

Mobile computing

For the increasing number of employees who spend time working away from the office — at home, travelling, or simply attending a meeting — mobile computing can be a powerful tool.

This briefing covers:

- Understanding the options available.
- Choosing the right mobile device to suit your needs.
- Key management issues.

1 The benefits

1.1 You can be more **productive**, working at home, in a hotel, at a client's premises and while travelling.

1.2 You have easier **access to information**.

1.3 You can **share information** electronically with your office while you are out on the road.

2 The options

2.1 The most powerful option is a portable **computer**.

- Portable computers (usually referred to as laptops or notebooks) work in the same way as desktops, using standard desktop software.
- The market is dominated by PC-compatible laptops running a version of the Windows operating system. The other main type is Apple Macintosh.

2.2 The most portable option is a **PDA** (personal digital assistant).

- PDAs are small, light devices.
- They are less powerful than laptops, but more convenient if your needs are limited.
- You usually input information by 'writing' on the screen rather than using a keyboard.

2.3 There is a wide and growing **range** of mobile devices.

- Mid-sized devices tend to offer a compromise between the functionality of laptops and the portability of PDAs.
- As telecommunications and computing converge, some mobile phones offer many of the capabilities of a PDA.

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2.4 The range of options and different **terminology** can be confusing or even misleading.

For example:

- Smaller laptops are sometimes referred to as 'subnotebooks'.
- 'Handheld' computers tend to be about the size of a book, with a small keyboard and screen, and run cut-down versions of a standard operating system and software.
- 'Palm' computer usually refers to a PDA.

The key to choosing the right option is to focus on what you need to do (see **3**) and how usable the device will be (see **4**).

3 Your needs

3.1 If you only want a **personal organiser**, then a PDA is ideal.

- A PDA will allow you to look up and edit contact details, appointments and brief notes. However, larger quantities of text can be slow to enter without a keyboard and can exceed the PDA's limited storage capacity.
- A PDA is quick and easy to use. Taking the PDA out, switching it on and accessing information will only take a few seconds.
- Although a laptop can handle the same tasks, it is far less convenient. You need to find somewhere to put the laptop, and wait while it powers up.

3.2 A laptop is suitable for **working on files** in the same way as in your office.

For example, drafting letters, setting up a spreadsheet or running a Powerpoint presentation.

- A compatible laptop will be able to run the same software as your office system.

3.3 There may be a solution which suits your **specific needs**.

For example, a handheld computer might be designed specifically for use in stock control.

- Some PDAs and handheld computers allow you to run cut-down versions of standard software packages. These can be useful if your main requirements is to be able to view documents and other files rather than to work on them.
- However, a compromise, where you try to trade off portability, functionality and price, often proves to be unsatisfactory. Purchasing both a laptop and a PDA might be a better solution (though at extra cost).

3.4 Many devices offer **additional functionality**.

For example, the ability to play music or take photographs.

- These features tend to be aimed at individual consumers, but can have useful business applications in specific circumstances.

3.5 Whichever option suits, you should also ensure that it can handle your **communication** and **networking** needs (see **5**).

- These may include the ability to back up information, connect to output devices (such as a printer), network with other computers, and handle communications such as email or phone calls.

4 Usability

4.1 Physical features can be as important as processing ability.

- For a PDA, size can be a critical factor. For example, if you want something genuinely pocket-sized rather than needing to carry it in a handbag or briefcase.
- The weight of a laptop can be important if you will be regularly carrying it around. Thinner, lighter laptops tend to be more expensive.
- Smaller notebook computers can weigh less, but the reduced size of the keyboard and screen may be less convenient.
- Depending on your working environment, you may need a device which is relatively durable.

A checklist for buyers

A mid-range laptop costing around £800-£1,000 before VAT should include the following features:

- Intel Pentium 4 or Celeron processor running at a speed of at least 2GHz.
- 256MB of DDR RAM.
- 14.1-inch TFT display.
- Integrated AGP 64 graphics.
- 56k V90 or V92 modem.
- DVD/CD-RW drive.
- 30GB hard drive.
- Windows XP operating system.
- Two PCMCIA slots.

More rugged portables and weatherproof PDAs are available for people who work outside, for example.

- Portable computers can generate significant amounts of heat. Ensure that this is dispersed effectively (not through your lap).

4.2 The **capabilities** of a laptop are governed by the same specifications as a desktop computer.

For example, processor speed, amount of RAM, and size of hard disk.

- The capabilities of a PDA will depend on similar specifications, though the storage method is different. Most PDAs store everything in RAM or on memory cards, rather than having a hard disk.
- Speed, and particularly the time it takes to boot up (from switching on to being able to use the device) can be important.
- Upgrade options can be relatively restricted, particularly for PDAs. You can usually install extra memory, but only to a limited extent.

4.3 Battery life is important if you plan to use the device for a long time.

Most devices use rechargeable batteries.

- You should need to recharge a PDA at

most once a day provided you switch it off when not in use.

- To use a laptop for long periods of time, you will need to connect it to the mains. Applications such as using sound and video tend to run down the batteries faster.

4.4 The size and quality of built-in **displays** varies.

- For laptops, high resolution screens using 'TFT' technology give the best image. A high-quality display can be the most expensive part of a portable.
- If you plan to use your laptop to show information to others, ensure that the screen provides a good image when seen at an angle.
- The small screens on PDAs can be difficult to read unless they are of good quality.

4.5 Input devices can have a significant effect on usability.

- The built-in keyboards of portable computers vary in size and quality. Even the largest, high quality keyboards are rarely as easy to use as the keyboard for a desktop computer.
- Most PDAs use a stylus, and a form of handwriting recognition, to input data. This should be easy to use, but may require some practice and will not be quick for large amounts of text.
- Some PDAs offer miniaturised built-in keyboards, or larger keyboard attachments as an option. These generally only allow you to type slowly, with one finger.
- Tablet PCs are similar to laptops, but use a handwriting recognition system like a PDA. Other input devices which work in a similar way, but for use with standard laptops, are becoming more widely available.
- Portables use devices such as touch pads and rollerballs rather than a mouse. Some users find these less easy to control.

4.6 The only way to get a realistic assessment of usability is to **try it**. Bear in mind that weaknesses which may be acceptable in a quick test can become major irritants or problems later on. For example:

- A laptop which is easy to pick up will seem much heavier if you have to carry it for a mile.
- Waiting for a machine to boot up will be more frustrating if you have a client waiting with you.

Travellers' tips

As they are carried around, mobile computers are always vulnerable.

Take some basic precautions to protect your investment.

- Make sure all key data is backed up before every trip.
- Carry your mobile device in a padded case with no obvious logos that could attract thieves.
- Check your mobile device will work with different mains voltages.
- Check that your modem cable has the correct type of telephone plug for the country you are visiting. You can do this instantly by visiting the international phone plugs guide at www.kropla.com.
- Charge your battery before you travel.

Customs officials may ask to see the device switched on before you are allowed to board a plane. You will not be permitted to use your portable during take-off and landing.

5 Connections

5.1 The ability to **back up** data is essential.

- Most PDAs come with a connection device, and software you install on your PC, which allows you to transfer data from one to the other.
Suitable software allows you to 'synchronise' your PC and PDA, ensuring that changes you have made on one (eg updated contact details or appointments) are copied over to the other.
- The easiest way to back up a laptop is usually to connect it to your network (see 5.2).

5.2 There can be several options for connecting your laptop to the office **network**.

- Most laptops have a network card built in, or have a PC-card expansion slot or a USB port into which you can insert a network adaptor card. If you have a wireless network, you can connect your laptop without any cabling.
- A cable plugged into the laptop's printer port, and suitable software, can allow you to exchange files with a desktop computer.
- Many laptops have an infrared port (complying with the 'IrDA standard') which allows you to transfer information to other IrDA compatible devices.

5.3 You can connect a laptop to the **Internet** using a modem. With suitable software, this will allow you to send and receive email, browse the Internet, or connect to your office network server.

- You can use a phone line to make the connection (eg in a hotel), or connect your laptop to a GSM mobile phone.
- Ensure that you use an ISP covering all the areas you travel to.

5.4 **PDAs** and other similar devices often offer a range of communication features.

- These can include the ability to connect wirelessly to the office network, or to link the PDA with a mobile phone for email or Internet access.
- The ability to send and receive emails is an increasingly common option for mobile phones.
- Some PDAs provide an 'always-on' connection to your office email server, so that emails can be automatically forwarded to you as soon as they are received.

6 Management issues

6.1 Minimise the physical and information **security** risks.

- Ensure that employees are aware of basic good practice (see box, page 3).
- Make sure you have appropriate insurance.
- Install the same anti-virus software as you use in your office systems.
- Stress the importance of complying with security procedures such as using passwords properly, and regularly backing up files.
If possible, avoid storing confidential information on portables.
- Ensure that you are satisfied that any wireless network connections are secured against 'eavesdropping'.

6.2 Make sure that portables do not fall outside your regular **IT management** systems.

- If office portables are shared, set up a system recording who has been issued with them.
- Establish how software upgrades will be handled for portables which will be out of the office when an upgrade is planned.

6.3 Be aware of the potential **health and safety** risks.

- Prolonged use of laptops carries a greater risk of problems such as eyestrain or RSI. If an employee will be using a laptop as an office computer, consider connecting a full-sized monitor and keyboard.

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