

## IT and Personalisation

*At a breakfast meeting with Ian McCaig, CEO of Lastminute.com, one of the major topics was around personalisation. The term is widely used within the IT industry to cover a variety of trends and capabilities. The purpose of this briefing is to describe the developments within IT which are creating new potential for personalisation and their potential impacts.*

### *Beyond the Personal Computer*



The image above is an Apple-1 computer, first released in 1976. We have lived in an era of personal computing therefore for 34 years. The capabilities of the Personal Computer have evolved considerably from those early days as a standalone machine to a network connected computer. It is widely believed that we are in the early stages of a new generation of computing capability, known as Cloud Computing. In this new era of computing, the applications are hosted within the network, that is to say on the Web, rather than on the personal computer. This creates new possibilities for personalisation in a variety of ways that in time will have significant benefits to users and suppliers alike in e-Commerce, e-Government and other electronically delivered services. Today we are in an era of experimentation and it may be too early to be certain which aspects of personalisation will become important or dominant.

We will first consider personalisation as it has developed over the last generation of computing before looking at the ways in which many organisations are looking to use Cloud Computing and Web-centric applications to offer new potential for personalisation.

### *Personalisation in the PC era*

The irony of the Personal Computing era is that at one level, they are all the same. The PC era has been dominated by the PC and Microsoft Windows with a market share of over 90% with Apple making up the majority of the remainder. For the user, there was a choice of two hardware platforms. Increasingly over time, many of the key applications have worked on both platforms. Of course within these choices individuals were free to choose keyboards, mice and screen size or laptop/desktop options.

Having chosen your personal platform, there have been many ways in which a user could add personal touches to make their PC unique. For instance, in a word processor or email, a user can choose fonts or stationary. Users can build their own templates for slide shows.

For others, many features of the operating system can be changed from defaults. The standard windows jingles can be replaced for each system activity. One popular in the geek community are the words of HAL-9000, the computer from Kubrick's 2001.

Many people replace the standard wallpapers with pictures of family/pets or favourite places.

These are all examples of a simple level of personalisation.

Far more important than these are the tools of accessibility. In the UK today, nearly a third of adults have not used the internet. When you analyse this group, many of these have disabilities or are elderly.

Many hardware devices have been built and there is a lot of capability within standard software to tune computers for a wide variety of specific needs. For instance, documents can be printed on a Braille printer or a document can be turned into voice output so that a visually impaired person can work with a computer. In a short briefing like this it is not possible to cover the array of accessibility solutions. TECHDIS provides an accessibility service for higher and further education which is very comprehensive. Their website [www.techdis.ac.uk](http://www.techdis.ac.uk) gives a very comprehensive guide to solutions for accessibility for a wide variety of physical and learning disabilities.

To summarise, personalisation in the PC era has largely about platform personalisation and accessibility.

Over the last 15 years, there have been two other key trends in technology development that complement the personalisation capabilities of the PC, digital convergence and mobility. It is to these we shall now turn.

### *Mobility and Digital Convergence*

The term digital convergence was used widely by the late 1970s but had probably been coined in Japan in the 1960s. It has taken a long time to arrive but over the last decade it has happened with increasing pace and scope.

TVs and set top boxes, Cameras( both still and video), radio(DAB) music and film (Blu-Ray/DVD) and mobile phones are all digital devices. Digital convergence allows for both the creation of new products but also the integration of capabilities onto a single device.

For instance, today are many years we are seeing a market for e-book readers develop as wireless networked devices. The most successful to date is the Amazon Kindle. The Kindle software is now available on the windows platform. It is not yet clear whether e-book readers will develop as a niche in their own right or will become fully integrated into other devices.

We now expect mobile phones to be cameras and music players. We can listen to radio or watch TV on a mobile phone. We can surf the internet on a games machine or a mobile phone.

Set-top boxes are now being developed which can integrate other functionality such as telecare, home security and smart metering along with digital broadcast of TV and radio.

As such Games consoles and set top boxes for instance are increasingly overlapping with PCs.

What this is providing is an increasing range of platforms on which an increasingly wide variety of services can be provided.

Behind the devices we are seeing network convergence on the Internet or IP protocols. This year the first of the 4G mobile devices will become available globally. These devices are native internet machines.

One other technology we have become familiar with is the short range wireless network technology, Bluetooth. This is probably most well known for connecting hands free devices to mobile phones but can be found in set top boxes, games consoles and PCs.

Increasingly anything can connect to anything. The user can choose their means, their platform for access to services rather than have a plethora of specialist independent devices.

This is driving down costs while increasing functionality.

Having described this increasing number of platforms available for digital services, we can illustrate where this has taken us to date.

Probably the most widely used and successful exploitation of this capability is to be seen with Apple.

What Apple has developed to support the MAC computer, iPod and iPhone is a web based service iTunes. This started off as a music service for downloading to the iPod music player, but now provides Apps for the iPhone. Importantly for a user they can download music to a MAC or a PC and synchronise with an iPod or iPhone. All of this is very familiar to the rising generation.

One lesser known part of iTunes is iTunes U, the iTunes University. This provides an increasing array of text, audio and video materials from many of the Worlds leading Universities which can be downloaded and played on the MAC, iPod or iPhone. You can, for instance, find lecture series and materials on innovation from around 50 universities and build your own syllabus from some of the most prestigious institutions in the world. Much of the material is free.

Vint Cerf, one of the fathers of the internet has described the goal of internet development is "everything over the internet, the internet over everything". What we are living through now is the realisation of that goal.

The new wave of personalisation is built on this platform capability. We can now look at how and where personalisation is being developed.

### *Web 2.0 and Personalisation*

What we have so far described is largely technology capability driven. The new phase of personalisation is information and business model driven.

The technologies that underpin this are frequently called Web 2.0, a term which has no formal definition. What is generally meant by Web 2.0 is a set of capabilities for social, i.e. people to people connections. Facebook, Linked-in and Plaxo are all examples of these possibilities.

One of the most cited and a developed example is the internet retailer, Amazon. Once you have an account with them they can use information about both what you browse and what you purchase to suggest other things to you. So using the buying behaviour of the aggregate of their customer base they can suggest "people who bought X also bought Y". They also allow purchasers to review products and share their views with others. This is an example of "push" personalisation. The supplier uses an analysis of their data to tailor services to the user.

"Pull" personalisation is also widely used. One friend who is a respected journalist on digital matters follows around 500 key individuals on his Twitter account because he has found them to be the most interesting sources of ideas and contacts. Every few months he adds to and culls this list. As a freelance journalist, the ability to search Twitter has provided him with a bigger and better information and knowledge base than when he worked for a major media company less than a decade ago.

Both push and pull personalisation is supported by developments in business models for the web 2.0 era.

Many services are provided to the users Free at the point of use and are advertising supported. Google's dominance of internet search is based on this approach. What is important to understand with these free services is the Terms of Service, ToS which the user frequently needs to sign up to receive the service. Generally the supplier retains rights over the users' information. Around the world, governments and NGOs have been concerned that some of these ToS are an invasion of privacy or in some cases may be illegal. One example is that a supplier may download a small piece of software, "a cookie", which stores and sends information on the users use of their machine. Specific concerns are often raised about children signing over perpetual rights over their own information in very open terms to a global player. Different cultural approaches to privacy are strained by this borderless capability.

Many services have developed alternatives to the free model, known as Freemium. With Freemium, a base level of service is provided free, but additional facilities or capability can be paid for. This can be illustrated by Hotmail and Linked-In. Hotmail provides a free email service, but additional storage capability and other features can be paid for by an annual subscription. Linked-in provides a free business network but some facilities are only available on subscription.

A year ago there was a lot of hype around the notion that "once digital all information would be free". This is now being challenged seriously in news by Murdoch. The FTs online subscription service is generating good revenues.

What is difficult to determine at the time of writing is how sustainable these models will be and which will be economic winners. The valuation of many web 2.0 companies is based on an expectation of a sustainable model rather than proof.

So, what we find is a lot of organisations experimenting with business models based on information aggregation and tailoring and personalising services on a push and/or pull basis.

Against this we see concerns by Governments and NGOs who are concerned over privacy matters, identity theft and unfair terms of trade.

Combine this with supplier hype and it is unclear what the mature models will look like and how long it will be before the picture is clear.

What I have found useful as a guide is to analyse the hype and test the assumptions to provide some insight into the limits which personalisation can reach in the foreseeable future.

The major claim being made for personalisation is that “suppliers have such a vast array of information on all of us that they can target us all with unique offers”. Furthermore, this targeting can be done automatically.

Three personal examples may help to illustrate the key challenges to this belief.

First, I entered an online Competition to win a holiday in Vienna (I won!). I had to answer the question “In which year did Ultravox have a no 1 hit with Vienna?” I searched for the answer and found it. I then discovered that I was targeted with adverts for best of compilations and tickets for concerts for 80s revival bands, none of which interested me in the slightest. Now for the supplier it may well be that the targeting possible by this online approach is much better than traditional media methods. However, knowledge of what information interests me does not provide a good link to my *motivation* for seeking the information.

Second, I heard a programme on radio 4 and wasn't sure if I had misheard a comment or my knowledge of the subject was out of date. I searched for “carbon dating”. This led to a string of “adult” services, which I will leave to your imagination. Among my own network different people have different perceptions about whether this is a technological limitation or poor implementation.

Third, my youngest children are 20 and 21. A few years ago in January I used to order their revision texts for GCSE, AS and A levels. This week I received a personalised email suggesting that on the basis of my past purchases I might like to buy revision guides for GCSE, AS, A levels and even some undergraduate philosophy texts. What is important is that I have told the site in question the age of my children. They are also aware that I am not a teacher. Again, I find disagreement among professionals about whether this is poor implementation or a technological limitation.

The next generation of web developments, sometimes described as Web 3.0 will increase the amount of “semantics” or meaning around information on the Web. This should make the second example above easier to avoid.

The third example can probably be cracked by better use of “rules engines” within data mining software combined with human intervention. I am sceptical that this can be tackled purely *automatically* in the foreseeable future.

The most intractable problem is the first example above, which is about understanding motivation as opposed to understanding the information.

### *Conclusion*

Personalisation in IT is not a new phenomenon but an extension of a process that has been in development for a generation. Personalisation of the hardware and software platforms alongside accessibility has been the long term underpinning. The advent of the WWW has enabled the development of new business models which exploit the information as opposed to the technology itself to tailor services on a push or pull basis which personalise the user experience in various ways.

We are in a period of experimentation with both the technological capability and novel business models. There is a lot of industry hype which can easily cloud judgement. Some reaction by Governments or NGOs is raising concerns over privacy and terms of service which will probably have an impact on which business models and which capabilities will reach maturity.

*Dr Chris Yapp is a freelance technology strategist and futurologist. He blogs on IT futures for the BCS. He authored and co-edited “Personalisation of Education in the 21<sup>st</sup> century”.*