

# SELLING MYTH AND METAPHOR: THE IPAD AND TECHNOLOGICAL ADOPTION

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Perhaps more than any other technology company, Apple has managed to master technology diffusion, with the release of the iPad offering a good illustration of the success of the company's strategies. Within 60 days of the product's release, Apple had sold over 2 million devices (Apple 2010a), and generated the kind of media hype usually reserved for visits by major international celebrities. What seems to have been forgotten in the midst of the hyperbole surrounding Apple's 'magical' new product was that this was not actually a new device, but rather a reincarnation of a computing concept first explored in the early 1970s (Sharples and Beale 2003: 393). The iPad is, however, the first implementation of the tablet computing concept that has attracted widespread interest, not just from the technology-savvy, but from consumers of all ages and backgrounds.

While it might be assumed that the iPad's success can be attributed to Apple's technological expertise, this paper argues that it is the company's expertise in taking established principles in Human-computer Interaction (HCI) research and articulating them to ideas of personal identity that is the key to its success. As Straub argues, technology adoption is a complex, inherently social process (Straub 2010: 626), and in many cases it is a failure to recognise the social dimension of technology that inhibits the diffusion process. By exploring how this articulation of HCI principles and social identity has worked in relation to the iPad, this paper seeks to explain why this device has apparently succeeded where others have failed. In doing so, it aims to identify strategies that might be adopted by any organisation seeking to accelerate the adoption of new technology.

## The pre-history of the iPad

Although the hype surrounding the iPad might imply that the device represents an entirely new class of computers, research into the foundations of tablet computing has been under way for several decades. One of the earliest breakthroughs in the evolution of the tablet computer was technology that recognised handwritten symbols *as they were written*, and the first practical implementation of this was the *Stylator* (name derived from *stylus translator*) developed at Bell Labs in 1956 (Dimond 1957). The Stylator featured a small surface onto which single characters were written one after the other using a stylus, not dissimilar to the approach taken by Palm with their first Palm Pilot forty years later. The Stylator was followed by the *RAND tablet*, also known as the *Grafacon* (for graphic converter), in 1964, which is recognised as the first practical example of a graphics tablet. It featured an electronic slate and specialised pen that could analyse, record and display (on a computer to which it was connected) the coordinates of the stylus position as it moved across the slate, reproducing the writing or drawing being entered onto the slate in real time at a resolution of 100 lines per inch over a 10 inch x 10 inch area (Davis and Ellis 1964).

While many more developments in and implementations of tablet technology occurred in the following years, it was the *Dynabook* that represents the most direct precursor to modern tablets. The Dynabook was developed by Alan Kay during his time at the Xerox PARC facility in the late 60s and early 70s. An option for the Dynabook was the incorporation of a full screen touch display that incorporated a virtual keyboard (Kay 1972). Before this idea could be implemented, it was necessary to develop a transparent touch-screen display, and the first such example was the *Elograph*, developed by Dr Sam Hurst in 1971 and updated to incorporate a transparent screen in 1974 (Bellis 2010).

Although the Dynabook concept was never fully realised, it became the inspiration for the tablet devices that followed. The first portable tablet-based computer was the *GRiDPAD*, released in 1989

(Schedeen 2010). Go Computing developed the *PenPoint* operating system for tablet devices in 1991, which was designed from the ground up for stylus-based input. Tablet devices such as the *IBM ThinkPad 700T*, *NCR 3125*, *AT&T Eo 440 Personal Communicator*; used the Penpoint OS, which was soon replicated by Microsoft as *Windows for Pen Computing* (abbreviated to PenWindows) (Holwerda 2010). In 1993 Apple released the ill-fated Newton personal data assistant (PDA), but this struggled to succeed mainly due to problems with its handwriting recognition software. Indeed, as Bayus et al. argue, this device may have been released somewhat prematurely and ultimately suffered because of this (Bayus et al. 1997: 59).

What is interesting about this period is that as a consumer product, the tablet computer had already begun to diverge in terms of its intended usage. On the one hand, there were tablets that were essentially laptops with a touch interface, while on the other were the PDAs (Atkinson 2008: 19). Whereas the market for the former quickly stagnated, the latter grew in popularity, exemplified by the success of Psion and in particular Palm in the mid 1990s (Allen 2004: 179). Palm Computing was founded in 1992 and released the *Palm Pilot* in 1996, created primarily by Jeff Hawkins who had previously developed the *GRiDPAD* (Holwerda 2010). The Palm is generally considered to be the first tablet-based device to succeed commercially, and soon saw competition from a range of pen-based PDA devices, mostly of the Pocket PC variety that ran a version of Microsoft Windows known as CE (for Embedded Compact), which later became Windows Mobile (Jones 2002).

Apple re-entered this market in 2006, firstly with the iPod Touch and soon after with the iPhone. Importantly, it tested the waters by positioning neither as a computing device, with the former being a music player (with software expandability) while the latter was a telecommunications device, (with Internet access). Regardless of this positioning, both the iPod Touch and the iPhone owed much to the PDAs that preceded them, and they themselves worked as a testing platform for what would become the iPad. Indeed, the iPad actually shares the same operating system of these devices, meaning that programs written for one could easily be adapted for the others.

These devices were also important to the success of the iPad because they firmly established iTunes as distribution channel for software. Consumers had been purchasing music from Apple since 2003, but with the release of the iPod and iPhone Apple expanded the brief of the online store to include software downloads. This meant that consumers could upgrade the software on their devices as easily as they could purchase music, making the devices even more like the PDAs that preceded them. Importantly, the business model here was based on volume, with developers charging relatively small amounts for their software in order to access the rapidly growing 'i-Device' market.

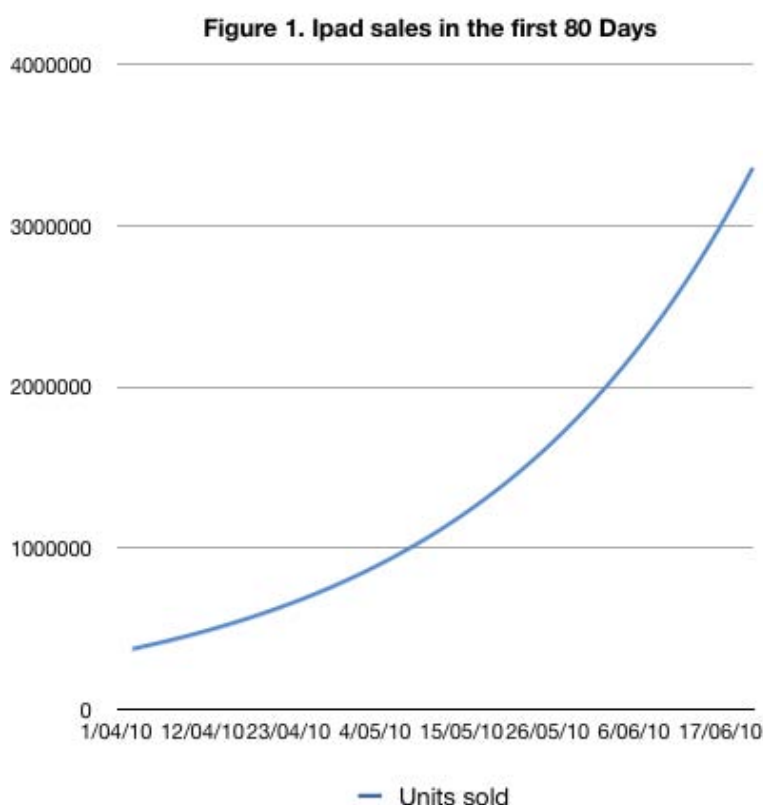
Where the iPad represents a departure from its PDA and phone heritage is in its size and application. While PDAs were designed to operate as digital diaries and address books, the iPad is explicitly positioned as being closer to a laptop in terms of functionality, bringing it into line with an ancestry of tablet-form personal computers that never saw the commercial success seen thus far for the Apple device. Indeed, as what could be classed a luxury item the, iPad seems to be gaining acceptance with surprising rapidity, a phenomenon best understood through models of technology diffusion.

## The iPad as diffused innovation

By far the most influential model of diffusion is based on Rogers 1962 work *Diffusion of Innovation* and its subsequent updates and additions. In this model, Rodgers postulates that the cumulative adoption rate of most innovations follows an S-curve trajectory, beginning slowly and then rapidly gaining speed as more and more users recognise the utility of the innovation in question. Eventually, most of the users who are inclined to adopt the innovation have done so, and the curve begins to flatten out as the innovation reaches ubiquity (Rogers 2003: 272). Although originally conceptualised as a way of analysing the adoption of agricultural innovations in rural Iowa, the model was subsequently shown to be applicable to the diffusion of a number of different

phenomena, ranging from snowmobile use in Finland through to the efficacy of HIV campaigns (Rogers 2004: 17).

The longevity of the model as well as its sheer malleability stand as testament to its utility; despite its apparent simplicity it has been effective in describing the adoption patterns of a vast range of different phenomena. While it is still very early in the production run of the iPad, initial figures do seem to indicate that the adoption of the device is beginning track according to Rogers' S-curve model (See figure 1). According to Apple's own figures, the company sold approximately 300 000 devices on its launch day of 3 April 2010, rising to 450 000 just five days later. By 3 May 1 000 000 iPads had been sold and by 31 May this had doubled to 2 000 000 million units. Less than a month later Apple reported that it had sold 3 000 000 iPads in the 80 days since the product's launch (Lam 2010).



According to Rogers' model, sales of the device should continue to rise steeply in the near term, and there is already evidence that this may indeed be happening. A recent survey by market researchers ChangeWave Research indicates that demand for the device has actually increased since the launch (Carton 2010). This of, course, is not to say that the demand for the device will continue to rise at the present rate, or indeed that the device will actually be a success in the long term. This paper is not concerned with the long-term dissemination of device; rather it is focused on the initial phase of the technology's take up. As such, the arguments made in this paper pertain only to the initial, sharp rise in the rate of adoption, and are not intended to make predictions about the overall pattern of diffusion.

The rapid adoption of the iPad soon after its initial release is in line with Rogers' model, and is primarily attributed to the influence of the spread of information within the network of potential adopters. According to Rogers:

The S-shaped curve of expansion 'takes off' once interpersonal networks become activated in spreading individuals' subjective evaluations of an innovation from peer to peer in a system.

The part of the diffusion curve from about 10 percent adoption to 20 percent adoption is the heart of the diffusion process. After that point, it is often impossible to stop further diffusion of a new idea, even if one wanted to. (Rogers 2003: 12)

There is an important point that needs to be made here in relation to Rogers model and how it relates to the iPad. As Rogers himself notes, the S-curve is both innovation specific and system-specific, and only functions in terms of the adoption of an innovation by members of a specific group. In the case of Roger's original study, the group under examination was Iowa corn growers, and thus were geographically co-located and involved in the same profession. This meant that the channels of communication between adopters were both well established and easy to identify.

This is clearly not the case with the iPad, where adopters are likely to come from a variety of different professional (and non-professional) backgrounds and be geographically dispersed. In this case the commonality between the adopters and their channels of communication are much more difficult to identify, unless one assumes that the channel of communication itself has *become* the primary point of commonality. The key point of difference between the 1940s farmers discussed by Rogers and the iPad early adopters of today is that the latter are connected through the internet, and in particular through the peculiarly reflexive act of using information technology to learn about information technology. Although Apple did engage in a massive advertising campaign through traditional media, it can be argued that the real key to the initial success of the iPad was in the way in which the device was embraced by the network of news, blog and forum sites that focus on new technology. As de Valck et al. (2009) argue, the Internet has allowed for the creation of what they term 'virtual communities of consumption', in which users gather to exchange information about particular commodities. In the case of the iPad, sites such as *AppleInsider*, *Macrumors* and *TechCrunch* carried speculative stories about the iPad for months in advance of its actual launch, and doing so help create an awareness of the device that was far greater than could have been achieved with a traditional marketing campaign.

Once the device was publicly released these sites were joined by other technology-focused channels such as *Whirlpool.com*, and it was through these forums that the groups Rogers labels 'innovators' and 'early adopters' sang the praises of the new device or defended their purchase against detractors. According to Rogers, one of the main characteristics of the early adopter category is their ability to garner respect from other users within the system:

Potential adopters look to early adopters for advice and information about an innovation. The early adopter is considered by many to be 'the individual to check with' before adopting a new idea ... Because early adopters are not too far ahead of the average in innovativeness, they serve as a role model for many other members of a social system. Early adopters help trigger the critical mass when they adopt an innovation (Rogers 2003: 283).

One only has to scan the dedicated iPad forum on *Whirlpool.com* to see that early adopters are performing the role Rogers describes, a phenomenon already noted in relation to other Apple devices such as the iPhone (Arruda-Filho et al. 2010). Many of the threads on the forum revolve around potential users asking for advice, or recent adopters seeking reassurance that they had made a good choice. Interestingly, the users' status within the community is actually indicated as part of their avatar, with a ranking being applied based on the number of times the user has posted to the forums. A new user receives the designation of 'I'm new here, please be nice' which is upgraded to 'Participant' and 'Forum Regular' as their level of participation increases. Eventually, heavy contributors reach the level of 'Whirlpool Enthusiast' and 'Forums Addict' after hundreds or thousands of posts, denoting not only their level of commitment but also their perceived status within the community.

The significance of technology forums lies in their ability to accelerate the diffusion process. Where Rogers' depiction of the adoption of cell phones in Finland (Rogers 2003: 262) shows a slow increase in adoption between 1981 and 1993 before accelerating, early sales figures for the iPad indicate a much steeper rate of climb in the S-curve of diffusion. This is because in Rogers'

diffusion model, the primary driver of adoption is information; the more readily information about an innovation is disseminated, the more rapidly the innovation is likely to be adopted. In the pre-web era (prior to 1995) word-of-mouth and informal social networks represented the primary means of disseminating information between technology adopters, but with the emergence of the Web these communications became both more extensive and efficient. In this context, Web forums like *Whirlpool.com* accelerate technology adoption by spreading information about a new technology very efficiently, enabling communication directly between those already predisposed to adoption. This idea has been verified empirically by Kuandykov and Sokolov (2009), who use agent-based modelling to simulate the complex interaction of individual users in a diffusion scenario. According to their modelling, diffusion accelerates rapidly in a population in which individual agents are connected through social networks. In the case of the iPad, the technology forums described above constituted this social network, and contributed to the accelerated adoption rate seen illustrated in Figure 1.

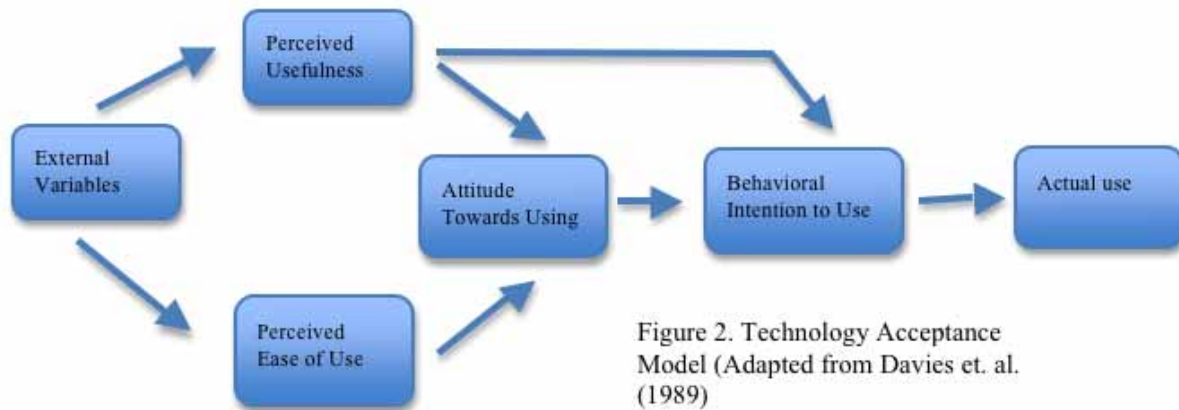
### The iPad as value proposition: a TAM perspective

While diffusion theory offers a useful overview of the overall adoption of a technology in a population, it is somewhat limited in terms of the variables it can account for. Radas (2005), for example, notes that traditional diffusion theory has not been able to adequately account for the effect of advertising on the adoption process. Similarly, Chanda and Bardhan (2008) argue that while diffusion theory works well for describing the adoption of a singular technology, it has trouble predicting the adoption of technologies where multiple generations of the same technology exist in a market.

A key gap in the knowledge provided by innovation diffusion theory is that it reveals little about *why* consumers are choosing to adopt this device at this time. Even taking into account the impact of user forums on buying decisions falls short of adequately explaining the motivations that prompt people to spend a significant amount of money on a device that essentially duplicates common (and less expensive) computer hardware. In this respect, what is commonly referred to as the Technology Acceptance Model (TAM) serves as a useful theoretical framework. TAM attempts to explain the interplay between internal motivations and external influences in the choice to adopt or reject specific computing technologies. As Davis explains, an individual's choice to adopt or reject can be articulated in terms of two interdependent variables:

TAM posits that two particular beliefs, perceived usefulness and perceived ease of use, are of primary relevance for computer acceptance behaviors. Perceived usefulness (U) is defined as the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context. Perceived ease of use (EOU) refers to the degree to which the prospective user expects the target system to be free of effort (Davis et al. (1989: 589).

TAM was adapted from research into social psychology and proposes that these two factors are critical in understanding a users motivations towards technological use, commonly referred to as behavioural intention as depicted in figure 2.



According to this model, perceived usefulness and perceived ease of use are both influenced by ‘external variables’, which, for Davies, could assume a variety of forms ranging from technical qualities (such as the quality of a system’s output) through to organisational constraints (such as training and documentation) (Davies et al. 1989: 987–8).

TAM researchers have traditionally utilised user surveys in an attempt to verify their predictions, but it is also possible to gain an appreciation of the importance of these variables through textual analysis, drawing on the same web-based user forums discussed above. When looked at from this perspective, it quickly becomes clear that for many users, the decision to adopt an iPad is indeed based on an evaluation of the device’s perceived usefulness and ease of use, as mitigated by external factors.

In terms of perceived usefulness, a number of the *Whirlpool.com* threads focus specifically on the utility of the device, and often contain the most passionate contributions from both iPad adopters and detractors alike. For example, a thread bemoaning the lack of new software appearing on the iPad platform was deluged by users extolling the virtues of both the hardware and the software already available, with many defending the product specifically on the basis of its utility. This discourse is typified by one user whose high post-count identifies them as a Forums Addict:

I use it all the time, particularly for internet access on the go (and casual gaming). On planes I don’t even touch the entertainment system (if they have one). I’ve used it as a navigation device when me and a friend didn’t know the best way to drive home (the wireless location was actually pretty good as we were driving). It’s a terrific reader for technical books (GoodReader). The list is really endless. Best tech purchase I’ve made in years considering how much I use it. (Whirlpool.com 2010a)

Similarly, many of the threads on the iPad forum of *MacTalk.com.au* also centre on the perceived usefulness of the device, with many users focusing on how the iPad works in a business context. For example, one user explicitly outlines how the device is changing the way their company interacts with clients:

We operate in the design / engineering / construction area and it’s important to be able to show clients photos of previous jobs. Currently our consultants carry ‘brag books’ full of photos they can flip through. We’re looking at replacing the hard copy books with iPads that we’ll also load with all our technical documents and price lists in pdf form. We have tried this on a laptop but it’s an overkill for what we need and doesn’t work that will with our clients. We see the iPad’s instant-on, light weight and the ability to hand it around like a book as the big features. (MacTalk.com.au 2010)

From postings such as these, it is apparent that one of the driving forces behind iPad adoption is indeed perceived usefulness. According to the Technology Acceptance Model perceived ease of use should represent the other primary driver for adoption, and once again contributions to technology forums seem to indicate that this is indeed a key motivating factor. What is especially interesting here is that ease of use tends to be discussed most frequently in relation to groups not normally associated with new technologies, such as the elderly. One post on Apple's own iPad forum explains how the simplicity of the device's interface has allowed an elderly relative to successfully engage with computing for the first time:

My mother is 84 and has struggled with computers for decades. She has tried Macs and PCs, but has not enjoyed using any device to access the internet until now. On Monday, my mother received her iPad (16g/3G). It would be accurate to say that her experience with this new device has been transformative. For the first time, she can easily get her email, surf the net and, more than anything, read books. My mother has arthritis and holding large hardbound books or floppy paperbacks has been a struggle. With the iPad she can get the latest New York Times best sellers in 15 seconds and turn the pages with the wave of her hand. (Apple.com 2010b)

Indeed, many of the early reviews of the iPad identify ease of use as one of the primary benefits of the iPad over competing devices. As one of the early reviews states,

The screen is quite simply amazing touchy goodness and simply the best interface device for computers yet invented, and available at an affordable price. And what is important about that screen is not the hardware specs but actually the software that controls the interaction with it and makes it so intuitive. It's what Apple does best being put to good use (Lester 2010).

While this review (like many early ones) tends to be high on hyperbole, it does point to two important facets of the iPad's usability: interface design and touch-based control. In combination, it is these two elements that differentiate the device from its competitors in the mobile computing market and which arguably fulfill the ease of use requirement of the TAM.

## Selling metaphor: page-turning, photo flipping and other metaphors

Since the beginning of the modern computing era, interface design has been one of the central areas of research in the field of human computer interaction. The key challenge has been to design interfaces that allow users to access the full complexity of the hardware or software they are using, while at the same time minimising the complexity they experience through that interaction. For many designers, the solution to this challenge has been the use of metaphors to symbolically represent key computing functions. As Marx explains, metaphors allow the user to gain a 'head-start' in understand the functionality of a system by drawing on pre-existing knowledge, often based in everyday experience (Marx 1994: 379). Early computing metaphors were based on the office environment into which computers were first deployed, and featured representations of items such as typewriters, chalkboards, forms, and ledger sheets. (Blattner 1994: 25). Over time, a range of other metaphors were added to common interface designs, with one of the most recognisable being the symbolic dropping of a file into the trash to delete it.

Since metaphors often work by using real-world concepts to symbolically represent computing function, they work most effectively when all users share a common real world context. However, as Evers explains, interface design can be problematic when users come from a range of different cultural backgrounds:

The problem in cross-cultural interface design is that the real world changes dramatically from culture to culture. Localising interfaces requires localising metaphors, which is mostly done by redesigning the objects in a certain metaphor (e.g. the icons in a desktop metaphor) to accommodate for the target culture (Evers 1998: 1–2).

Holzinger et al. extend this idea, arguing that metaphors need to be adapted to be not just culture-specific, but age-specific as well. (2008: 102). The problems in correctly interpreting interface

metaphors for elderly people can be compounded by the need for fine motor skills to actually interact with the computer through pointing devices such as mice or trackballs. Numerous studies have identified the actually physical interface as one of the major factors that inhibit elderly people from engaging with computer technology (for examples, see Riviere & Thakor 1996; Walker et al. 1997; Sandfeld & Jensen 2005).

In designing the iPad, Apple has effectively dealt with both problems by implementing a set of relatively intuitive usability metaphors together with touch technology, drawing on their experience with the iPod Touch and the iPhone. The centrality of this approach to the iPad user experience can be most easily seen in two of the device's early applications, Photos and iBooks. In both cases operations are carried out in ways that mimic physical activities: in iBooks pages are turned using a flicking motion while photos are moved around the desktop by holding and dragging individual images from one location to another. Resizing photos is achieved by using two fingers, pinching them together to make an image smaller or widening the distance between them to enlarge. More importantly, interacting with these basic applications teaches the user the metaphors that are used across multiple applications, so that the user quickly develops an interaction vocabulary of swipes, touches, taps and double-taps.

Similar metaphors have been used in desktop computer applications, but implementing them through a touch interface greatly increases the iPad's perceived ease of use. Several studies have pointed to the advantages of touch-screens for interacting with computers, with some studies arguing that touch screens can be more accurate than other pointing devices in performing some computing tasks (Sears & Shneiderman 1989). Other researchers have focused on the flexibility offered by touch screen technology, arguing that one of the key benefits of the interface is the ability to customise the layout of the screen and the buttons used to interact with the computer. (Lee & Zhai 2009: 309). Albinsson and Zhai (2003) also identify the ability to modify the input layout based on application requirements as one of the key benefits, but they take this idea one step further to argue that this flexibility also allows for the creation of inputs that are more intuitive:

Interaction on touch sensitive screens is literally the most 'direct' form of HCI, where information display and control are but one surface. The zero displacement between input and output, control and feedback, hand action and eye gaze, makes touch screens very intuitive to use, particularly for novice users. (Albinsson & Zhai 2003: 105)

The success of this approach in creating a perception of ease of use can be easily seen in the discussions on many technology forums, but also in the fact that the device seems to be attracting attention outside traditional computer user groups. Initial reports seem to verify the anecdotal evidence that the iPad is proving popular among older consumers, primarily because of its simple interface and the fact that it does not require a great deal of computing expertise to operate it (Alpeyev & Eki 2010).

## Selling myth: Apple and I-dentity

From a TAM perspective, Apple's implementation of touch interface is clearly related to the notion of perceived ease of use, and is likely one of the reasons many customers are buying the device. However, this alone cannot account for the rapid adoption of the iPad indicated by early sales, especially when compared to other tablet computers that have similar usability characteristics. Indeed, as Venkatesh and Davis (1996) argue, in some cases it is more important to understand the antecedents of these characteristics more than the characteristics themselves. In this respect, the role of marketing on the decision to adopt particular technologies has understandably received particular attention (for example, see Howick and Whalley (2007), Teo and Pok (2003), Huh and Kim, (2007)) and we would argue that marketing has also played a significant role in early success of the iPad. More specifically, we argue that the promotion of what could be termed the 'myth of Apple' has had a significant impact on how potential buyers see the device's ease of use, and in particular, its usefulness.

While Apple was an early innovator in the personal computer industry, the rapid dissemination of the Windows operating system throughout the business market throughout the late 1970s and early 1980s saw Apple fall behind (Ward 2007). By 1997 the company was in severe financial difficulties, even having to accept a cash injection from rival Microsoft in order to stay afloat (Foresman 2010). While the company continued to produce desktop machines and laptops throughout this period, it was actually the development of the iPod music player that altered Apple's corporate trajectory.

The original iPod was marketed explicitly in terms of its ease of use, with the scroll wheel interface representing a radical change in the way users could control a music player. The marketing for the device also focused on its perceived usefulness, highlighting the fact that the five-gigabyte hard drive gave the device far greater capacity than its competitors. This was clearly signalled by the iPod's promotional material, most of which revolved around the slogan '1,000 songs in your pocket' (Fordhaul 2001). The device proved to be successful almost immediately, and by 2006 sales of iPods accounted for 55.5 per cent of the Apple's overall revenue (Chen 2009).

In addition to promoting the ease of use and perceived usefulness of the device, Apple's strategy for the iPod also exemplified one of the cornerstones of the company's approach to selling its products: the conflating of identity and technology. This strategy was most explicitly articulated with the company's 2006 advertising campaign that asked potential customers 'Which iPod are you?', but can be seen as a common thread running through much of Apple's public discourse. Indeed, as Dant explains:

The name 'iPod' sounds like an abbreviation for identity-Pod, the container for an identity and has become a popular and well-recognized brand in itself. But the combination of the name 'iPod', the Apple logo of an apple with a bite out of it (that appears discreetly on the lower back cover of the iPod), and the distinctive physical object of the device, they constitute a very powerful and flexible compound brand. The device shares a brand identity through the design cues of Apple computers and accessories (solid, white or black, flat-surfaced boxes with curved corners). This chain of design and 'look' gives the Apple and iPod brands a fashion currency whose value is difficult to ignore — even if we can avoid the object. (Dant 2008: 14–15)

By explicitly positioning the devices as markers of the user's identity, Apple have been able to generate a level of brand loyalty that is rarely seen in the computer industry. In purchasing Apple products, customers also buy into the myth that surrounds them, a myth that can be most easily seen in the 'I'm a Mac' series of television advertisements. In these texts, the Mac user is depicted as young, contemporary and stylish, whereas the PC user is depicted as older, out of touch and conservative. This juxtaposition invites the consumer to identify with the Apple brand, in the process internalising some of the company's core messages relating to ease of use and usefulness.

The key benefit of this approach is that once customers align themselves with the Apple myth, they themselves tend to become marketers for the company's products, re-disseminating the same discourses of ease of use and usefulness they have internalised as part of their Apple i-identity. This can clearly be seen in the plethora of Apple fan sites that exist on the Web, but also in the discourse of Apple users on brand-neutral discussion forums. For example, on a discussion board focused on broadband networking, one user defended the absence of Apple-compatible software by reiterating Apple's own discourse on usability:

As I am a loyal Apple fan, I will be using my Netgear DG834N router that is already set for my 4 Macs and iPhone. I am however a little disappointed that o2 really don't do anything for Macs ... nothing on the CD works but then maybe that's because Macs are just easy to use (Thinkbroadband 2008).

Such statements are commonly witnessed on technology websites, and as Firmin notes, one of the key characteristics of Apple fandom is that users often feel compelled to voice their opinions about the benefits of the company's products, whether invited to or not (Firmin 2010: 12).

The success of the iPod created what is commonly referred to in marketing circles as a 'halo' effect (Hsieh & Li 2008: 29), transferring positive consumer sentiment from existing devices to new ones. This is most clearly seen in the way iPod ownership helped increase sales of Apple's computer hardware (Tzou & Lu 2009: 311), but it is likely the halo effect also played a role in the strong early sales of both the iPhone and iPad. Importantly, one of the manifestations of this effect is that Apple devotees frequently display their brand loyalty publically by lining up to purchase new products on release day. This phenomenon usually results in significant free media attention for the company, which in turn further adds to the myth of the Apple brand as non-users are drawn in by the devotion fans display. In this respect, there is an interesting interplay between old and new media, with information from forums and traditional media interacting in complex ways. While it is not within the scope of the present paper to explore this issue, it is an aspect that deserves closer attention in future research.

## Conclusion: Lessons from the iPad

In the context of the long history of tablet computing, the iPad itself is still in its infancy, available to consumers in the United States for just over six months, and for a shorter period in other countries. Despite this, it has generated impressive early sales figures, prompting the company to double its production run in order to keep up with demand (Oswald 2010). While few companies carry the cultural weight of Apple, there are two clear lessons that can be drawn for any organisation seeking to introduce new technology. The first, and perhaps most obvious of these is the need to create technological metaphors that reflect the user's understanding of how the technology should work and allows them to identify ways in which the technology might be integrated into their lives. As argued above, Apple's decision to integrate familiar real-world gestures such as page flipping into its user interface allowed people with very little computer experience to use the device, simultaneously making a case for both ease of use and potential usefulness.

A second key lesson that can be drawn from the iPad's initial success concerns the importance of establishing a close connection between user and technology. By explicitly positioning the technology as an integral part of the user's identity, Apple has been able to generate a level of engagement that turns the users themselves into promotional personnel. This in turn accelerates the diffusion process, as the vocal early adopters utilise networks of technology forums to encourage others to adopt, often based on the aforementioned discourses of ease of use and usefulness.

The significance of having this initial user-base on side has been recognised by Choi et al. (2010), who argue that the rate with which a technology diffuses is largely dependant on the size and level of connectedness of the early adopter community. According to these authors, innovations spread fastest when disseminated through what they terms a 'cliquish' network in which individuals are interacting frequently and extensively with one another (Choi. et al. 2010: 172). This certainly seems to be what is happening with the iPad, as Apple devotees flood the technology forums to prompt one another into adoption.

Interestingly, the model proposed by Choi et al. predicts that while technologies disseminated through strongly networked groups are likely to have an accelerated early adoption curve, the close nature of the social network itself results in a rapid slowing of diffusion after this initial period. While it is still too early to tell if this will be the case for the iPad, this will have to be taken into account by any organisation wishing to use Apple's strategies as a template for maximising adoption rates for new technology.

## REFERENCES

- Albinsson, P. and Zhai, S. (2003) 'High Precision Touch Screen Interaction' in Proceedings Of The SIGCHI Conference On Human Factors In Computing Systems, Florida, 2003, pp. 105–12.

- Allen, J. (2004), 'Redefining the network: enrolment strategies in the PDA industry' in Information Technology & People, Vol. 17, No. 2, pp. 171–85.
- Alpeyev, P and Eki, Y. (2010), 'The iPad Leads Apple to the Elderly' in Business Week, available from [http://www.businessweek.com/magazine/content/10\\_34/b4192039623670.htm](http://www.businessweek.com/magazine/content/10_34/b4192039623670.htm) (accessed 2 September 2010).
- Apple.com (2010a), 'Apple Sells Two Million iPads in Less Than 60 Days', available from <http://www.apple.com/pr/library/2010/05/31ipad.html>.
- Apple.com (2010b), 'Elderly person's use of iPad' (Discussion Thread), available from <http://discussions.info.apple.com/thread.jspa;jsessionid=F50666648A7CDB1DB90406A4604674AA.node0?messageID=11661176&#11661176> (accessed 1 September 2010).
- Atkinson, P. (2008), 'A Bitter Pill To Swallow: The Rise and Fall of Tablet Computing' in Design Issues, Vol. 24, No. 4.
- Bayus, B., Jain, S and Rao, A. (1996), 'Too Little, Too Early: Introduction Timing in the Personal Digital Assistant Industry' in Journal of Marketing Research, Vol. 34, pp. 50–63.
- Bellis, M (2010) 'Touch Screen' (web page) — available from <http://inventors.about.com/library/inventors/bltouch.htm> (accessed 19 September 2010).
- Blattner, M.M. (1994), 'In our image: interface design in the 1990s', Multimedia, IEEE, vol.1, no.1, pp. 25–36.
- Carton, P. (2010), 'New ChangeWave Surveys Measure Future Consumer Demand and Reactions of New iPad Owners' available from [http://www.investorplace.com/experts/paul\\_carton/apple-ipad-may-changewave-survey-aapl-stock-demand-amzn-kindle-amazon.html](http://www.investorplace.com/experts/paul_carton/apple-ipad-may-changewave-survey-aapl-stock-demand-amzn-kindle-amazon.html) (accessed 28 August 2010).
- Chanda, U. and Bardhan, A.K. (2008), 'Modeling Innovation And Imitation Sales Of Products With Multiple Technological Generations' in Journal of High Technology Management Research, No. 18, pp. 173–190.
- Chen, B. (2009), 'Apple Unveils Flip-Killing iPod Nano, Revamped iTunes, No Beatles' in Wired, available from <http://www.wired.com/gadgetlab/2009/09/apple-liveblog-999/#ixzz0z0ncLHEG> (accessed 9 September 2010).
- Choi, H., Kim, S. and Lee, J. (2010), 'Role Of Network Structure And Network Effects In Diffusion Of Innovations' in Industrial Marketing Management, No. 39, pp. 170–177.
- Dant, T. (2008), 'Ipod...Icon', in Studi Culturali, Vol. 5, No. 3, pp. 1–19, available from [http://www.mulino.it/rivisteweb/scheda\\_articolo.php?id\\_articolo=28267](http://www.mulino.it/rivisteweb/scheda_articolo.php?id_articolo=28267) (accessed 10 September 2010).
- Davis, F. Bagozzi, P. and Warshaw, P. (1989), 'User Acceptance of Computer Technology: A comparison of Two Theoretical Models' in Management Science, Vol. 35, No, 8.
- Davis, M R and Ellis, T O. (1964) 'The Rand Tablet: a Man-Machine Graphical Communication Device' — Rand Corporation Memorandum, available from [http://www.rand.org/pubs/research\\_memoranda/2005/RM4122.pdf](http://www.rand.org/pubs/research_memoranda/2005/RM4122.pdf) (accessed 12 September 2010).
- Dimond, T.L. (1957) 'Devices for reading handwritten characters', Proceedings of Eastern Joint Computer Conference, New York, pp. 232–7.
- De Valck, K., van Bruggen, G. and Wierenga, B. (2009), 'Virtual Communities: A Marketing Perspective' in Decision Support Systems, No. 47, pp. 185–203.
- Evers, V. (1998), 'Cross-Cultural Understanding Of Metaphors In Interface Design' in Ess, C. and Sudweeks, F., Proceedings CATAC'98, Cultural Attitudes towards Technology and Communication, 1–3 August, Science Museum, London.

- Arruda-Filho, E, Cabusas, J. and Dholakia, N (2010) 'Social behavior and brand devotion among iPhone innovators', in International Journal of Information Management, (Article In Press), <http://dx.doi.org/10.1016/j.ijinfomgt.2010.03.003> (accessed 15 September 2010).
- Firmin, Michael W., Muhlenkamp Wood, Whitney L., Firmin, Ruth L. and Wood, Jordan C.(2010) 'Self-admitted pretensions of Mac users on a predominantly PC university campus', in Educational Media International, Vol. 47, No. 1.
- Foresman, C. (2010), 'Apple stock rise could have meant \$4.5 billion for Microsoft' in Ars Technica, available from <http://arstechnica.com/microsoft/news/2010/05/apples-stock-rise-could-have-meant-5-billion-for-microsoft.ars> (accessed 10 September 2010).
- Fordhaul, M. (2001), 'Apple's new iPod player puts "1,000 songs in your pocket"' in Seattle Pi, available from [http://www.seattlepi.com/business/44900\\_ipod01.shtml](http://www.seattlepi.com/business/44900_ipod01.shtml) (accessed 10 September 2010).
- Holzinger, A, Searle, G, Kleinberger, T, Seffah, A and Javahery, H. (2008), 'Investigating Usability Metrics for the Design and Development of Applications for the Elderly' in Lecture Notes in Computer Science, Vol. 5105, pp. 95–105.
- Holwerda, T (2010) 'A Short History of the Tablet Computer' available from [http://www.osnews.com/story/22739/A\\_Short\\_History\\_of\\_the\\_Tablet\\_Computer/page2/](http://www.osnews.com/story/22739/A_Short_History_of_the_Tablet_Computer/page2/) (accessed 18 September 2010).
- Howick, S.M. and Whalley, J.L. (2007) 'Broadband Adoption: The Case Of Rural And Remote Scotland', in: Proceedings of the 25th International Conference of the System Dynamics Society, Glasgow: System Dynamics Society.
- Hsieh, A. and Li, C. (2008), 'The moderating effect of brand image on public relations perception and customer loyalty' in Marketing Intelligence & Planning, Vol. 26, No. 1, pp. 26–42.
- Huh, Young Eun and Kim, Sang-Hoon (2007), 'Do Early Adopters Upgrade Early? Role Of Post-Adoption Behavior In The Purchase Of Next-Generation Products', in Journal of Business Research, Vol. 61, No. 1, pp. 40–46.
- Jones, B (2002) 'Introducing the Tablet PC', available from <http://www.developer.com/ws/other/article.php/1500121/Introducing-the-Tablet-PC-Part-1.htm> (accessed 19 September 2010).
- Kay, A. (1972) 'A Personal Computer for Children of All Ages'. Proceedings of the ACM National Conference, Boston, available from <http://mprove.de/diplom/gui/kay72.html> (accessed 12 September 2010).
- Kuandykov, L. and Sokolov, M. (2010), 'Impact of social neighborhood on diffusion of innovation S-curve' in Decision Support Systems, No. 48, pp. 531–5.
- Lam, P. (2010), 'ipad sales figures: 3,000,000 iPads in 80 Days' available from <http://www.ipadinsider.com/3000000-ipads-in-80-days/> (accessed 28 August 2010).
- Lee, S. and Zhai, S. (2009), 'The Performance of Touch Screen Soft Buttons' in Proceedings Of The 27th International Conference On Human Factors In Computing Systems, available from <http://doi.acm.org.ezproxy.lib.swin.edu.au/10.1145/1518701.1518750> (accessed 2 September 2010).
- Lester, C. (2010), 'iPad: a new revolution or just another overhyped product launch', available from <http://blog.areeba.com.au/strategic/ipad-a-new-revolution-or-just-another-overhyped-product-launch> (accessed 2 September 2010).
- MacTalk.com.au (2010), 'Where does iPad function in your business?' (Discussion Thread), available from <http://forums.mactalk.com.au/57/85685-where-does-ipad-function-your-business.html> (accessed 1 September 2010).
- Marx, A. (1994), 'Using Metaphor Effectively in Interface Design', in CHI '94 Conference Companion, Boston, available from: <http://doi.acm.org.ezproxy.lib.swin.edu.au/10.1145/259963.260514> (accessed 2 September 2010).

- Oswald, E. (2010), 'Apple Ramps Up iPad Production in PC World', available from [http://www.pcworld.com/article/204897/apple\\_ramps\\_up\\_ipad\\_production.html](http://www.pcworld.com/article/204897/apple_ramps_up_ipad_production.html) (accessed 10 September 2010).
- Radas, S. (2005), 'Diffusion Models in Marketing: How to Incorporate the Effect of External Influence?' in Privredna kretanja i ekonomska politika, No. 105, pp. 31–51.
- Sandfeld, J. & Jensen, B. R. (2005). 'Effect Of Computer Mouse Gain And Visual Demand On Mouse Clicking Performance And Muscle Activation In A Young And Elderly Group Of Experienced Computer Users' in Applied Ergonomics, No. 36, pp. 547–555.
- Sears, A and Shneiderman B. (1989), 'High Precision Touchscreens: Design Strategies And Comparisons With A Mouse' in International Journal of Man-Machine Studies, Vol. 24, No. 4, pp. 593–613.
- Sharples, M. and Beale, R (2003), 'A technical review of mobile computational devices', in Journal of Computer Assisted Learning, Vol. 19, No.3.
- Straub, E. (2009), Understanding Technology Adoption: Theory and Future Directions for Informal Learning, in Review of Educational Research, Vol. 79, No. 2.
- Teo, T. S. H. and Pok, Siau Heong (2003), 'Adoption Of WAP-Enabled Mobile Phones Among Internet Users', Omega, Vol. 31, No. 6.
- Thinkbroadband (2008), 'o2 Access...' (Discussion Thread), available from <http://forums.thinkbroadband.com/o2/3346748-o2-access.html?page=88&sb=7&vc=1> (accessed 10 September 2010).
- Tzou, R. and Lu, H. (2009), 'Exploring The Emotional, Aesthetic, And Ergonomic Facets Of Innovative Product On Fashion Technology Acceptance Model', in Behaviour & Information Technology, Vol. 28, No. 4, pp. 311–22.
- Riviere, C. N. & Thakor, N. V. (1996). 'Effects Of Age And Disability On Tracking Tasks With A Computer Mouse: Accuracy And Linearity' in Journal of Rehabilitation Research and Development, No. 33, pp. 6–15.
- Rogers, E. (2003), Diffusion of Innovations (5th Edition), New York, Free Press.
- Rogers, E.(2004) 'A Prospective and Retrospective Look at the Diffusion Model', Journal of Health Communication, Vol. 9, No. 6, pp. 13–19.
- Shedden, J (2010) 'The History of the Tablet PC' <http://au.gear.ign.com/articles/108/1081155p2.html> (accessed 19 September 2010).
- Venkatesh, V. and Davis, F. (1996), 'A Model of the Antecedents of Perceived Ease of Use: Development and Test' in Decision Sciences, Vol. 27, No. 3, pp. 451–81.
- Walker, N., Philbin, D. & Fisk, A. (1997), 'Age-Related Differences In Movement Control: Adjusting Submovement Structure To Optimize Performance' in Journal of Gerontology: Psychological Science, No. 52, pp. 40–52.
- Wallace, A (2008). 'News architecture and the telautograph on Park Row' (Workshop Paper), available from <http://www.mediapolis.org.uk/Papers/Mediapolis%20-%20All%20Papers.pdf>, pp. 26–27 (accessed 19 September 2010).
- Ward, J. (2007), 'The Ill-Fated Apple III', available from <http://vectorsappleworld.com/appleii/appleiii.html> (accessed 10 September 2010).
- Whirlpool.com (2010a), 'What Happened to the iPad' (Discussion Thread), available from <http://forums.whirlpool.net.au/forum-replies.cfm?t=1500721> (accessed 1 September 2010).