HOW WIRELESS TECHNOLOGY CAN HELP YOU WORK ANYWHERE 1

Mobile working is about freedom and simplicity. Technologies are making it easy to access information and work regardless of location.

This brochure explains the benefits of mobile working; looks at some of the most common mobile technologies and gives you pointers on how to introduce mobile working to your business.

This brochure is for any business that could benefit from staff being able to work offsite or on the move.

It covers how you can use mobile technologies to work more flexibly and improve productivity.

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The idea of mobile working is simple: it means giving people the tools to let them work anywhere at any time.

In just a few years, mobile phones have gone from being an executive toy to an item owned by three-quarters of the population. In the same way, a whole range of computing devices is now becoming portable, allowing employees to access e-mail, create documents and even hold meetings without being in the office.

Like mobile phones, the effect of mobile devices isn't simply to replace wired devices like desktop computers. Instead, as with text messaging, they open up new possibilities, making them as much a complementary option as a straightforward replacement.

This brochure will explain how mobile working can benefit your business; what mobile working technologies are available; and how you can use them to improve the way your business operates.

THE BENEFITS

In simple terms, mobile working frees you from your desk. The design of the standard office workstation has been heavily influenced by the need to plug in a phone and computer. Often this works perfectly well. But equally there are times for example, when travelling or home working when you aren't at your desk but need access to your company's systems. Mobile technologies give you the freedom to work in the place and the way that's best for your business.

INCREASED PRODUCTIVITY

With mobile working, time spent travelling between locations can be used productively. There is now a range of products and services on the market that enable you to manage e-mails, access your company database or edit documents on the move. A simple calculation of the benefit this offers can be quite surprising. If your employees spend a total of only ten hours a week travelling, that's over 500 hours a year potentially tens of thousands of pounds of lost productivity a year.

WORKING IN REAL TIME

Mobile working means that sales people or staff working at client sites can be in constant contact. The result of this is that you can get instant responses to queries and they can have access to the most up-to-date information. Now, instead of having to type up notes or update the database on their return to the office, staff can enter information directly onto the system. Likewise, with the additional information available to them, they can offer a more complete service to clients. For example, instead of simply demonstrating a product with a laptop, they could connect to your system; give clients the latest prices and stock figures; and even place an order on the spot. This can mean more sales and better customer service.

FLEXIBLE NETWORKING

With a new generation of smaller, cheaper mobile devices, businesses have a range of technology options. Previously mobile working was synonymous with laptops. Now, however, you can buy handheld devices like PDAs or 3G phones that will let you handle e-mail or make videophone calls on the move. This means you can match technology to employees' needs. For example, while sales staff might still need laptops, warehouse workers might have portable barcode scanners to check stocks and senior staff PDAs to check their e-mail and appointments.

Depending on your business model and objectives, the mobile technologies you choose will vary. The next section explains some of the key technologies and their costs and benefits to help you decide what's best for your business.

BRAINBOXES

Brainboxes, a specialist technology manufacturer, has used wireless technology to increase productivity and let staff work on the move. Brainboxes began life in Eamonn Walsh's dining room in 1984. "IBM had just launched their first PC, and I saw the opportunity to develop useful devices that could connect to it. I had no money, so I started in business from my home, with my redundancy package of two Commodore 64s and one Commodore Pet PC."

Today Brainboxes is thriving and has a prestigious customer base. Eamonn believes that the company's success is due to regular interaction with customers. Each week Eamonn accompanies sales staff to visit clients, spending a large amount of working time outside the office.

Previously this meant many wasted hours travelling but now, with the help of Bluetooth technology, the passenger in the car can work on their laptop on a presentation or processing e-mails, linked to the hands-free GPRS mobile phone in the car.

At the other end, waiting time between meetings can be productive using the same set-up, enabled by Bluetooth. Bluetooth gives staff a reliable wireless connection to Brainboxes' wired LAN network. It also allows them to keep up-to-date with the latest information about the company and its customers, no matter where they are.

Eamonn estimates that productivity gains made by Bluetooth-enabled laptops, GPRS mobile phones and PDAs are around £50,000 per year. Use of mobile technology also allows staff to adopt a more flexible approach to working practices. "Productivity of all our staff and a respect for their personal life styles is important. This is challenging to achieve, but use of our own technology enables significant productivity gains for us," says Eamonn.

A clear example can be seen in the innovative adaption of Brainboxes' ISDN connection which,

linked to a Bluetooth router, allows Patricia Walsh, Financial Director, to work from home. This set-up gives Patricia a wireless connection to the internet throughout the house and to a shared printer. She can access the company's network from her laptop anywhere in the home, even if other family members are using the internet.

MOBILE NETWORKING TECHNOLOGIES

These are some of the most common mobile working solutions. They are not always direct competitors they have different features and are suited to different uses. Some, like Bluetooth, work in tandem with other technologies in this section.

3G Phone

What is it?

3G stands for third generation a name that isn't in itself particularly revealing. The key thing about 3G phones is the features they offer:

- They are always on permanently connected so, unlike Wap phones, there's no waiting time to access the Web.
- They have a much higher data transfer rate. A standard modem can receive information at up to 56Kbps. The original Wap phones had a data transfer rate of less than 10Kbps. 3G phones, by contrast, can download information at anything from 144Kbps to 384Kbps. At the lower end, this is a fast as an ISDN line. At the top end, this is faster than many home broadband connections.

Options

The key feature driving sales of 3G phones has been video messaging. The data transmission speed allows owners to watch streamed video clips like goals from football matches and hold video calls with other users. While the quality isn't good enough to make it a replacement for formal meetings, it's certainly a useful communication tool. 3G phones also come with a range of other useful options like digital cameras, web and e-mail access, and the ability to play music and video files.

Pros

- Face-to-face communication
- Mobile staff can use video and camerafeatures to get an instant second opinion on a problem

Cons

- Expensive because still in their infancy
- Video quality is only moderate

Ideal for

- People who to need to be constantly contactable, but don't need the features of a PDA
- Engineers or other field workers

Costs

Prices are beginning to fall. Depending on the tariff you get, handsets can start from £50. Monthly line rental is about £30 with additional charges for calls and the different services.

PDAS

What is it?

PDA stands for personal digital assistant. Also known as 'palmtops', these handheld devices have an increasing amount of power and are far more than just electronic diaries.

Options

Most PDAs now run versions of standard office software which means you can work on documents, spreadsheets or other files from the office. Cheaper PDAs need to be connected to your network on return to the office so that they

can 'synchronise' themselves download any new files, like e-mails that have arrived, and upload any files you have worked on while away from your desk. Increasingly, though, PDAs are available with 'Bluetooth' and 'WiFi' options which allow them to access your network wirelessly meaning that if you are within range, you are constantly connected. Many PDAs also double as mobile phones and can be linked to laptops for wireless internet access.

Pros

- Very small and light
- Runs standard office software
- Bluetooth and WiFi capacity available
- Relatively cheap

Cons

- Small screen (but colour)
- Not all have a keyboard although most offer it as an optional extra

Ideal for....

- People who are rarely at their desk or travel a lot
- Dealing with e-mail on the move
- Scheduling
- Making notes and reviewing documents

Costs

Generally between £70 and £500, although top of the range models can push up toward £700.

GPRS Device

What is it?

General Packet Radio Service (GPRS) is the technology that supports most current mobile phones, allowing you to access e-mail and the internet on the move. GPRS is sometimes referred to as 2.5G, meaning halfway between old GSM mobile phones, which are 'second generation' and the new 'third generation' or '3G' phones which offer video calling. The reasons for this are:

- it has a much higher bandwidth giving access to a greater range of services
- it is permanently connected ('always on'), which means that, unlike the early Wap phones, you don't have to wait to be connected to the internet

Options

With data transfer rate of up to 171Kbps, GPRS phones and PDAs are particularly suited to sending and receiving small bursts of data, such as e-mail and web browsing. As well as voice calls and SMS, they often support Multimedia Messaging (MMS) messages containing a combination of text, sounds, images and video. Many mobile phone providers offer an integration service, linking your company e-mail system to all your mobile handsets.

Pros

- Can connect to laptops to provide internet access for mobile working
- Cheap and widely available
- Mobile e-mail requires no technical knowledge

Cons

- Not as fast as 3G phones
- No video calls

Ideal for....

- Mobile communication, rather than full mobile working
- Dealing with e-mail on the move
- Occasional access to the internet

Costs

GPRS is a standard feature on the majority of current mobile phones so there are no extra

equipment costs. Because it is 'always-on', when you use e-mail or the internet you pay by the amount of data you transfer rather than for time. Most mobile companies offer packages with a small monthly subscription charge for a set amount of data. Additional data is charged at a few pounds per MB. Each extra MB is equal to about 100 plain text e-mails or 20 web pages.

Wifi

What is it?

WiFi is the name for a group of standards that govern how wireless networks operate. It is the default setup for most wireless technologies from wireless internet access in coffee shops to wireless broadband in rural areas.

Options

Like Bluetooth, a large number of mobile devices are WiFi-compatible. Unlike Bluetooth, though, its use isn't confined to connecting up largely consumer items. It can be used to network up whole offices and provide internet access ('hotspots') almost anywhere even outside. WiFi can transfer data at up to 54Mbps which exceeds the speed of many cabled networks in offices.

Pros

- Increasingly widely available
- The default wireless standard in future, a wide range of electronic items will be available with WiFi compatibility
- Internet access anywhere there is a WiFi network
- Ultra fast, cable-free working
- WiFi devices are simple to use

Cons

- Prices of WiFi networks are falling but are still quite expensive
- Require some technical expertise to set up a network
- Uses short wave radio, so no contracts or monthly connection costs

Ideal for...

- Travelling workers
- Hot-desking
- Non-desk based staff like warehouse workers
- Businesses with limited space or who want to create cable-free offices

Costs

Typically a wireless access point can cover up to 100 metres and support from several up to 256 users, depending on the specification of the equipment. You can buy packages from £120-£500, which includes a WiFi router. On top of this you may need a wireless network card for each computer or handheld these cost from £40-£60 each though WiFi technology is increasingly built into many laptops and PDAs.

Extranets

What is it?

An extranet is a way of giving people access to business information using an internet browser. Effectively it is a private network enabling you to share specified areas of information or operations with people like clients, customers, suppliers or staff.

Options

At its simplest, an extranet can be a homemade, password-protected area on your website. At the top end, it can be a very sophisticated way of sharing product and pricing data; accepting order and payments; and managing collaborative projects online. What information you share is up to you you can allow different people to access different levels and types of information.

Pros

- Low cost options
- Allows files to be transferred which are too big to be e-mailed
- Makes it easier for remote workers to access company data
- Extendible to clients and other supply chain partners

Cons

- Most extranets are not directly linked to your network. Files have to be uploaded to it, which means users aren't necessarily working with the most up-to-date information
- Though more secure than e-mail, extranets aren't necessarily suitable for highly confidential information

Ideal for...

Any business that needs to give clients, suppliers or staff access to information off-site.

Costs

Adding a password-protected area to your website is relatively simple and inexpensive it can cost from about £25 per month for the additional web hosting fee. To give your extranet added levels of functionality like increased security and publishing facilities there are a number of software solutions starting at around £200.

Virtual Private Network

What is it?

A virtual private network (VPN) is a secure way to give remote access to your network to other offices or individuals. Unlike systems of linking offices through private leased phone lines, a VPN uses the internet and encryption technology. This means it is extremely secure, widely accessible and comparatively cheap.

Options

VPNs can be extremely secure you can use the most powerful encryption commercially available. They are also very flexible users can access your actual network, which means they always have the most current data.

Pros

- Much more secure than e-mail or extranets
- Cheaper than leased line connections between offices
- Quick and easy to give access to new users
- Allows you to create 'virtual teams' people anywhere can work together on projects
- Guarantees currency of information

Cons

- Requires investment in new equipment and technical knowledge
- May be overkill for smaller businesses

Ideal for...

- Businesses with a set of permanent mobile or home workers, or several offices
- Businesses who work collaboratively on projects with business partners
- Business for whom data security is a prime consideration

Costs

Some VPN retailers claim running costs savings of between 60% and 80% over remote access by modems and up to 40% on office-to-office communication. Most VPN options require a broadband connection(available from about £25 a month) and have installation and annual charges. You can expect to upwards of £1,500 to set up a VPN, but costs will vary depending on your requirements.

Wireless-Bluetooth

What is it?

Bluetooth is a way of instantly connecting up electronic devices. Using radio waves, any Bluetooth enabled device can talk to any other device provided it is in range (usually 10m, but this can be up to 100m for some equipment).

Options

Bluetooth is best thought of as a way of creating adhoc networks for consumer devices. So for example:

- a Bluetooth-enabled laptop could print straight to a Bluetooth-enabled printer without being cabled up
- a Bluetooth PDA could automatically synchronise itself with a PC just by being in the office
- a Bluetooth mobile phone could be used to connect to the internet by a laptop. The potential benefits are impressive you no longer need a phone or network connecter to access the internet with your laptop; meeting rooms can become cable-free; and visitors to an office can simply sit at a desk and begin working. Finally, an increasing number of electrical devices are now Bluetooth-compatible or can be upgraded with cards or adaptors, which means you can use Bluetooth without substantial extra investment.

Pros

- Fast download speed at up to 1Mbps it matches the speed of leased-line internet broadband connections used by many businesses
- Simple to use Bluetooth devices require little technical knowledge
- You can buy Bluetooth cards and adaptors so you don't have to replace existing equipment

Cons

- Short range
- Not robust enough to replace a standard wired network in anoffice
- Though growing in popularity, some people question if Bluetooth will ever become a mainstream technology
- Uses short wave radio, so no contracts or monthly connection costs

Ideal for...

- Anyone with a mobile device
- Connecting up disparate electronic items
- SOHOs (small office / home office)
- Companies with limited IT budgets

Costs

Bluetooth technology is increasingly built into contemporary mobile phones, PDAs, PCs and Prelate products. You can also buy a Bluetooth adaptor or card for many devices. A Bluetooth adaptor, which can be used to add Bluetooth functionality to a laptop or PC costs about £50. A Bluetooth router costs about £120.

Benugo

Free wireless internet connectivity is bringing in the customers for Benugo cafés. Taking its name from co-founders Ben and Hugo Warner, Benugo cafés opened for business in 1998. They offered customers a new style of café: a New York style deli bar offering fresh, hand-prepared food. With 11 café shops in and around London, 150 staff employed throughout the business and annual revenues of over £6m, Benugo has proved to be a big hit.

From its inception, technology has played an integral part in the way Benugo operates. An internal WiFi and wired LAN at Head Office provides a computer network which is linked to the internet. All external sites (the cafés) have

ADSL connections to the internet and to the central network at Head Office. This means that communication between the various sites is quick and easy. It also means that stock information can be kept up-to-date.
"Timely effective communication is crucial for managing the business," says Tim Parfitt, Finance Director.

But in today's market, business survival depends on sustaining profitability and maintaining customer satisfaction. This is why Timwas intrigued by the proposition from technology solutions provider, Broadscape. The proposal was to provide Benugo's customers with high speed internet access over a Wireless LAN with a WiFi access point.

This would effectively mean that a customer could come into a Benugo café, open up their laptop and have instant access to the internet without having to plug in any cables. Benugo trialled the idea in two of their cafés. They offered wireless internet connections free of charge as long as customers spent £2 or over on food or coffee for every 30 minutes of use.
Wireless technology also allows management instant access to the latest information as they move around different locations. "I visit different locations and use my laptop to keep up to date with e-mail and business," says Tim. "A rough calculation suggests we save at least 500 man-hours a year which equates to about a £25,000 saving." The success has been such that Benugo is now planning to add further cafés with WiFi access.

IMPLEMENTATION CHECKLIST

Research and Analyse

Set targets

- Set goals for mobile working. For example, do you want to improve customer service, reduce costs, or improve efficiency?
- Agree specific, measurable objectives for what you want to achieve, such as improved productivity or increased sales.

Cost benefit analysis

- Compare the costs of mobile technologies like software, maintenance, licences and less tangible costs such as staff training with the benefits like increased customer satisfaction and greater efficiency.

Consult

Professional Advice

- If you lack the skills in-house, contact your Business Link adviser, for help on how best to:
  - outline your requirements
  - establish how much you can afford to pay
  - scope the project
  - advise on implementation
  - provide training and software support.

Plan and Test

Evaluate options

Think about the way you work. Profile each of your staff and their communication needs.

- Are your business or staff artificially constrained by location or work space?
- Would your staff welcome the opportunities of more flexible homeworking?
- If you want to offer your clients the ability to review work remotely, consider an extranet.
- If you want staff to be able to access your network via the internet, a virtual private network might be for you.
- If you have mobile staff or sales people compare the new generation of mobile phones with PDAs and laptops. Do they need to have a full PC or is receiving e-mail enough?

Plan the roll out phase

- Run a pilot see if a few individuals benefit from the technology before you invest heavily in any one technology.
- Look at training implications what will the cost be?
- Decide which staff will require training and allow time for them to adjust to the new system.
- Will you have the technical expertise to install the technology yourself? And what about teething problems and ongoing maintenance?

ACT

Implement Storage Data Solutions

- Roll out any necessary training.
- Encourage staff involvement and feedback, this will help smooth implementation, as staff buy-in can make or break a technology project.
- Consider setting up a cross-departmental taskforce to manage the implementation process it will help with staff buy-in and ensure that implementation works company-wide.

Evaluate

- Monitor and review the impact on your business and against your objectives.
- Get feedback from staff, customers and suppliers on the changes.
- Evaluate the impact after 6 months and 1 year. Have you achieved your objectives? Establish how you could improve things further.

FURTHER HELP AND ADVICE

Technologies

Commercial providers of PDAs
http://http://www.palm.com
http://welcome.hp.com/country/uk/en/welcome.html

Commercial providers of laptops
http://www.dell.co.uk
http://www.sony.com
http://www.toshiba.com
http://welcome.hp.com/country/uk/en/welcome.html

Information and sales of GPRS phones
http://www.carphonewarehouse.co.uk
http://www.phones4u.co.uk

3G service provider
http://www.three.co.uk
3G handset providers
http://www.nokia.co.uk
http://www.nec.co.uk

WiFi information
WiFi.org providers the latest news on WiFi developments
http://www.wi-fi.org
Intel provide a list of the nearest WiFi 'hotspots', a place where you can use a WiFi device to access the Internet
http://www.intel.com/products/mobiletechnology/hotspots

Commercial providers of WiFi technology
http://www.bt.com/openzone
http://www.daconi.co.u
http://www.intel.com

Bluetooth development site
http://www.bluetooth.com

Virtual Private Networks providers
http://www.bt.com
http://www.claranet.com

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