Afterword

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‘Prediction is difficult, especially about the future’
A Danish proverb favoured by Niels Bohr

‘The best way to predict the future is to invent it’
Alan Kay

When writing about trends it is wise not to get too carried away by the shiny toys that often pass for new technology. Both of the opening quotations offer a more balanced approach to thinking about the future. Bohr, an atomic physicist and Nobel Laureate worked in that strange place where light can be described as a particle or a wave depending on the experiment. Kay, who has gone some way to inventing the future is described as the “father of the personal computer” (Barnes 2007), having described a prototype personal computer in 1969. Other people are credited with having built the “Micral” the first commercial non-kit computer based on the Intel 8008 microprocessor in 1973, but that’s another story.

Kay worked at the Xerox Palo Alto Research Center (PARC), that breeding ground for much of the important information and communications technology (ICT) we take for granted today. A colleague of Kay’s, Danny Hillis, has his own view of technology: “the stuff that doesn’t really work yet” (Kelly 2007). Once it becomes a good, reliable technology it becomes invisible, and the reasons why it doesn’t work at the time may be as much social as technical.

In 1992, I had already connected the Premier’s Office in Victoria to the Internet for email – no real World Wide Web as we know it then – and with the improbable domain name of vicgov.oz.au.

In 1994, the Australian government was still coming to terms with the Internet, and replied to my email with a fax, thanking me for my email! The Department of Finance had received the email, but was email an accepted (legal) form of communication yet for the Federal government? Thankfully, the domain gov.au was established eventually and now applies to government bodies around Australia.
By 1995, I had read and sent email using a commercial service, on a handheld device, whilst travelling in a cab to the airport. Even though it didn’t quite work reliably, this convinced me that wireless technology would feature in my future. I had to wait until 2008 for Apple’s iPhone 3G to add GPS to Google Maps so that I could tell the cab driver that the cab was heading in the wrong direction. I was also reading my email and checking something on the Web as a matter of course. The handheld device of 1995 was an HP100-LX with a RadioMail PC card. I also read a book, *Prisoner of Zenda*, on the plane, on that device, where the book was downloaded from Project Gutenberg. This experience convinced me that there is much that is good about social cooperation in making information freely available online. It also convinced me that I needed a bigger device to read books on. In 2009, I am still waiting for Amazon’s Kindle (or a Sony ebook PRS-700 for that matter) to be released in Australia, so I can read more books on a convenient portable device.

The people best qualified to write about future technology are the gifted science fiction writers, who see that much further into the distance than ICT professionals. Around the same time I was experimenting with mobile email, John C. Dvorak (1994) wrote about “Trends in the PC Desktop Computer Industry”. There is no index entry for “Internet” in his book, but to be fair he acknowledges there will be massive growth in wireless communications [mobile phones and pagers]. However, he cautioned that there could be a backlash against increased personal interconnectivity: ‘Insecurity is what these devices are about. Dump them’ (p.149). Needless to say, the BlackBerry was not too far away and celebrates its 10th anniversary in 2009.

By 1999, Douglas Adams, a science fiction writer, was able to ridicule the attitudes of journalists and BBC presenters who treated the whole “Internet” thing as ‘… just a silly fad, just like ham radio in the fifties’ (p.1). Happily for the BBC, by 2006, Mark Thompson, the BBC’s Director-General, was named as the most influential media person in terms of cultural, economic and political influence in the UK. His ranking was in the Guardian’s Annual Top 100, ahead of Apple’s Steve Jobs, News Limited’s Rupert Murdoch, and the co-founders of Google. This ranking, in part, was recognition of his understanding of the importance of new media.

In 1999, Adams was also more optimistic about what he called pervasive wireless communication, and he drew on material about Nokia, and Finnish experiences with mobile phones. The article he drew on appeared in Wired magazine (Silberman 1999). Adams included observations on Finnish mobile phone users texting (SMSing) one another, and cited comments by Risto Linturi, the principal research fellow for the Helsinki Telephone Corporation, who said ‘... the roaming, spontaneous gatherings of kids in the streets of Helsinki are not just a glimpse of our wireless future, but a resurgence of our collective past: the rediscovery of an ancient unity coded in our senses’. ‘We are herd animals’, he says. ‘These kids are connected to their herd - they always know where it's moving’ (p.6).

In the same Wired article, Yrjö Neuvo, who was Nokia’s Chief Technology Officer in 1999, when questioned about the future commented, ‘If we have really high beams, we can see to 2005, … Every year we’ll be getting something fundamentally new. At 2009 we can’t see anything - it’s completely dark’ (p.4).

Nokia, in 1999 was seen as such a progressive company, that many people assumed it was a Japanese company. Meanwhile, in Japan, NTT DoCoMo launched i-mode for mobile phones, a mobile Internet service that lead to a phenomenal growth in their mobile communications market. The record growth gave rise to a mobile phone culture in Japan, including the availability of novels created to be read on mobile phones.
In 2009, if one were to look at trends, it is apparent that more information, and programs, are moving from personal workstations and from an organisation’s servers on to the Internet, or into the “Internet cloud” as it is known. Carr (2008) has written about this recently, but Graham (2004) in his essay “The Other Road Ahead” tells how he and his colleagues started building what are known now as Web applications and specifically what is known now as Yahoo Store, in 1995.

Much of the work at PARC took decades to move from being technology to becoming invisible. But now the pace of change seems to be accelerating, perhaps due to rate at which information can be exchanged. Google, which Carr discusses in his book, produces Web applications that stay as beta software for years. Traditionally, during software development a beta application is something that is not quite ready to be used in production. Perpetual beta is possible with Web applications because any errors can be fixed quickly and the changes are there for everyone to use. Google’s Gmail has been in beta since it was first introduced in 2005. In contrast, a patch or bug fix for an application running on a workstation has to be downloaded by everyone and installed on his or her own computer.

The biggest collections of personal information are probably not held in government databases, but on social networking sites like Facebook, MySpace, and in mailboxes on Gmail, Yahoo Mail and Hotmail. Do the users of these sites appreciate what they are divulging to the world? Perhaps they do know – and they don’t care? Is there a privacy issue – probably, but does it matter? Is privacy being redefined – is your “social identity” important - and how do we protect our reputation in the 21st century? Solove (2007) presents some frightening examples of what has happened to people who have acquired not only their 15 minutes of fame on YouTube, but everlasting fame, or infamy. But people continue to post images on Flickr and videos on YouTube, which cease to be under their control the moment they are stored on the servers of private companies, most likely in another country.

Perhaps this is just a progression of the herd keeping in touch, first noted a decade ago in Helsinki with mobile phone use. Of course the mobile phone of today is now a Smartphone that can access the Internet and has applications to allow users to access their social networks and keep in touch via “Twitter,” which is SMS on steroids.

The extent to which you can be “tracked” has risks and rewards. The GPS software in your Smartphone that allows you to find your way, also allows you to record your location when you update your social networking application: “I’m doing this, and I happen to be here, and here’s a photograph by the way”. What if the person updating her or his social network with location information is a prominent politician or celebrity? The mobile phone ruined the plot line for writers where the story relied upon a character being unable to use a telephone because the line had been cut. How will security staff feel about trying to protect a person who advertises where he or she is located?

Location awareness can also be used in a passive way to feed you information. As you walk past a cinema, or a restaurant, current films and show times, or a restaurant menu, can be sent to your Smartphone via a Bluetooth connection. Radio frequency identification (RFID) tags or transponders can reveal something about you at a distance. RFID is currently a technology, (i.e., it doesn’t always work well) but it has implications for privacy and security.

On a toll way, an RFID tag (e-tag) can automatically deduct the toll fee, which is convenient and not very intrusive. But a passport with an RFID tag will declare your nationality and an RFID tag in your watch will confirm whether in fact it is a genuine Rolex. Again, this sort of technology has risks and rewards, and opportunities for the provision of human services. Imagine the restaurant interrogating RFID tags in your clothes
By 2009, a discipline known as ubiquitous computing (ubicomp) has united research into ways of understanding human-human interaction, mediated by computer, that goes beyond the notion of an individual tethered to a personal computer, or just using a mobile phone for sending a “tweet” to Twitter (see http://en.wikipedia.org/wiki/Ubiquitous_computing). Like many ideas that have had a profound impact on ICT, ubicomp comes from work started at two decades ago at PARC (Weiser et. al., 1999). The flows of information from you via a computing device (a Smartphone) to the Web, or from some local device like an RFID tag to you are examples of ubicomp.

Sometimes it will be an active process, where you provide, or seek information, and on other occasions some passive local information will be exchanged. Gordon Bell has attempted to record his life in his “MyLifeBits” project (Thompson 2007). His recorded life includes e-mails and documents that may already be stored digitally, to phone calls and conversations which may need to be digitised. He also wears a Microsoft SenseCam that takes photographs passively, and which can be reviewed later. Research is in progress to see how such a technology can help patients with memory problems or acquired brain injury to retain memories of recent events (see: http://research.microsoft.com/en-us/um/cambridge/projects/sensecam/memory.htm).

If there is one major theme that is emerging it is a new spirit of openness and a readiness to share and cooperate on the provision of information, knowledge and perhaps even wisdom. Wikipedia “the free encyclopedia that anyone can edit” is an online resource that is managed by volunteer editors around the world and has been shown to be as accurate as Encyclopedia Britannica when it comes to science articles (Giles 2005). These findings were challenged by Encyclopedia Britannica, but in the rebuttal of 23 March 2006, Nature concluded with:

We note that Britannica has taken issue with less than half the points our reviewers raised. Both encyclopaedias have made corrections to some of the relevant entries since our article was published.

We do not intend to retract our article (see http://www.nature.com/press_releases/Britannica_response.pdf)

If this resource is contentious, what about the prospect of Medpedia, a medical resource with information supplied by medical professionals and medical organisations? Schneider, in The Patient from Hell documented how he used his scientific training to work with his doctors to get the best treatment for his type of cancer (Schneider 2005). Imagine a world where access to high quality evidence-based medicine is freely available. Will everyone have the potential to become a patient from hell?

And what of the Personal Genome Project (PGP) launched by George Church in 2006? By 2013 it has been predicted that a person’s genome will be able to be sequenced in 15 minutes, for less than $US1000.00. PGP aims to put the participants’ genetic data, along with other medical data, personality trait material and basic physical measurements on a publicly accessible database. The goal is to allow anyone to use the data for medical research (Singer 2009).

One challenge for the social networking sites is to share information between each other. At present they are “walled gardens” holding their members so they can target them with promotional material. Your identity on one site may not authorise you on another site. Walled gardens and idiosyncratic ways of verifying your personal identity go against the zeitgeist, which is a new spirit of openness.

Many years ago Microsoft tried to develop its own content network, Microsoft Network (MSN) as an alternative to content available on
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the “public” Internet. Similarly, when I first went to work in Canberra there was much discussion within government about using the Government Open Systems Interconnection Profile (GOSIP) in preference to the “open” Internet Protocol (IP) for networking computers. In both cases the public or open solution won out.

The implications of this new openness to the gathering and sharing of information for human services are unknown. However, it can be a frightening prospect to begin a lecture knowing your students may have instant access to vast information databases, while they are being taught, as well as access to their social networking sites. Your lecture may be rated and posted online like a restaurant review, leading to a greatly increased, or greatly reduced, attendance at the next session. And of course, if the lectures are available to download, then perhaps no-one will feel compelled to attend.

The human services educator, service provider and researcher of the future may need to turn this information, which is so readily accessible, into true knowledge and wisdom. Maybe this has always been the goal of good teaching and research.

In concluding, it is interesting to watch how the early days of Barack Obama’s presidency are unfolding; already some people are calling his presidency, President 2.0 (or the Internet President). Obama wants to keep his BlackBerry and instructions were issued to federal agencies along the lines of – “if you have a policy of blocking access to social networking sites, please explain why” (Funnell 2009). When these sorts of actions and directives flow from the top down it will give government bodies and educational institutions flexibility to innovate, or at least explain why they are adhering to “older” ways of doing things.

There are valid security and privacy issues to work through which will slow down the introduction of these new approaches to providing training and services. But the “shifthappens” video presentations in the “Did You Know?” series show us that the challenges are many and the changes will happen quicker than we realise (see: http://www.youtube.com/watch?v=jpEnFwjqdx8).

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ENDNOTE

Dennis Perry is an independent Information and Communication Technology (ICT) Professional. He has worked with government and commercial bodies on applying ICT solutions to problems. He is also the Chief Information Officer, ALP National Secretariat, but any views expressed are his alone.