systems, he joined BT Laboratories as a performance analyst, and later worked in network design, computer evolution, cybernetics, and mobile systems. From 1991 until 2007, he was BT's Futurologist, tracking and predicting new developments throughout information technology, considering both technological and social implications. He now does exactly the same things for Futurizon, a small futures institute. As a futurologist and consultant, he lectures widely on his futures views. In between conferences, he writes on topics such as machine consciousness, human evolution, women's issues, ageing, social trends and advanced computing technology.

He has received many awards for his papers, written several books and has made well over 400 TV and radio appearances. He is a Chartered Fellow of the British Computer Society, the World Academy of Art and Science, the Royal Society of Arts, the Institute of Nanotechnology and the World Innovation Foundation. He was recently awarded an Honorary Doctor of Science degree by the University of Westminster.

