



The Future of Business – green fields ahead!

A Futurizon Report

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“Pride comes before a fall”, as the ancient wisdom goes. In business terms, this translates as: once you fight your way to the top of your sector, you quickly become complacent and too comfortable, very soon your position means you stop behaving like a predatory startup, settle into your comfortable corner, and then you get left in the dust when the market changes and you have lost your adaptation and hunting skills. When computing converged with telecoms in the 90s, it wasn't the top computing or telecoms companies that got rich. Google, eBay and Amazon all came from nowhere and quickly dwarfed all the old blue-chips that sat back and watched from their corners. Don't let that happen to you!

Let's look at some of the big green fields that are appearing. We live, at the moment, in a technology driven world, and just like mountain ranges are formed as continents collide, so we see huge markets created as technologies collide. So if we look at the new convergence waves, and at the technological foundations of those waves, we will see some big opportunities.

Virtual environments such as Second Life, socialisation sites such as chat rooms, Facebook and Bebo, and on-line games - all are big and growing sectors. But convergence says that these don't have to be things that stay on-line. In the next few years, head-up displays (HUDs) will evolve from today's primitive video visors. You will soon see train passengers watching video, playing games or browsing the web using these visors, while fingertip tracking will allow them to interact with virtual keyboards and controllers that only they can see. Other people will use displays that only occupy part of their field of view. Add next generation positioning systems (Galileo and some urban positioning) and some pretty basic artificial intelligence, and use these visors as the computer display, and we will enable the convergence of virtual and real. Small display improvements will enable a custom overlay that allows people to see both the real world and the computer overlay, with some image recognition enabling precision overlays of virtual imagery onto the real thing. People can lift all the stuff they do on the web and have it merged into their view of the real world as they go through the day. Duality will be a huge business and social platform. It will allow shopping malls to have different appearance for every visitor, with personalised architecture, fauna and flora, aliens and friends' avatars. People will choose how they see the world, and how they want to be seen by others. Whether it is making the displays, carrying the data, or designing the environments, or just using them as another channel to the customer, there are huge opportunities for companies with vision.

Digital jewellery will be the technology that replaces the laptop, i-Phone, camera, and almost all the other IT we use today. This is the logical end of the road for miniaturisation. The entire information content of your brain theoretically can fit hundreds of times over into a pinhead, and one day it will. When almost unlimited IT capability can be made that small, with almost zero environmental impact, the range of services and their markets will explode. We will need digital filters and bubbles to connect all our kit to the rest of the world and get what we want without the stuff we don't. Ego badges will electronically radiate our personality and credentials to everyone we pass, in case they might offer us a better job, or be the perfect date for Friday night. They will only become aware of it if their badges agree that they should be introduced. Hundreds of services like this will depend heavily on AI to establish the context of the situation, learn our personal profile, determine and establish trust and basically provide all the social and business criteria for every transaction.

Another massive convergence will come between biotech and IT. Today's primitive telemedicine will evolve into a much bigger deal when we get the means to put IT onto and into the body to intermediate bio-monitoring and drug delivery. Active skin will do just that. Miniaturised circuits can be printed onto polymer films and stuck on the skin surface much as temporary kids' tattoos are today. Ink-jet printers that can already print electronic circuits and print designs on fingernails will soon print circuits straight onto skin. And not far away, tiny encapsulated circuits can be blasted into the skin. In the dead cell layer that washes away after a few days, we could print week long security passes for holiday access to them parks, or day security passes for business visits. A bit deeper and the circuits will be able to monitor blood chemistry and nerve signals. Blood data could be relayed via the networks to a clinic, which could then remotely controls drug delivery through electronic membranes. The concept design of all these exists, it is just waiting for the miniaturisation and a bit of R&D to fill the capability gap. Interfacing electronically with nerve endings using deep skin

circuits will allow sensations to be recorded and replayed. Add this to communications, web, games and entertainment, and it is obvious that the markets will be huge.

Biotech is the field where expertise in protein-based assembly of nano-scale circuitry will come from. We will see the big biotechs getting in to electronics manufacturing, just as the electronics companies get into active skin.

I could list many more waves, but let's finish with a look much further down the road. Active skin is just one small step down the road to man-machine convergence. When we can link directly to the brain instead of just a few nerve endings, we can start enhancing our IQ, memory and sensory capability. When most of our intelligence lives in external electronics, it doesn't matter much when we die. Pick up an android to replace the body and carry on living, just take a few days to get used to the upgrade.

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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.