WHY IT IS IMPORTANT
We are currently living through a massive revolution in communications. Even in your lifetime so far, you have seen rapid developments in mobile phone technology. Today’s phones, with the multitude of applications (apps) available, seem to gain new capabilities almost weekly. Yet it is less than 25 years since a mobile phone was the size of a house brick, had no visual display, and had very limited coverage. It is only 15 years since mobile phones gained the technology to take photographs. Today, almost every business makes use of mobile technology as a standard part of its operations. Apps such as LogMeIn Pro allow employees to log in to office-based desktop computers from their mobile devices wherever they are. Remote printing can be carried out from an iPad, using apps such as PrintCentral. With most apps available for both Apple and Android devices, flexibility and mobility are available for all businesses and their employees.

WHAT YOU WILL LEARN
KEY KNOWLEDGE
Use each of the points below from the Business Management study design as a heading in your summary notes.

- Strategies to select appropriate hardware and software to meet small business needs
- Possible use of available technologies such as databases, spreadsheet, presentation software, Internet, podcasts, SMS, blogs or emerging technologies
- Uses of e-commerce
- Implications of the use of available technology and e-commerce such as benefits and costs to the small business
- Ethical and socially responsible management of ICT in small business
- Reasons for, and methods of, ensuring the security of technology and information

KEY SKILLS
These are the skills you need to demonstrate. Can you demonstrate these skills?
- accurately use relevant management terms
- research the selected day-to-day operation/s of a small business using print and online sources
- acquire and exchange business information and ideas
- apply the selected day-to-day operation/s to a practical and/or simulated business situation
- discuss the ethical and socially responsible management of the selected day-to-day operation/s.
No business owner wants employees coming to work tired, unable to concentrate on their regular duties. Even after having slept a good eight hours, some mornings we can wake up feeling exhausted — and we never seem to recover. On other days we can wake up refreshed and ready to take on the world, even though we have had less sleep. The difference is apparently related to the sleep phase we are in when the alarm goes off.

During the night, the body moves between light sleep phases and deep sleep phases. If the alarm clock wakes us up during a deep sleep phase, we will probably feel tired all day. If we are woken during a light sleep phase, we wake up refreshed and ready to function in all our daily activities.

An app known as the Sleep Cycle alarm clock can help with this problem. During the different sleep phases the body moves differently in bed. The Sleep Cycle app uses the accelerometer in a mobile phone to monitor these movements. The phone is placed on the bed and records what phase the sleeper is in at any given time. The user sets the phone’s alarm clock for the latest time they wish to wake up, and the Sleep Cycle app will activate the alarm at a time when the sleeper is in a light sleep phase within half an hour of that time.

At only a couple of dollars, the app could be a great investment for any business owner to provide for all employees. Refreshed, alert workers will not only perform better, but will probably feel better about themselves as well.
Business has benefited from the technological revolution that has accelerated over the last 30 years.

The small business owner who can utilise technology to increase efficiency and deliver better quality goods and services is more likely to succeed.

The use of technology in business

While today’s 16-year-olds are accustomed to the social uses of computer and mobile phone technology, both items increasingly form part of a package of devices that are becoming essential for small business operations. All businesses need to process data to provide the information essential to support business decision-making.

Information such as sales figures, financial accounts, customer details, purchase orders and payroll details are required to tell the business owner whether sales are rising or falling, the level of cash flow, whether invoices are being sent out on time, whether accounts are being paid on time, and whether employees are paid the correct amounts. Data such as copies of receipts and credit card vouchers, cheque butts, invoices, copies of payslips and other documents are used to provide this information. In the past, the processing of business data was done manually, with handwritten records — a slow and often inaccurate process. In addition, communication with customers and other businesses is also essential. Once, this could only be done through a landline telephone, by mail or in person. In recent years, however, both the processing of data to provide information and the ability of businesses to communicate have been transformed by the use of computers and the spread of information and communications technology (ICT).

Computers and other business hardware

Over the last 20 years, successful small business owners have realised that they need to keep abreast of developments in computer technology, and their application to business. Today the traditional desktop computer is giving way to the convenience and portability of laptops, tablets and smartphones. Most small businesses also make use of a number of other machines to assist in the smooth running of the business, and the majority of these now incorporate computer technology.

Some other commonly used examples of business hardware include:

- **Cash register.** These were invented to keep track of cash coming into the business and were originally operated mechanically. Some modern cash registers have pre-programmed keys which automatically identify the price of particular products being sold, while others use touch-screen technology to recognise a whole range of different transactions. Cash registers can also be connected to barcode readers and EFTPOS terminals. By connecting the cash register to an integrated computer system, it is also possible to track the quantities of goods sold, and assist with stock control and reordering.
• **Telephone system/switchboard.** Most businesses require a telephone system which allows employees in different parts of the business premises to communicate easily with each other, while also allowing outgoing calls to be made from any extension, and the easy transfer of incoming calls. Although private automated branch exchange (PABX) systems are still widely used, most new systems use **voice over Internet protocol (VoIP).**

• **Printers, copiers, faxes and scanners.** Until fairly recently, the tasks of printing a document from a computer, making photocopies, sending faxes, and scanning documents were carried out using separate and different devices. Today, small business has the advantage of having all these tasks performed by one machine. The printer/copier/scanner will usually also use Wi-Fi so that it does not have to be physically connected to a computer or network. Documents can be scanned and sent directly to a PC, tablet or phone. Printing can be done from within the Wi-Fi range of the printer, or from anywhere using an app installed on a smartphone.

• **Portable devices.** Just as the use of smartphones and other mobile devices now dominates social communication, small businesses are also increasing the use of portable computing and communication technologies. Many business owners will make use of technology that can be taken away from the business. Laptop or notebook computers, mobile phones and small handheld computers known as personal digital assistants (PDAs) have been in popular use since the 1990s. Convergence of technology has seen the development of smartphones such as the BlackBerry and the iPhone, both of which combine computer, PDA and mobile phone technology in one device. Small lightweight laptops, known as netbooks, have been on the market since 2007. In 2010, Apple introduced its iPad, the first tablet computer on the market, which is currently being used by numerous small business owners (see the following case study).

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A **private automated branch exchange (PABX) system** is a local phone network set up within an organisation which allows direct calls between extensions, as well as allowing each extension to make and receive calls to and from outside the network.

**Voice over Internet protocol (VoIP)** allows for the transmission of voice communications through a broadband Internet connection, rather than through the traditional copper wires of a telephone company.

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**Fender rocks on to BYOD**

Leading guitar manufacturer Fender Musical Instruments provided its employees with laptop computers and BlackBerry smartphones for mobile business communications. While this approach worked for a number of years, employees made it clear that the work-supplied devices were not as good as their own personally owned devices, and were in fact an inconvenience to use. The business consulted a number of technology companies before arriving at a BYOD solution.

An app was developed that was suitable for the employees’ iPads, iPhones and Android-enabled devices. It allowed the employees to carry out all their work-related tasks on these devices, improving employee satisfaction and productivity. Security was maintained by separating employees’ personal data from corporate and client data. This corporate and client data was placed in an encrypted secure container within the employee’s device. All data transmitted between employees’ devices and the company’s network was also encrypted.

Employees pay for their devices, and their individual call and data plans, so there are substantial savings for the company. Employees have not asked for the company to pick up these costs, as they are happy to be able to use the phones and devices they are comfortable with in their daily work.

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The makers of Fender guitars have successfully employed a BYOD strategy.

• … employees perform their work-related tasks on their own devices, improving their satisfaction and productivity.\^
Software

The term ‘software’ refers to the programs which interact with hardware to perform designated tasks. **System software** converts the computer, mobile phone or other device from a collection of circuits into a useful tool. It is usually installed by the manufacturer or supplier of the equipment. **Programming software** allows the programmer to develop a completely new program to perform new tasks, or to modify or upgrade existing software. **Application software** allows a device to perform the specific tasks that the user requires, including word processing, preparing spreadsheets, web browsing and sending and receiving email.

**System software** describes the programs which actually instruct the hardware to operate.

**Programming software** is used by programmers to develop and maintain other programs.

**Application software** describes the programs which actually perform the tasks desired by the operator.

**TEST your understanding**

1. Identify and explain three examples of information that a business owner may need to support business decision-making.
2. For each type of information identified in question 1, describe one type of data that would be processed to provide that information.
3. What are the advantages that modern ICT can bring to the business owner?
4. Identify one advantage for a business in using a BYOD system.
5. Match the following terms with the correct definition.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and communications technology (ICT)</td>
<td>(a) a local phone network set up within an organisation which allows direct calls between extensions, as well as allowing each extension to make and receive calls to and from outside the network</td>
</tr>
<tr>
<td>Private automated branch exchange (PABX)</td>
<td>(b) the storage of data in a number of remote servers rather than on a local server or hard drive</td>
</tr>
<tr>
<td>Voice over Internet protocol (VoIP)</td>
<td>(c) a system that allows for the transmission of voice communications through a broadband Internet connection, rather than through the traditional copper wires of a telephone company</td>
</tr>
<tr>
<td>Cloud storage</td>
<td>(d) the use of computers and other electronic media to record, store, retrieve, process and transmit data and information</td>
</tr>
</tbody>
</table>

**APPLY your understanding**

6. Li ran a small coffee shop and was keen to make use of available technology. Each morning when he arrived, he would switch on his cash register, boot up the computer linked to the cash register, and switch on his combination printer/scanner/fax/photocopier. During the day he would order supplies online from those suppliers with online ordering facilities, and phone or fax orders to those suppliers without online capacity, pay bills online. At the end of each day he could use the accounting and stock control software on his computer to provide a record of the day’s activities, including cash flow, stock movement, and any new debts incurred to suppliers or other business creditors. His two waiters used an app on their own mobile phones to transmit orders to the kitchen. The same app would notify the waiters when an order was ready.

Copy this table into your workbook and complete it, indicating the type of technology used, how it would be used and the benefits to the business. The first entry has been completed for you:

<table>
<thead>
<tr>
<th>Technology used</th>
<th>Functions performed by the technology</th>
<th>Benefits to the business</th>
</tr>
</thead>
</table>
| Cash register   | • stock that needs to be reordered is identified  
|                 | • keeps track of sales, required for business accounting processes  
|                 | • provides customers with receipt                                                                   | • efficiency — business owner does not have to manually check stock  
|                 |                                                                                                     | • receipts are also produced automatically, saving time        |
7.2 Strategies to select appropriate hardware and software to meet small business needs

**KEY CONCEPT** While it is very tempting to own the latest technology, it is important for the small business owner to select hardware and software that can best help achieve the objectives of the business.

New technology is constantly coming on to the market, all of it promoted heavily, but the purchase of new devices just because they happen to be the latest in technology may not be the wisest move. To get the best value out of any new technology, the small business owner needs to consider the business’s objectives, and invest in technology that will contribute directly to the achievement of those objectives.

For most small businesses these would be typical objectives:
- improved profitability, through increased efficiency and keeping costs under control
- growth of the business and increased market share, by improving customer service
- improved staff communication, and the exchange of information between employees.

In addition, the use of new technology may involve changes in work practices, and the need to retrain staff, so it is important that these changes do not impose unnecessary costs on the business.

Technology cannot solve every business problem or prevent mistakes. For example, an organisation accidentally sent out an email to their entire staff divulging news of intended retrenchments. There are some things that technology is being used for that would be done better by people or by simple forms of technology, such as pen and paper.

**Cost-effectiveness**
The price of hardware and software has dropped significantly over the years.

**Storage**
Vast quantities of data can be stored.

**Accessibility**
Data can be accessed from remote locations.

**User friendliness**
Software programs provide ‘prompts’ as to what to do or ‘menus’ from which certain actions can be selected.

**Global reach**
Using the Internet, a business can be connected to the world.

**Speed**
Computers can perform many calculations in a second.

**Efficiency**
Computers save time on record keeping.

**Retrieval**
Data can be easily accessed and manipulated to provide specific information.
Computers provide a number of obvious advantages to the small business owner, but other hardware devices and the choice of relevant software may require much more careful planning. The software and hardware must serve clearly defined purposes and must come at a cost that is appropriate to the size, budget and cash flow of the business. Let’s now take a closer look at how appropriate hardware and software can help a business meet its objectives.

**Improving profitability**

There are many technological solutions available to improve profitability through increased efficiency and productivity. For example, word-processing software allows for the use of standardised letters and other business documents, particularly through the use of document templates. Accounting software provides for the quick and simple entry of transaction data to produce accurate financial reports. Stock control software linked to sales records can alert the relevant employees when it is necessary to reorder stock, and can generate the necessary order forms. All of these software solutions can enhance business efficiency and so improve profitability.

Keeping business costs under control is another important factor in improving profitability. For example, purchasing the necessary hardware and software to enable videoconferencing with other businesses can save time and money that would otherwise be spent attending meetings away from the business. The use of VoIP allows cheaper phone calls via the Internet, particularly if the business needs to make a significant number of international calls. VoIP also allows for more than one call to be transmitted simultaneously over the same broadband line, cutting down the need for costly additional phone lines into the business. A variety of smartphone applications are available to allow business owners to access their computer network when away from the business. Records can be accessed and updated, emails sent, remote printing activated as well as social media and other marketing tools refreshed. Time saved is money saved for the business owner.

**Business growth and increased market share**

Improving customer service is a means of retaining existing customers and attracting new business, essential for growth of the business, and increasing market share. Strategies can include the purchase of enhanced phone technology to make it easier for customers to communicate with the business. A business can also set up its own web page, as well as make use of social media such as Facebook and Twitter. If the business provides goods or services direct to customers’ homes or businesses, mobile EFTPOS and credit card readers allow salespeople to offer convenient payment options for those customers.
It is possible to purchase integrated computer applications known as customer relationship management software (CRMS) which can track all contact with individual customers including inquiries, purchase orders, deliveries, invoices issued, payments and even complaints. This allows any employee to be completely up to date with all aspects of the relationship between the customer and the business, and respond to queries quickly and efficiently.

### Communication and information management

Organising, sharing and accessing information is essential to a successful business. Employees must be able to contribute data to the system, and access and exchange information — both between themselves, and with suppliers and clients when appropriate. Internal phone systems, computer terminals in appropriate locations, and an **intranet** can all assist in the management of information within the business.

Document management software (DMS), which stores and tracks every document produced within the business is another example of an integrated computer application that can be considered as part of a business strategy to improve communication and information sharing. Portable devices such as smartphones, laptops and tablets can all be used to allow salespeople who work away from the business premises to access the business’s intranet, check stock availability and complete orders.

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**TEST your understanding**

1. Why should a business owner assess the objectives of the business before acquiring new information and communications technology?
2. List and explain the main reasons that computers are used in small businesses.
3. Identify possible business objectives that could be assisted by using each of the following in a small business:
   - accounting software
   - videoconferencing equipment
   - VoIP
   - portable EFTPOS terminal
   - intranet
   - smartphones.
4. Match the following terms in the first column with the definitions in the second column.

<table>
<thead>
<tr>
<th>Term</th>
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</tr>
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<tbody>
<tr>
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<td>(a) software used by programmers to develop and maintain other programs</td>
</tr>
<tr>
<td>Programming software</td>
<td>(b) the programs which actually perform the tasks desired by the operator of the system</td>
</tr>
<tr>
<td>Customer relationship management software (CRMS)</td>
<td>(c) a system which stores and tracks every document produced within the business</td>
</tr>
<tr>
<td>Intranet</td>
<td>(d) a private computer network that allows the secure sharing of information among the employees of a business or other organisation</td>
</tr>
<tr>
<td>Document management software (DMS)</td>
<td>(e) a system which can track all contact with individual customers including inquiries, purchase orders, deliveries, invoices issued, payments and complaints</td>
</tr>
</tbody>
</table>

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**APPLY your understanding**

5. You are an IT consultant called in to advise Kleena Karpets, a carpet shampooing business. It employs 10 carpet cleaners who spend most of their working day shampooing carpets for both domestic and business clients, and two office staff who take bookings, process accounts and perform other office administration tasks. The owner wants to improve both business efficiency and customer service. What recommendations would you make to help the business achieve these objectives?

6. In small groups, create either an oral or ICT report that outlines the criteria you would use to select the most appropriate computer (a) hardware and (b) software for a real estate business.
A **database** is a single collection of data stored in one place and organised to allow easy access.

A **database management system** (DBMS) is a computer software package that is used to create a database; edit, add and remove data from the database; view sections of the database; and create reports.

A **record** consists of a group of fields relating to only one person or thing.

A **field** is a single piece of data.

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**KEY CONCEPT** Software such as databases, spreadsheets and presentation programs such as PowerPoint can improve efficiency and enhance customer relations in a small business.

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**Databases**

If you have ever kept an address book, used a homework diary, written a shopping list or filed receipts to show proof of purchase, then you have created a **database**.

Databases are not a new invention. Businesses have always kept records of customer accounts, sales information, staff details, stock levels and financial accounts. In the past, these records were stored in a filing cabinet, on card files or in account books. The growth in computer technology has seen the development of **database management systems** (DBMS), which are capable of streamlining the creation and maintenance of databases, as well as enhancing the quantity and quality of information available to the business owner.

A database allows for the orderly storage of a variety of records.

A DBMS is made up of a set of records. A **record** is all the relevant information pertaining to one person or thing (for example, a customer or supplier). A record is made up of a number of **fields**, each containing a distinct piece of data, as shown in the following figure.

![Database table showing the main features](image)
Business uses of databases

Databases have many uses in small businesses, including:
• managing customer and supplier records
• storing and maintaining records of staff payroll, leave entitlements, and pay as you go (PAYG) taxation and superannuation contributions
• maintaining records of vehicles, furniture, fittings and other equipment used by the business
• preparing a mailing list from a database of names and addresses
• managing stock records.

A DBMS can reduce the time taken to enter data and retrieve information. It centralises data storage, allowing for cross-referencing of records, and enables the production of a variety of different types of reports and other business documents. Efficiency and productivity can be improved dramatically, and quick and easy access to relevant records can enhance customer relations.

Spreadsheets

A spreadsheet consists of a grid of rows and columns that contains either text or numerical values. It allows the operator to perform mathematical calculations. The place where data are entered on a spreadsheet is called a cell. It is the intersection of a row and a column. Each cell is individually identified by its column letter and row number — for example, B11. An active cell is the selected cell into which data are to be entered or edited.

Three different types of data are placed in cells:
1 labels — words that represent headings or names
2 values — numbers that will be used for calculations
3 formulas — the equations that are needed to perform the calculations.

DID YOU KNOW?

Microsoft Access, Apple FileMaker, Firebird and Oracle are a few of the numerous database management systems available for use with a personal computer.

A spreadsheet is a series of rows and columns of data that can be displayed on a computer screen.

A cell is where data are placed on a spreadsheet.

An active cell is the selected cell into which data are to be entered or edited.


206 UNIT 1 • Options


7.3 Possible uses of available computer software

Business uses of spreadsheets

Once the business owner and/or employees understand how to use a spreadsheet program, specific spreadsheets can be set up to perform a number of different purposes, including the calculation of a number of different budgetary options, and planning for possible changes in circumstances in the future.

The greatest advantage of a spreadsheet is that once it has been set up with all the necessary labels, values and formulas, it automatically recalculates totals if any number has to be changed. Suppose a small business owner has a spreadsheet of the business’s budget, and wages are expected to increase. A number of different levels of wage increase can be entered and the spreadsheet will apply existing formulas to calculate possible effects on the overall costs of the business. The business owner can use this information to assist in business planning.

Presentation programs

Presentation programs such as Microsoft PowerPoint, Apple Keynote and Google Slides allow information in the form of text and images to be presented to an audience as a slide show. Various forms of animation allow the operator to add special effects to increase the visual appeal of the presentation, and to hold the audience’s interest level.

The primary uses of presentation programs in small business are:

1 Promotional and marketing material. New products or services can be presented to customers and prospective customers through a slide show. This can be done either by having customers attend a meeting or presentation, or by sending it as an attachment to an email to prospective customers, allowing them to view it on their own computers.

2 Staff training. Presenting information to new employees, or updating procedures or work practices for existing staff can be made easier through the use of a slide show presentation.

3 Information for shareholders. If the small business is a proprietary company, shareholders are entitled to be presented with regular updates by the management. A slide show presentation at a shareholders’ meeting is an effective way of carrying out this task.


TEST your understanding

1 What do the letters DBMS stand for?
2 List and explain five different functions that can be performed by the use of a DBMS in a small business.
3 What are the main advantages of a DBMS?
4 What is an active cell on a spreadsheet?
5 What are the three different types of data placed in cells?
6 Why is it useful for a small business owner to have a good understanding of how to use a spreadsheet program?
7 Explain the possible uses for a program such as PowerPoint in a small business.
8 Choose the most appropriate word from the list below to complete the following sentences:
   updated records fields

   (a) A ________ is made up of a set of ________.
   (b) A record consists of a group of ________.
   (c) A field is one single piece of ________.
   (d) A database should be regularly ________.

APPLY your understanding

9 Joseph is in the process of opening a new hardware shop. He is keen to attract and retain customers and maintain a high level of productivity and staff efficiency. Explain how he can make use of different computer software applications to achieve these objectives.

10 Select a spreadsheet package on your computer and work through the Chart Wizard to find examples of chart types that a small business could use. Give two examples.
7.4 Possible uses of Internet and communications technologies

**KEY CONCEPT** Recent developments in ICT have added significantly to the means available to small business to communicate and share information with existing and potential customers, employees, suppliers and all other stakeholders.

### Web pages

A **web page** makes use of the **World Wide Web** to convey information in the form of a combination of text, graphics, animation and video. A number of related web pages linked together form a **website**. Every web page has an address, or URL (uniform resource locator), which allows the user's **web browser** to locate that web page. When searching for the website of a particular organisation or business, the user will normally be directed first to that organisation's home page. This contains basic information about the organisation and a number of links to other web pages within the website which can provide detailed information about the location of the business premises (including maps and photographs), products and services available, and online ordering facilities.

The easiest way for a small business owner to get onto the Internet is to rely on an **Internet service provider** (ISP) (see the following case study). An ISP is an organisation that connects a customer (in this case a business) to the Internet via satellite, wireless or superfast ADSL+2 broadband. The ISP usually charges a monthly fee for the service.

### Setting up as easy as ISP

You’ve got the computer and the brilliant business idea, now it’s time to get your e-business running.

The first step is choosing an Internet service provider (ISP). It’s a good idea to choose one that is in a city near you, is business-focused, runs a help desk and provides training if necessary. Be wary of a low price; it may mean it won’t provide all the services you require.

You can now choose your domain name. Domain names allow potential customers to type in a website address to access your site.

If you wish to buy a .com.au or .net.au domain name, you must be a commercial entity and possess either an ACN or ABN, which you can apply for from the Australian Taxation Office.

When you choose a name, it has to be registered through a registrar and a fee must be paid to protect the name. Registration companies will set up your domain name so it can be accessed on the Internet.

You can now start thinking about your website and how it looks and operates. Some ISP providers can help you with this or you can use a specialist website design organisation. If you’re tech-savvy, try doing it yourself using a software package or some of the free design platforms that are now available.

If you want your customers to pay online for your product or service, you will also need a merchant services agreement with a bank. You will have to make sure the services offered by your bank and your ISP are compatible.

Remember, online businesses need to be maintained as much as traditional shopfront outlets.

*Source: K Cambourne 2010, ‘Setting up is as easy as ISP’, The Age, 1 December.*

### Possible uses of Internet and communications technologies

Anyone who has access to the Internet can access a business’s website and perform a number of functions, such as reading product information, placing orders, making payments and providing feedback.
Podcasts

Podcasting involves the distribution of digital audio or video files over the Internet. As a general rule, a podcast is directed to a number of users who subscribe to that particular podcasting service, and who receive regular updates.

The main use of podcasts for small business is for marketing and advertising purposes. Many independent podcasters sell advertising time in the same way as commercial radio stations. If a particular podcast is aimed at the same audience as the target customers of a small business, podcast advertising can be a very effective way of reaching those customers. For example, a sporting goods store may choose to advertise through a podcaster aiming at triathletes; a specialist food store owner could look at advertising on a podcast aimed at vegetarians and vegans.

SMS

SMS, or short message service, is the means by which text messages can be sent between mobile phones. If a business has employees, such as sales representatives, who are regularly away from the business premises, text messages are a convenient and cheap way for communication to occur between these employees and the business owner or manager.

SMS has distinct advantages over email in that messages are delivered automatically to one or more recipients without the need for them to dial in or log on. Text messages can also be used to alert regular customers of any special deals on offer and notify suppliers of the arrival of a goods shipment. Employees can notify clients if they are going to be late for an appointment. The fact that SMS is cheaper than a normal phone call can assist a small business in containing costs.

Blogs

The word ‘blog’ is an abbreviation of weblog, and refers to an online diary or journal. It is usually possible to add comments, ask questions, provide feedback, or share opinions on a blog. A small business can use blogs in a number of ways.

An internal blog can be established on the business’s intranet so that there is easy communication within the business, encouraging employee participation in decision making, and allowing good ideas to be shared.

Many businesses also set up external blogs, which allow for communication between the business and its existing and potential customers and suppliers. A blog of this type can be used to announce new products or changes in trading hours, and to gather feedback and comments from a variety of stakeholders. As a public relations exercise, an external blog can have the following advantages for a business:

1. It allows the business owner and employees to establish a reputation for expertise, by providing detailed information on products and services.
2. New ideas for products and services can be put to the public to gain comment and feedback.
3. A blog is by its nature informal, so it can present a human face to the public and build trust with customers.

Web 2.0

The term ‘Web 2.0’ refers to the transformation of the World Wide Web into a more creative and interactive platform for information sharing, rather than just a means of retrieving information. The development of social networking sites, such
as MySpace and Facebook; video sharing sites, such as YouTube; and information sharing, such as Wikipedia have made it easier for individuals and organisations to create and share many different types of content on the web.

Just as businesses can make use of blogs to enhance their relationship with stakeholders, so networking and sharing images and information can provide a powerful public relations tool. The key benefit is the low cost. Rather than hire a web page designer, the technology allows an amateur to upload home video footage, photographs and other graphics on to a networking site, where it can be viewed by existing and potential customers. Networking sites also accept paid advertising, linked to the site's search engine, and so can be used as a marketing device.

**Small business and social media marketing**

There are many benefits to be gained by those small businesses that are prepared to use social networking or media websites such as Twitter, Facebook and YouTube, especially for marketing their products. If, for example, their marketing is focused on brand recognition, then social networking provides a perfect opportunity for creating that brand recognition. This is exactly the approach taken by Troy Bartlett, owner of Bartlett Precision Manufacturing. Troy uses Facebook and Twitter to provide a unique, personal view into his business, which helps him develop a close connection with his clients. He has established a Facebook-branded page providing details about his business that people can become ‘fans’ of. In turn, all their friends are then introduced to his brand and range of products. He also uses LinkedIn to communicate with other engineers. According to Troy, ‘Social networking allows my small business to have wide exposure in the marketplace’.

**TEST your understanding**

1. Choose the most appropriate word from the list below to complete the following sentences:
   - SMS
   - podcast
   - World Wide Web
   - web browser
   - web pages
   - websites
   - Web 2.0
   - blog
   - URL
   - The _______ is the total of all publicly accessible _______ and _______, each of which can be located by the user’s _______ through the use of a _______. The use of the Internet to distribute audio or digital files is known as a _______, while an online journal which can be accessed and added to by readers is called a _______. The transformation of the Internet into a more interactive form has led to the use of the term _______. A business can easily communicate with employees who are away from the business premises by the use of _______.

2. Explain the key uses of each of the following technologies for a small business:
   - (a) web pages
   - (b) podcasts
   - (c) SMS
   - (d) blogs
   - (e) Web2.

3. Read the case study above and outline how social networking can be used as a marketing device.

**APPLY your understanding**

4. Select one of the five technologies listed in question 2, and research it in more detail. Prepare a short report (500–800 words) that includes:
   - the origins of the technology
   - the changes that have occurred in the availability and use of the technology
   - examples of use by at least two businesses.
**7.5 Uses of e-commerce**

**KEY CONCEPT** e-commerce and e-business provide a small business with an opportunity to conduct a range of business activities online, providing access to a broader range of customers, improving marketing and increasing efficiency.

---

**e-commerce and e-business**

When a purchaser orders a product online from a business and pays for it either directly online at the time of ordering or when they receive the product, this is an e-commerce (electronic commerce) transaction. It has a narrower meaning than the term e-business, which covers the full range of business activities that can happen or be assisted via email or the Internet.

Most businesses that engage in e-commerce will not limit themselves to simply buying and selling, but will engage in other aspects of e-business, such as:

- communicating with customers, clients or suppliers via email
- using the World Wide Web to find information, such as prices, business contact details and information about different products
- using the Web to carry out research, such as the latest industry or market trends
- setting up a website as a marketing tool to provide information about available products and services
- using the Internet for online banking and payment of bills, making use of facilities such as BPay
- setting up an extranet that allows external users (such as suppliers or customers) to log in to share or access business data, and gives customers the opportunity to provide feedback or log queries.

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**DID YOU KNOW?** In the year to April 2014, Australian shoppers spent over $15.25 billion online, an increase of about 6.4 per cent over the previous year. This represents about 6.6 per cent of total retail spending.

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Planning, starting and managing e-business

Any business owner wishing to expand into e-commerce or e-business needs to prepare a business plan in the same way as a business plan was prepared initially, in establishing the business. In order to prepare this plan, and ensure the ongoing success of the online operation, the business owner needs to consider the following issues.

---

**e-commerce** is the buying and selling of goods and services via the Internet.

**e-business** is about using the Internet to conduct business.
1 What are the goals of moving into e-business, and how will it enhance the overall business objectives? For example, are there clear and measurable ways in which productivity can be improved and market share increased?

2 What are the legal and government regulations that must be observed in relation to online trading? For example, if the business collects information about regular customers, the provisions of privacy legislation must be adhered to.

3 What are the human and physical resources required to move into online business? For example, designing a website, and integrating it with existing office software such as databases of customer details and accounting software, may require expert assistance; staff may need training to use the system effectively.

4 How will the online business be managed and maintained? For example, regular updating and improvement of the website may be necessary to incorporate changes in technology; and security issues are vital, as important business data can be corrupted by viruses or other malicious interference (see section 7.7).

The net still has its share of catches

A good computer, some business acumen and perhaps a spare room in the back of the house are some of the key ingredients you need to start an online business.

Many businesses are finding they don’t need a shopfront and have begun operating purely online. But don’t assume that because you’re not paying rent and utilities that an online business is without its costs.

‘Having a purely online business can be cheaper in terms of infrastructure in some cases, but not in all cases,’ says the director of digitalbusinesscoach.com, Mike Sharkey. ‘Product-based businesses still need to consider things like warehousing, dispatch, shipping and hi-tech software. However, service-based businesses, once built, can be run fairly cheaply because the overheads tend to be fixed.’

Sharkey says if you have a small-scale e-commerce site selling something homemade, it can be quite cheap initially, but you need to choose appropriate software.

‘You could spend $10,000 on a website or try to set something up yourself,’ he says. ‘A lot of new businesses do try to create their own store online but often run into problems, and it’s always best to talk to . . . an expert in what you want to try and achieve. Otherwise you stand to lose a lot of money.’


TEST your understanding

1 Distinguish between e-business and e-commerce.

2 Describe three examples of e-business, other than buying and selling of goods and services.

3 List and explain four advantages for a business of engaging in e-commerce.

4 Outline the issues that need to be considered when setting up an e-business.

5 Read the case study above and then answer the following questions.
   (a) Identify what a product-based online business needs to take into consideration.
   (b) Suggest why Mike Sharkey says that it is important to choose appropriate software.

APPLY your understanding

6 Use the digitalbusiness.gov.au weblink in your eBookPLUS to locate the federal government’s ‘Your guide to getting online’ page. Using the ‘Creating your website’ section, answer the following questions.
   (a) Summarise the things you need to consider when setting up a website.
   (b) Explain the elements of the domain name www.mywebsitename.com.au.

7 Use the Business Victoria Eight Steps to Website Success weblink in your eBookPLUS to create a poster highlighting the eight steps that can lead to online business success through an effective website. Display your poster in the classroom.
When deciding which information and communications technologies to employ within a small business, and whether or not to establish an online e-commerce presence, the business owner should weigh up both the benefits and costs of all available alternatives.

A cost–benefit analysis allows a business to evaluate alternative courses of action by weighing up the different measurable disadvantages and advantages of each option.

Any change in the ICT profile of a business is likely to have a monetary cost to that business. This might include the price paid for new hardware and software, the cost of training staff, or ongoing expenses to providers such as telephone or ISP services. Balanced against these are the possible benefits. Just as costs have a monetary value, it is important to calculate possible benefits in terms of either increased revenue, or decreased business costs. The process of comparing the financial benefits and costs, and determining whether or not the proposed course of action is worthwhile, is called a cost–benefit analysis. The main costs and benefits of using ICT in a small business are summarised in the diagram below.

Some of these costs, such as equipment purchases and ISP fees, can be easily calculated in monetary terms because prices are known. Most of the other costs and benefits are harder to express in dollar terms because, for example, the amount of time saved by utilising a particular ICT solution can only be estimated and then expressed in terms of wages or other costs saved. The small business owner needs to identify and estimate the dollar value of both the costs and the benefits to determine the most appropriate course of action. The following case study provides an example of how a cost–benefit analysis might be performed.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Initial purchase price</td>
<td>• Saves time in record keeping</td>
</tr>
<tr>
<td>• Time spent researching the</td>
<td>• Allows large volumes of data to be processed</td>
</tr>
<tr>
<td>business’s computer needs</td>
<td>quickly</td>
</tr>
<tr>
<td>• System operation and</td>
<td>• Improves accuracy of data collection</td>
</tr>
<tr>
<td>maintenance</td>
<td>• Increases efficiency in processing</td>
</tr>
<tr>
<td>• System upgrade</td>
<td>documentation</td>
</tr>
<tr>
<td>• Consumable items such as</td>
<td>• Offers advantages of e-business</td>
</tr>
<tr>
<td>print cartridges, flash</td>
<td>• Improves management abilities</td>
</tr>
<tr>
<td>drives and paper</td>
<td></td>
</tr>
<tr>
<td>• ISP fee</td>
<td>• Allows information to be displayed</td>
</tr>
<tr>
<td>• Telephone charges</td>
<td>in a more meaningful format</td>
</tr>
<tr>
<td>• Training in how to use</td>
<td>• Provides easier and more economical</td>
</tr>
<tr>
<td>the system</td>
<td>communication methods</td>
</tr>
<tr>
<td>• Anti-virus software</td>
<td>• Assists decision making</td>
</tr>
<tr>
<td>purchase</td>
<td>• Makes control procedures such as stocktakes</td>
</tr>
<tr>
<td>• Installation of security</td>
<td>more efficient and accurate</td>
</tr>
<tr>
<td>measures</td>
<td></td>
</tr>
<tr>
<td>• Inefficiencies caused by</td>
<td></td>
</tr>
<tr>
<td>spam</td>
<td></td>
</tr>
</tbody>
</table>

Whether e-commerce and the associated ICT are ultimately a cost or a benefit to a small business depends on the use made of the technology. The main limitation is often the willingness of the small business owner to learn how to integrate the technology into all aspects of the business’s operation.
Yarra Machine Engineering

Yarra Machine Engineering is a company that designs and manufactures highly intricate machine components. Due to an increase in competition from rival companies, in March 2010 owner Paul Glencoe decided to develop a more comprehensive e-business strategy. First, he purchased some computer-aided design (CAD) and computer-aided manufacturing (CAM) resources. The computerised design program allowed Paul to create more intricate component designs. The Hyundai’s CAD/CAM process has a dedicated computer link to the parent business’s mainframe. This allows for instantaneous verification of specifications, which is a critical process considering the tolerance on most of the machined components is 1 micron (one thousandth of one millimetre or 0.001 mm). Along with two employees, Paul attended a three-day training session on how to operate the CAD program.

Yarra Machine Engineering also upgraded its ICT equipment and purchased two laptop computers, a digital scanner and a laser printer to create computer-generated designs based on sketches from its clients. The computer program, ProScribe Designer, generates a three-dimensional view commonly known as a solid model. The solid model is then emailed to the client for verification. Using this ICT has allowed Yarra Machine Engineering to speed up the design stage of the production process as well as reduce the number of manufacturing faults.

Paul’s e-business strategy also extends to the administration side of his business. Paul recently purchased five iPads, one for each employee. Among other things, this form of ICT will allow employees to download design specifications, organise review meetings, and record and monitor the costings of each project.

The costs

The CAD program cost $28,000 and the CAM machinery totalled $74,575. The ProScribe Designer program cost $18,650. The cost of five iPads was $4,264. The ICT upgrades of a laptop, scanner and printer totalled $5,358. The three-day training session and associated costs for Paul and two employees totalled $2,843.

In the first year, the business generated $188,300 from the CAD/CAM process.

The benefits

In the first year, the business generated $188,300 from the CAD/CAM process. Manufacturing faults were decreased by 67 per cent, which totalled $14,215. The reduction in downtime resulting from specification verification was $9,400. Closer monitoring of project costings resulted in a saving of $5,900 compared to the previous year.

TEST your understanding

1. What is the purpose of a cost–benefit analysis?
2. Examine the diagram on page 212. Select and explain three costs and three benefits of using ICT in business.
3. In the Yarra Machine Engineering case study, explain how additional costs incurred by the ICT upgrades and CAD/CAM purchases were offset by the financial benefits of these business decisions. Support your explanation with figures from the case study.

APPLY your understanding

4. Jacqui runs a graphic design business, and she wishes to expand into e-business. She already owns the necessary computers and has good skills in all areas of computer aided design and business accounting software. She is able to attend a short course in web page design at her local TAFE college for $2,500. Ongoing costs will include monthly ISP and web hosting costs of $100, but she anticipates that her monthly telephone costs of $180 will be halved by using email. She expects to gain a minimum of five extra design jobs per month, at an average gross profit of $500 each. She anticipates the time savings on bill paying, banking and travel will be worth $400 per month. Prepare a cost–benefit analysis for Jacqui.
KEY CONCEPT The use of information and communications technology and connection to the Internet creates great opportunities for businesses and their customers, but also exposes them to tampering by hackers or attack from viruses and spyware. Information stored and transmitted by a business is an important asset to that business and so must be protected to maintain its value.

Threats to ICT systems

Risks to ICT systems fall into two broad categories:

1. **System integrity.** It is important that all programs operate correctly to process data as expected. Malware such as trojans, worms, viruses, ransomware, spyware or adware can affect an application and prevent it from operating as originally programmed, changing the data that has been entered, and rendering any information inaccurate or incomplete.

2. **Privacy and confidentiality.** Connection to the Internet potentially allows access to information to anyone else connected, anywhere in the world. Security systems are necessary to ensure that only authorised persons have access to information that is of direct relevance to their own relationship to the business, and that hackers cannot get into the system. Engaging in e-business means that sensitive information such as credit card and bank account details may be stored on the system, so security for this information is vital. Such information can also be intercepted during transmission over the Internet, so security in transmission is also important to maintain confidentiality.

Sources of threats

Threats to the integrity and security of a business’s ICT systems can come from a number of sources, including:

- hackers deliberately breaking into the system or intercepting transmission to steal credit card or bank details or other client information
- emails containing viruses or links to unsafe sites (These often appear as spam, and can involve phishing.)
• dishonest or poorly trained employees interfering with the effective operation of the system (A dishonest employee may access accounts to steal from the business; errors in data entry by careless workers can create problems that are difficult to find and rectify.)
• system breakdown, which can occur from time to time and result in the loss of information. (Power failure occurring while data is being entered can result in loss of that data.)

Protecting the ICT system

Information and communications technology is in a constant state of creativity and development. New products arrive on the market, new viruses are created almost daily, and applications are regularly being enhanced. The corresponding improvements to security will then have to be made, and this is a continuous cycle.

As the following diagram demonstrates, there are four stages in the cycle — the determination of security needs, followed by research and the design of solutions, establishment of a system, and monitoring and evaluation of that system. Evaluation usually leads to the identification of new security needs, and the cycle begins again.

DID YOU KNOW?
In late 2010, Vodafone’s security was compromised when several employees broke into the organisation’s databases and stole customer information. The Privacy Commissioner severely criticised Vodafone for having lax security systems.

DID YOU KNOW?
A recent Australian survey found computer misuse is a serious problem in about 70 per cent of Australian businesses, with 26 per cent incurring financial losses as a result.

Determining security needs

The first step is to examine all aspects of the system to determine security needs. A business which only uses an intranet and has limited external activity will have different needs from those of an organisation fully engaged in e-business. Having salespeople away from the business premises, or employees working from home, creates different security issues from those of a business where all employees work similar hours at the one location.

Researching and designing solutions

Whatever the size, employment numbers and arrangements, and degree of involvement in e-business, the two basic functions — protecting system integrity, and maintaining privacy and confidentiality of information — must be the focus of any security solutions. Some small business owners may choose to purchase commercially available anti-malware and firewall software; others may choose to hire an IT consultant to design and maintain their system. In many cases a customised system can be the best solution, particularly in the case of a high level of involvement in e-business. Password systems for employees, customers and suppliers ensure that only those authorised to access particular information can
do so. For example, it may be useful for employees to be able to access and read their own payroll records, but only the authorised payroll clerk should have access to all employees’ details and be able to enter data into those records.

Establishing the system
Ease of operation is essential in the establishment of any new system. Employees need to be trained in new practices, such as password protocols, not leaving a logged-on computer unattended, performing regular backups, and not opening emails from unknown sources. Customers need easy access to place orders and make payments, but still expect to be able to trust the level of security and confidentiality employed by the business.

Monitoring and evaluation
Regular review of the system is necessary to ensure no breaches of security. It is also possible to maintain a record of who has logged on to the system, when they did so and for what purpose, and regular examination of these records can provide feedback on how well the system is working. Just as approaches to ICT use are constantly changing, it is important to continually assess security, and be prepared to change and update regularly to meet changing needs.

TEST your understanding
1 Why does it make sense to present the various stages in protecting a business computer system as a cycle?
2 What are the main security expectations of customers and suppliers when conducting e-business with any business organisation?

APPLY your understanding
3 Imagine you are an IT consultant setting up a security system for a small business intending to engage in e-business. Compile a set of simple Do's and Don’ts that can be provided to employees to help them maintain the security of the system.
4 A business received the following email:
   An update of our system has revealed that your online banking records need to be refreshed. Please forward your account number and PIN to our Records Dept. at the email address below to avoid disruption to your online banking facility.
   What is the technical term for this type of email, and what is the type of risk that is evident here?
5 Identify both the type and source of threat to the ICT system of a business in each of the following cases:
   A Joe fails to update his antivirus software.
   B A shop assistant has trouble remembering her password so she writes it on a sticky note on her computer to remind her.
   C In a hurry to leave early, Max didn’t back up the day’s transactions on Friday afternoon, and a power surge over the weekend destroyed his computer’s records.
   D Freda set up passwords for her employees so they could use her business computer system five years ago. She hasn’t changed them since, despite a turnover of over 50 per cent in her staff since then.

These are some of the most popular passwords with online users. If your password is here, you should change it! Employees must be trained in password protocols to protect business systems.
Business obligations towards employees

New information and communications technologies can change the nature of the workplace. New jobs are created that use new technology and its application, while others become redundant. This can bring stress and anxiety to some employees. For most small businesses, it is a relatively easy task to upgrade equipment, introduce new computer systems or software, and alter design or layout requirements. It is often a far more difficult task to help employees to adapt to, and make efficient use of, the new technology. When introducing new technologies, an ethical business owner will approach the changes in employment requirements with the welfare of staff as a priority. That means:

• Existing employees should be given the opportunity to retrain to use new technologies, rather than simply dismissing them and replacing them with outside staff. Maintaining the loyalty and motivation of employees will assist enormously in times of change and transition.

• If the new technology does lead to a reduction in staffing requirements, those made redundant should be treated as sensitively as possible, given good references, have access to all redundancy entitlements and be assisted to find new employment.

• Rates of pay should be adjusted to take into account new skills acquired by employees, and the likely increased value of their work to the business.

• Issues of staff using workplace computers to carry out personal business should be dealt with in a sensible manner. Studies have shown that employees using work computers for apparent personal reasons may not necessarily be simply ‘slacking off’ in work time.

DID YOU KNOW?

Recent studies show that social media use at work is increasing rapidly. One report in 2013 indicated that 34 per cent of Australian social network users log on at work, up from 30 per cent in 2012 and 22 per cent in 2011. Another study has revealed that business employees visit Facebook from the workplace more than any other internet site, including Google. A massive 6.8 per cent of all business internet traffic is directed to Facebook — double that of Google and triple that of Yahoo. Nevertheless, another study has shown that those who do engage in personal browsing for less than 20 per cent of their work time are actually more productive by around nine per cent.
• Wireless connected tablet computers and smartphones can have a negative impact on work-life balance without sensible use of the off switch (see the following case study).

**Digital revolution keeps work always with us**

The ability to access work emails and other material from smartphones and other devices has given employees the freedom to work from anywhere. Unfortunately, it has also increased the likelihood of workers feeling the need to work almost all the time. A report issued by the University of South Australia’s Centre for Work + Life in June 2013 indicated that more than one in five Australians with a mobile device regularly check work emails while on holidays. Even higher numbers do so during the evening and on weekends during non-holiday periods.

The report suggests that employees feel it is important to be constantly connected to work, even during leisure hours. It seems that mobile devices are creating an expectation that an employee is always available, and that employers and work colleagues are reinforcing this expectation.

The authors of the report surveyed 800 frequent work-email users in February 2013. They found that at least a quarter of those surveyed checked emails several times a day, while 11 per cent said they did so every hour or so. Ten per cent of those checking emails outside of work hours said that they enjoyed being connected to work, although 13 per cent said that checking their emails outside of work time was expected by a manager. The study also found that a quarter of those surveyed checked their emails over breakfast.

It seems that while mobile devices can improve flexibility and productivity, employees may be creating unrealistic expectations amongst clients, colleagues and managers in relation to their work habits.

*Source: C. Lucas and B. Schneiders, ‘Dark side of the digital revolution keeps work front and centre all day, all night.’ The Age, 1 June 2013.*

**Occupational health and safety**

The introduction of new information and communications technologies also has occupational health and safety implications. Employees required to sit at a computer workstation for prolonged periods of time can suffer stress-related injuries to parts of the body, such as the back and forearms, and strain on the eyes. Employers should ensure that the ergonomics of the workstation are appropriate to avoid injury to workers, and that regular breaks are scheduled to allow them to leave the workstation.

**Dealing with customers and suppliers**

Increasingly, online business activity is being governed by laws passed in both state and Commonwealth parliaments. The *Electronic Transactions Act 1999* (Cwlth) and the *Spam Act 2003* (Cwlth) both regulate many aspects of e-business. Small business owners need to be aware of the law, but good business ethics demand not just minimal obedience to the law, but a willingness to conform to the ‘spirit’ of the law.
‘Spamming’ customers and suppliers is not ethical and is likely to harm the reputation of the business. If the business owner wishes to keep customers informed of new products or other relevant information, each customer should be invited to join an email mailing list, all emails should clearly identify the sender’s details, and an option to unsubscribe from the mailing list should be readily available.

Electronic transactions involving the buying and selling of goods and services or the payment of accounts are governed by the same laws that affect personal transactions that might take place in a shop or other business premises (see chapter 8). For example, if the business displays photographs or descriptions of goods on its website, the goods purchased must correspond to the photo and description. The lack of face-to-face contact between buyer and seller creates a different type of relationship, but the establishment of trust between buyer and seller online is just as valuable for the reputation of the business as it is when direct personal contact occurs.

Trust extends to issues of privacy and confidentiality when engaged in online business. Privacy laws only apply to businesses with an annual turnover of more than $3 million, and only to specific businesses with a smaller turnover, such as health service providers. Nevertheless, it is appropriate for all small businesses to comply with these laws as this will enhance the credibility of the business and build better relationships with both customers and suppliers. Ethical and socially responsible use of stakeholder information should follow these principles:

• Inform customers and suppliers that you are keeping records relevant to them, and make sure they know how they are to be used.
• Ensure those records and other information are only used in the ways you have indicated.
• Seek permission before passing on information to other parties.
• Offer stakeholders the opportunity to inspect any records relevant to them.
• Be prepared to explain your security arrangements to stakeholders.
• Maintain quality up-to-date security and information protection systems.

TEST your understanding
1 What are the significant ways in which the introduction of ICT in small business can affect employees?
2 List and explain four strategies that could be adopted by a small business to ensure that employees are treated in an ethical and socially responsible manner when new technologies are introduced.

APPLY your understanding
3 Debbie and Peter run a camping and caravan park in a popular coastal area. They have set up a website with the capacity to take bookings, accept payments and exchange emails between themselves and prospective customers. Part of the booking process includes an online booking form on which prospective customers enter their address and phone number, car registration information, credit card details, and ages of any children. How would you advise them to ensure that all their e-business dealings with customers were carried out in an ethical manner?

4 Discuss the ethical implications of each of the following situations.
A Anya installed a new computer system to improve efficiency in her business and arranged for all her staff to be retrained, but refused to agree to pay rises because she had provided the training at no cost to her staff.
B Ben issued an instruction that no employee was to engage in personal web browsing, emailing or other personal business during working hours, and threatened to fire any employee who did so.
C Chen’s business ran an Internet competition, and then used the email addresses of competitors to send them weekly details of special offers and other advertising.
D Dennis kept both his personal and business email contacts in the one database. When he sold his business, the entire database was passed on to the new owners.

5 In small groups, develop a set of guidelines regarding the use of work phones and laptops when an employee is on leave.
Security and employment issues

Many businesses have a policy on the use of Internet and email for work purposes to avoid misuse of technology.

They all use the store computer at various times during the day...

Security of Alexei’s database

Alexei owns a CD and DVD store in a busy shopping centre. As well as selling to people coming in to the shop, he has recently set up a website and online purchasing facility, and has used this particularly as a means for his customers to order rare imported CDs and DVDs. He has set up a database with regular customers’ contact and credit card details.

Alexei has three employees, all of whom have been trained to use both the ordering and selling aspects of the online business. They all use the store computer at various times during the day, mostly online, but often have to leave it to serve customers in the shop. He recently discovered that two of the employees have been using the business computer to send and receive personal emails. One has been using Facebook and YouTube regularly at work, and one has been doing his personal Internet banking during working hours.
**TEST your understanding**

1. Outline the key security risks faced by Alexei.
2. Explain the steps Alexei should take to ensure the security of the information stored on his computer.
3. What are some of the problems that could occur with staff sending and receiving emails at work?

**APPLY your understanding**

4. Devise a fair set of rules and procedures for the staff wishing to carry out personal business on the store computer.

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### Integrated business systems

The following diagram represents an integrated computerised business system marketed by a company called Creative Computing, which sells technological applications to retail and wholesale businesses. The diagram shows how a variety of business processes can be integrated. Examine the diagram and then answer the questions.

![Creative Computing ‘Control’ integrated business system](image)

**TEST your understanding**

1. Identify two different types of business hardware that would be necessary to operate this system.
2. Explain how the management of stock could be handled automatically by a business using this system.
3. Describe the tasks you believe the module entitled ‘Sales analysis’ might perform.
4. Which modules would be feeding data into the business’s accounting software?
5. Identify three modules which would employ databases. What information would these databases contain?
6. Describe five activities that could be performed by connecting this system to the Internet for e-business purposes.

**APPLY your understanding**

7. Explain how a system such as this could contribute to the achievement of each of the following business objectives:
   a. improved profitability
   b. business growth and increased market share
   c. communication with employees, customers and suppliers.
8. What are the major security and privacy issues that might exist with this system, and how could these issues be dealt with by a business using this system?
KEY CONCEPT Many businesses can benefit from e-commerce and e-business, but great care must be taken to maintain the security of information stored and transmitted.

Small business goes digital

The use of information and communications technologies in small business has developed to the point where it is now a case of ‘when’ not ‘will’ small businesses have an online presence. Australia is now the world’s third largest per capita online consuming nation, and customers are increasingly expecting businesses to have a website. Other reasons for this trend include:

• an increase in the number of businesses providing ICT support in the areas of web design, security and graphic design
• an increase in the number of households connected to the Internet
• the rollout of the National Broadband Network (NBN), which provides high-speed Internet access across the nation
• pressure from competitors
• a better understanding of the benefits of e-commerce, including lower costs and access to wider markets.

e-commerce provides opportunities for any aspiring entrepreneur, regardless of age or experience.

E-commerce provides opportunities for any aspiring entrepreneur, regardless of age or experience.

E-commerce provides opportunities for any aspiring entrepreneur, regardless of age or experience.

Everybody likes warm, comfortable pyjamas. Fashion label Jordan Taylah provides a wide range of pyjamas of all sizes through its online business.

TEST your understanding
1 Why are more small businesses having an online presence?

EXTEND your understanding
2 It is clear that e-commerce is growing rapidly, and more and more businesses are embracing it. A successful online presence goes beyond simply setting up a website. Imagine you are a business consultant and a number of your clients want assistance with how to operate a successful online business. Prepare a booklet that could be used by a number of different types of businesses, and which includes advice on the following:

• setting up, maintaining and improving a website
• promoting the website
• improving online market share
• establishing online payment options.

Use the e-commerce research weblinks in your eBookPLUS to help you prepare your booklet.
Online security — a sinister new turn

In 2003 a disgruntled consumer eager for notoriety released a piece of malicious software (malware) known as ‘Blaster’, which spread worldwide in a matter of days and caused major Internet congestion. Its main purpose had been to render the Microsoft Web unusable for regular web surfers. These days, most Internet attacks are much more sinister and are designed for financial gain, not cyber infamy.

Organised crime has identified the Web as a goldmine — providing opportunities to launch cyber attacks that will earn large amounts of money at a relatively low risk. A ‘compromised’ computer — one that has been attacked via the Internet — has become a commodity on the underground economy, an online equivalent of the black market. Once a computer is compromised, it can be used for a variety of purposes designed to make money, including stealing users’ personal identity information such as Internet banking logins. It is relatively easy and it’s the websites we visit every day that make it easy for criminals.

Malware has increased in sophistication during the past few years and is developed in much the same way as the mainstream software providers develop their software. There are ‘off the shelf’ and freely available tools which simplify developing and deploying malicious software. Once an attacker has the malware, they need to distribute it, and again this service can be bought.

The most popular method for delivering malware to potential victims is to send an email with a link to a malicious website. These emails range in topic from seeing the latest celebrity video to sensational headlines relating to current events — emails we are likely to receive on a daily basis and not think twice about clicking on and passing on.

A great deal of malware has the ability to steal user name and password information. Criminals use this information to access financial services online, including online banking and share trading, and online auction sites. Credentials for email systems are also captured and these can be used to send spam, or as a stepping stone to access other financial services via the forgotten password features. There has been a significant increase in these types of incidents. In addition to user names and passwords, often malware captures other confidential and personal information, such as online loan applications, which could be used for identity theft.

TEST your understanding
1. Why might a person be interested in creating malware?
2. Give examples of malware.

EXTEND your understanding
3. All business owners need to take the maximum precautions against Internet fraud, as well as other possible threats that may compromise their ICT systems. The Internet is also used by criminals to carry out identity theft, using someone else's identity to access bank and credit card details. Prepare a report on methods a business may use to counter Internet crime, under the following headings:
   - Sources and nature of Internet crime and identity theft
   - Securing personal information
   - Securing business information
   - Protecting customers and suppliers.

Use the Online security weblinks in your eBookPLUS to help you prepare your report.
Summary

Information and communications technology in small business
- Technological change over the last 30 years has had a dramatic effect on how businesses process data, store information and communicate with employees, customers and suppliers.
- The small business owner in the 21st century needs to be aware of the implications of advances in technology for all aspects of business operations.

Strategies to select appropriate hardware and software to meet small business needs
- Business hardware and software applications must be selected because of their capacity to contribute to the achievement of the objectives of the business, such as improved profitability, growth, increased market share and enhanced communication with stakeholders.

Possible uses of available computer software
- Software such as databases, spreadsheets and PowerPoint can assist in the improvement of productivity, business growth and the enhancement of communication with customers and other stakeholders in a small business.

Possible uses of Internet and communications technologies
- Recent developments such as web pages, podcasts, SMS, blogs and Web 2.0 have added significantly to the means available to small business to communicate and share information with existing and potential customers, employees, suppliers and all other stakeholders.

Uses of e-commerce
- e-commerce and e-business provide a small business with an opportunity to conduct a range of business activities online.
- Establishing a website, communicating with stakeholders through email, using the Internet as a source of business information, and facilitating purchasing and payment online are all areas of e-business being developed by small business.
- e-commerce and e-business can provide access to a broader range of customers through improved marketing, and increasing productivity through more efficient use of business owners’ and employees’ time.

The benefits and costs for small businesses that use technology and e-commerce
- Decisions about whether to use ICT and whether to engage in e-commerce, as well as the types of technologies to select, should be subject to rigorous cost–benefit analysis.
- The costs of using ICT and e-commerce need to be offset by cost savings in other parts of the business and/or increased revenue.

Ensuring the security of technology and information
- Information and communications technology and connection to the Internet can create threats to the integrity of the system through the introduction of viruses, which can destroy data and change the operation of applications.
- Privacy and confidentiality can be undermined by hackers or poorly trained staff, resulting in the possibility of unauthorised access to information.
- A business needs to constantly reassess and upgrade antivirus and firewall software, as well as ensure that staff follow security procedures.

Ethical and socially responsible management of ICT in small business
- The use of ICT places expectations on small business owners to act in an ethical manner towards employees, customers, suppliers and other stakeholders, as well as ensuring that technology is used in a socially responsible manner.
Review questions

TEST your understanding

1. How can the use of ICT assist a small business owner to make appropriate business decisions?
2. Identify three different examples of business hardware and explain the purpose of each.
3. Explain the relationship between business objectives and the use of ICT in a small business.
4. Identify three advantages that the use of computers can bring to a small business.
5. Describe the value to a small business owner of database management systems, spreadsheets, and presentation programs such as PowerPoint.
6. Explain how each of the following could be used to assist in achieving the objectives of a small business:
   (a) web pages
   (b) podcasts
   (c) SMS
   (d) blogs
   (e) Web2.
7. Explain the meaning of the term ‘e-business’ and give three examples of how it can operate.
8. Outline two business objectives that could be assisted by a business engaging in e-commerce.
9. Give two examples of how a small business might be able to increase revenue as a result of using ICT or engaging in e-commerce.
10. Give two examples of how a small business might be able to reduce costs as a result of using ICT or engaging in e-commerce.
11. Identify and explain two different ways in which the integrity of a business computer system could be damaged.
12. Why is it important to preserve the confidentiality of information gathered through the operation of e-business?
13. Outline a strategy for a small business wishing to protect the security of its ICT system.
14. What are the key policies that a small business should pursue to ensure that each of the following stakeholders are treated in an ethical and socially responsible manner?
   (a) employees
   (b) customers
   (c) suppliers

APPLY your understanding

15. Choose a business of which you have some knowledge. It could be a business which employs a member of your family or a friend; or where you have part-time work. Prepare a report on how that business makes use of information and communications technology, including the following:
   (a) a list of all business hardware used in the business, including portable devices that may be used outside the business premises, but contribute to business activity
   (b) software applications in use within the business, and how they are used
   (c) integration of business hardware and software, such as the linking of cash registers to stock control and accounting software
   (d) use of the Internet for marketing and communication through web pages, etc.
   (e) use of e-commerce within the business, or if it is not used, reasons why the business owner has decided not to make use of e-commerce
   (f) what the business owner or its employees see as the key benefits of using its current ICT configuration
   (g) any disadvantages in the current use of ICT in the business
   (h) key security strategies and procedures in place in the business
   (i) two examples of the business acting in either an ethical or unethical manner in relation to its ICT usage.
School-assessed coursework

OUTCOME 3
Discuss one or more of the day-to-day operations associated with an ethical and a socially responsible small business, and apply the operation/s to a business situation.

ASSESSMENT task — case study analysis

McKenzie’s Pharmacy

Stephen McKenzie is a pharmacist who has just taken out a lease on a shop space in a new shopping centre. He intends to open a chemist shop and wants to install a computer system to support the business. He has no other competition in the shopping centre, but there are two other pharmacies in the shopping strip on the nearby main road. He will need to operate an efficient service to win new customers away from those existing businesses.

Stephen has identified the need to keep financial records as an important priority, but he also needs to have a very thorough stock control system because all prescription medicines have to be accounted for and individual customer usage of medicines also has to be recorded. It is also important not to run out of prescription medicines, so he must have a system for reordering from suppliers. The same applies to the cosmetics, bathroom requisites and similar products sold by the shop.

Pharmacists are entitled to reimbursement from the federal government for dispensing medicines under the Pharmaceutical Benefits Scheme, so naturally all records relevant to prescription medicines have to be able to withstand government scrutiny.

Stephen intends to open seven days a week, ten hours per day, so he will be employing other pharmacists to dispense medicines when he has time off. He also employs a number of casual shop assistants who are not qualified pharmacists.

Although his business doesn’t lend itself to many areas of e-business, he is keen to use the Internet as a marketing tool. As he expects that many of his customers will get repeat prescriptions for medicines, he is thinking of setting up a system where he keeps the prescription repeats at the pharmacy, and customers simply email him when they need the prescription filled again. He would then charge the cost to their credit cards or debit their bank accounts. He intends to employ a couple of students who can work after school each day delivering prescriptions.
1. What are Stephen’s immediate business objectives?
2. What business hardware will Stephen need to set up his business?
3. Identify two types of software application that he would need.
4. How could he make use of hardware and software integration in the business?
5. List and explain two examples of how Stephen could use the Internet as a marketing tool.
6. What are two costs and two benefits of his idea of having customers email him for repeat prescriptions, and having students deliver them for him?
7. Identify the key security issues Stephen faces with both his internal ICT system and his online business.
8. Stephen is also thinking of having local doctors transmit electronic copies of prescriptions directly to him to save his customers having to come in. What issues relevant to his ICT system would he need to consider before implementing such a scheme?
9. What procedures should Stephen have in place to ensure he acts in an ethical and socially responsible manner in relation to his ICT usage?