

xp feature



The write stuff

Microsoft's latest release of Windows XP pushes handwriting recognition and mobile computing in a whole new way. We've heard all the hype, but what does Tablet PC mean in real terms? Alex Katz finds out

The long-awaited Tablet PC is finally a reality, following November's official unveiling of the software and a number of products using it. The concept of a tablet, or keyboard-less PC, is nothing new. Since the first computer bleeped into life there have been numerous attempts to create a more natural PC user experience, but the technology has never really been up to it.

This time, Microsoft is taking the tablet concept seriously. It is estimated to have ploughed over \$400m into research and development on Tablet PC, and that's not taking into account the vast marketing

budget which will accompany the rollout of the operating system.

Microsoft sees Tablet PC as something which could genuinely change the way we use computers. It hopes to avoid the expensive flops of many previous attempts, which explains the considerable personal endorsement from Bill Gates himself, widely regarded as the driving force behind Tablet PC.

In this feature, we'll take an in-depth look at the tablet PC concept and tell you all you need to know about this technology upon which Microsoft has staked a great deal of its future.



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Who wants a tablet PC?

The tablet PC is designed for what Microsoft calls 'knowledge workers' – office workers on the move who need to take notes in meetings, annotate emails and presentations, and remain connected to the internet while on the road. Such users often find themselves in situations which do not lend themselves to the use of a keyboard and mouse, or even a desk. If you are walking down a corridor or standing on a train, how do you input text to your PC? And how do you interact with items on the screen?

The solution is the tablet PC, a computer designed for mobility from the ground up. Tablet PCs are small and light, and therefore highly portable. They also have a huge array of communications technologies built in, such as Wi-Fi, Bluetooth, modems and ethernet. But most importantly, they run Microsoft's latest operating system: Windows XP Professional Tablet PC edition.

This OS lets you do anything you would normally do on a desktop or notebook and runs all your existing applications. What Windows XP Tablet PC edition offers that you won't find in its Home and Pro siblings is a range of features designed specifically for tablet use.

Key benefits

The keyboard and mouse are the primary input and interaction devices for PCs;

Tablet PC makes them secondary. Instead, users write and navigate by touching a special pen to the pressure-sensitive screen – just as if it were a pad of paper. Crucially, Windows XP Tablet PC edition features advanced handwriting-recognition technology that can convert your onscreen writing into editable text.

This technology is probably the most important development which has made Tablet PC possible as well as more likely to succeed. Accurate handwriting recognition has long been a goal of the computer industry and Microsoft might finally have cracked it.

The company has been building up a database of literally millions of samples of handwriting over the last 15 years, and the software uses a complex neural network system to analyse and interpret entries. So even if you're a doctor who can't read your own handwriting, there's a fairly good chance Tablet PC can.

How to write

Write a sentence into the TIP (Tablet PC input panel), a box docked at the bottom of the screen, and when you've finished it is converted to text before being added at a previously defined insertion point in the document you're working on. If it's not already showing, simply scribble anywhere on the screen to bring up the TIP.

Alternatively, you can use Write Anywhere mode, which effectively turns the whole screen into a transparent TIP, rather

Success or failure?

Most industry observers agree that the success or failure of the tablet PC will largely be determined by the kinds of applications that are developed to take advantage of the format and how quickly they become available. Among the products announced at Tablet PC's official launch was Corel's Grafigo, a graphics package for people on the move.

With it, you can draw, scribble and design using a sketch tool, a symbol library and handwriting recognition. Also available is a brainstorming/mindmapping application called MindGenius, which converts colour-coded lists of ideas into diagrams and flowcharts, and a number of products for vertical markets such as medical record taking and retail planning.

In addition, some tablet PCs already ship with add-on software preinstalled, such as Sensiva's Symbol Commander on the Toshiba Portege, which allows you to use simple pen-based gestures to perform common tasks such as navigating in your web browser and opening favourite programs.

But this is just the beginning. If Tablet PC is to be a real success, it's up to software developers to use their imaginations to come up with ways of building upon pen-based input and control and the tablet PC's pen and paper metaphor in new and exciting ways.

Handwriting recognition is an important technology, but entering text is not the only way we interact with our computers. What the tablet PC metaphor enables is a complete rethink of the human/computer interface.

If people can see that there are things they can do with a tablet PC that they could never have done with a traditional notebook, then the technology has a good chance of being as important as the desktop computing revolution itself.

Form factor

There are two distinct types of tablet PC available: the pure Tablet, as in the Compaq TC1000, Fujitsu-Siemens Stylistic ST4000 and the RM Tablet PC; and the so-called convertible tablet, the form factor preferred by Acer's TravelMate C100 and Toshiba's Portege 3500.

As its name suggests, a pure tablet PC is effectively just a screen, while the convertible models are essentially fully featured small notebooks, on which the screen can be turned round to conceal the keyboard in tablet mode.

The pure tablet design can be made more robust – hence RM's choice of this design for use in schools – and can be smaller and lighter than a convertible model. Its main drawback is that it has to be attached to peripherals to be used as a standard PC: these tablet devices come with docking stations, add-on

keyboards and so on.

Convertible models are more versatile and will feel more familiar to existing notebook users, but the design tends to be less elegant and you're lumbered with the extra weight and bulk of the keyboard section of the device even when you don't need it.

Microsoft says it has no particular preference as to which form factor people should be using. It's up to the hardware manufacturers to offer end users the choice, and the market will decide which type of tablet comes to dominate. Our hunch is that convertible products will prove more popular, since they offer the full functionality of a notebook, for those times you would prefer to type or use a trackpad, without having to attach any peripherals.



than restricting you to a small input box. This doesn't work quite as you might expect, though – text is still added at the insertion point rather than where you write it.

If handwriting isn't your thing, you can also enter text using the onscreen keyboard – there are even options for users who prefer the text input methods of PDAs (personal digital assistants) such as Palm's Graffiti. One of the features Microsoft is making the least noise about in the UK is the integrated voice-recognition software.

Using the same TIP as you use for entering handwriting, you just press the Record button and you can speak your data. As with all speech-recognition software, this works best with a decent headset-based microphone – perhaps not ideally suited to walking down a corridor – and the software is also only based on the US English lexicon, which means recognition will be less accurate for speakers of the Queen's English.

Digital ink

If you don't want your notes converted to neatly typed text, you can preserve your handwritten scrawl in all its glory with digital ink. Using the Journal application, you can store all your scribbles, including diagrams and pictures. Crucially, you can still search these handwritten files by name and check within documents for specific items.

This digital ink metaphor extends well beyond using a Tablet PC as a replacement for a notepad. You can import a file from any application – say a Word

document – into the Journal and use digital ink to annotate it in a variety of pen styles and colours. You can draw directly on top of a PowerPoint presentation, making it more interactive. You can even write directly into Outlook and send handwritten emails. An add-on pack for Office XP provides ink-specific functionality into all the applications in the Office suite.

Reading your writes

In addition to the interactivity benefits of a tablet PC, Microsoft sees it as a 'first-class digital reading platform' ideal for electronic books and magazines. To this end, all text is displayed on the screen using ClearType, a technology which uses varying shades and colour for the pixels on the edge of characters which fool the human eye into seeing crisp, clear edges as if they were printed on paper.

This does make text on screen more legible, but in testing we found staring at the LCD screen of a tablet PC all day much more tiring than reading a book.

Also, the electro-magnetic sensitivity layer over the top of the screen, necessary for registering pen strokes, means that tablet PC screens are not as easy on the eye as conventional LCD panels.

Using the Journal application, you can store all your scribbles, including diagrams and pictures



Who's it for?

The major focus of both Microsoft and the hardware manufacturers is on business users, as they have the most money to spend on what are, after all, expensive products. In addition to typical office workers who would benefit from being able to take notes directly on their PC during meetings and collaborate on business files, Microsoft envisages a wide range of uses.

Sales reps, for instance, could provide detailed summary documents for customers onscreen; banks and building societies could use tablet PCs for mortgage quotations and take digital signatures from their customers; telecoms engineers could take a tablet on a job, annotate diagrams of any work they've done and be linked over the internet back to head office for an up-to-date job sheet.

One tablet PC manufacturer is coming at the market from a completely different angle. RM has spotted the huge potential tablet PCs have in the classroom, allowing students to take notes directly on the screen and have them saved in a legible, searchable archive, as well as interacting with their work, teachers and classmates in previously unimaginable ways.

To this end, RM has produced a low-cost device which, at £799, is a feasible purchase for schools. All five current tablet PC manufacturers have forecast a huge uptake of these products in a short space of time, with some seeing up to 20 percent of their revenues coming from tablet PC sales within the first year.

We're not so sure. In the short term, at least, it's more likely that most tablet PC buyers will be your typical early adopters – gadgets freaks and people who can afford the nice-to-have technology without actually needing it. Most organisations are pretty set in their ways when it comes to IT and it would take a lot to convince them to invest large sums in a new and untested technology.

Yes, a tablet PC allows you to do everything you can with a notebook and more, but only time will tell if the 'more' part is compelling enough. Despite all its benefits, Windows XP Tablet PC edition is far from perfect. There are a number of improvements which Microsoft is working on for version two and we can be sure that the manufacturers have improvements to make to their own devices.

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Driving ambition

Whether Microsoft's ambitions of forever changing the way we use computers comes to fruition with the tablet PC depends on a number of factors. The most important is how strongly the technology is adopted by developers and what software they create to take advantage of it (see *Success or failure?* on page 141). But equally crucial is how end users respond to the technology.

Tablet PCs are around the same price as many top-of-the-range desktop replacement notebooks (with the exception of RM's education-focused machine), yet they only offer the power and features of most subnotebooks, which are often half this price.

In a depressed economy, it's hard to imagine many companies rushing out to spend more than they need on new hardware which they're not sure will benefit them in any specific way. So initially at least, Microsoft's best chances will be to focus on the so-called vertical markets, such as medical, retail management and

insurance industries, where it can sell the specific benefits of tablet PCs and how they can significantly enhance the way people work.

Other customers at this stage are likely to be early adopters, eager to get their hands on every new innovation. But this is the first release of Windows XP Tablet PC edition and we're likely to see dramatic improvements in the technology in future revisions.

Just as it took three revisions of Windows CE before Pocket PC took off, we expect the tablet PC will be waiting in the wings for a few more years before it really hits the mainstream. There is also a big potential for this technology among consumers, but again we don't expect much movement here until prices come down and the technology has proved itself.

If you can spare the cash, get your hands on a tablet PC and experience a brand new way of computing. You won't be disappointed. But for the vast majority of users, we can't see the tablet PC replacing your desktop PC just yet. ■