



The Future Engineer

A Futurizon Report

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It is a great time to be an engineer. After witnessing the convergence of computing and telecoms changing our world via the internet, email and messaging, we are about to witness the convergence of the whole of IT with biotech, enabled in part by nanotechnology, which itself gives enough scope for excitement. The result will be connections between our nervous systems and our machines, recording and replaying sensations as easily as sound or video today. With biotech advancing, we will have the power to modify and redesign nature, even to introduce IT into living organisms if we wish.

The engineering will be difficult but greatly enjoyable. But it comes with responsibility. It is already very obvious that our political leaders struggle to keep up with the capability of new technologies. Ordinary members of society can't understand how it all works. Lawyers can't keep up the speed of regulation either. So we have to trust engineers to take some responsibility themselves for the technologies they create. Of course we want all the benefits, and market forces guarantee that we will always be well informed on those. But where there are problems, there is always a temptation to hide them. Problems from new technologies can arise in lots of ways. It may help people carry out terrorism more easily or effectively, allow hackers and spammers and identity thieves even more ways to create a nuisance. Or it may be more subtle, creating social problems. For example, a fantastic computer game is obviously good fun, but if it is so good that kids disappear for long stretches from everyday contact, then it can become a social problem. If kids get used to killing people in hyper-realistic virtual environments, surely it will create real world problems for society too. The list goes on and on. In the absence of anyone else that can spot the potential risks, and help society make informed decisions on the balance of benefits and risks, engineers must accept this responsibility. It is simply not acceptable to introduce new technologies on a world that will gratefully accept them without being told the price. To do so is to mislead and abuse society.

A related problem is that of the age of magic. Arthur C Clarke observed that a sufficiently advanced technology is indistinguishable from magic. That is often the case even today. Few people know how all the kit around them works, even engineers can usually only explain a small fraction of it. In some ways, the future engineer will work with such advanced technology, that they start to fill the ancient role of high priest or priestess. Someone comes to them with a problem, they wave their magic wand, say some wonderful words, and it is cured. How tempting it will be to take advantage. And how easy. We must be careful not to abuse our clients. Engineers cannot be expected to become saints, but we will have to accept more social responsibility, and self regulate to ensure that society gets a fair deal from our contract with them. Any less would simply be unprofessional, and I can't think of anything an engineer would less want to be charged of.

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.