

CHAPTER 1
Focus**In**

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WORKING EFFECTIVELY IN IT

The IT environment of an organisation is made up of people, procedures, systems, equipment, software, policies and the committees and/or departments that oversee these resources.

To work effectively in an IT environment, you must have a good understanding of each of these resources and how they operate in your organisation.

In this session you will:

- ✓ gain an understanding of the **IT** environment
- ✓ gain an understanding of the **IT** service areas in an organisation
- ✓ gain an understanding of the roles in **IT** service areas
- ✓ gain an understanding of how **IT** roles fit in an organisation
- ✓ gain an understanding of **IT** roles external to organisations
- ✓ gain an understanding of external **IT** organisations
- ✓ gain an understanding of the role of government in **IT** promotion
- ✓ gain an understanding of **IT** policies and procedures
- ✓ gain an understanding of **IT** equipment
- ✓ gain an understanding of software
- ✓ gain an understanding of standard operation procedures.

WHAT IS THE IT ENVIRONMENT?

Information Technology (IT) refers to all forms of technology that are used to create, record, store, exchange, manipulate and use information. Information technology is used in many aspects

of people's lives – from managing their day with personal digital organisers to controlling their washing machines, and providing tools in both the workplace and home.

The Information Technology Environment

The **IT environment** is anywhere that IT is used – from restaurants to schools, from home offices to huge industrial sites. It includes both external and internal resources, and both people and physical resources. It varies enormously depending on who is using it and why the information technology is being used. A large organisation with thousands of personal computers is likely to have a small army of IT personnel, as well as businesses that support their IT resources. A small home business may have only one computer and other hardware, and one operator who performs a wide range of different IT roles. The term 'IT environment' can be used to refer to a wide range of IT configurations and uses.

From an organisation's point of view, the IT environment may look something like this:



IT SERVICE AREAS

The IT roles in an organisation can be many and varied – generally providing the tools and support for the rest of the organisation to do business. If the organisation is small, you may find that only

one or two people are responsible for providing service in all areas of IT. If the organisation is large, the IT roles may be divided into several distinct services areas as described below.

Application Support

This service area oversees application and database administration activities such as gathering user requirements, designing, analyzing, coding, configuring, implementing, hosting and supporting agency- or program-specific applications. Applications may be web-based, custom, or commercial, and may include document management, contract management, scheduling software, records management, quality assurance management, and project management.



Financial, Accounting and HR

The support activities include gathering user requirements, designing, analyzing, coding, configuring, implementing and supporting of agency administrative systems such as financial, accounting, budgeting, purchasing, inventory, asset management, human resources and payroll.

User Services

General IT customer support functions that are not application-specific and are not covered by another IT Service Area may be referred to as User Services. These include customer support functions ranging from help desk, end user training, PC installation, maintenance and upgrades, user password maintenance, content filtering for Internet applications, and maintaining a problem management system.

E-Mail Services

This service area is responsible for all e-mail support activities and resources, including e-mail account management and application support, mail server configuration, content and virus filtering, e-mail software upgrades, web mail and e-mail gateways.

Web Hosting

All activities and resources related to publishing and maintaining web servers are handled by this service area, including the upgrade of hardware and software, space allocation, statistics and performance monitoring, and web-related policies.

Local Network Infrastructure

Design, installation and support of local area network (LAN) servers, bridges, routers, gateways, cabling, hubs and network management systems are the responsibility of this service area, including the monitoring of traffic and maintenance of related hardware and software issues.

Wide Area Network Infrastructure

If the organization includes a wide area network, this service area will be responsible for the design, installation and support of the network components, including wiring of external hubs and routers, maintaining the link to the Internet, leased lines, and handling of router errors.

Operations

This service area is responsible for IT operations and production support functions, including backups and file restoration, file and printing services, performance monitoring, off-site data storage, hard disk maintenance, and upgrades of server hardware and software.

Security Services

The Security Services area is responsible for the design, installation and support of the security infrastructure, such as developing and implementing security policy and procedures, installing or maintaining firewalls, installing or maintaining any virtual private network, testing of information security measures, and auditing the network infrastructure security.

ROLES IN IT SERVICE AREAS

In large organisations where IT systems are regularly upgraded, developed, and maintained, there are many personnel involved. These range from development to support personnel,

management to junior staff and graduates. In smaller organisations, a single employee may fill many roles. On this page and the next are examples of the roles you'll find in IT service areas.

Analyst/Programmer

An employee in this role typically designs, maintains, or modifies data processing systems in a specialised area of computer programming or systems analysis or design using technologies such as SAS, ORACLE, SQL, PERL, UNIX, C++, JAVA, and Visual Basic.

Architect

An IT architect is generally a senior consultant or professional who maintains a broad overall knowledge of the business, but who can work with detail when required. They are often responsible for realising the goals of an organisation in the IT arena, such as in the area of system integration.



Business Analyst

A business analyst works with end users to define their requirements, and then translates these into a technical form that programmers or web developers can understand. Within a business they would be involved with the introduction and development of new systems, and continuous quality improvement.

Computer Operator

A computer operator is a person who operates a computer in a centralised datacenter, working with the operating system, mounting disks and tapes, and placing paper in the printer. They may also use a job control language (JCL) to schedule daily work for the computer, a task known as systems programming.

Contractor

A contractor in IT terms is usually a specialist who has been brought in to fulfil a specific short-term role, such as an analyst/programmer during the development of a new application package. The term contractor refers to the fact that their employment is based on a fixed term contract.

Database Administrator

A database administrator, also known as a DBA, is responsible for all activities related to maintaining a successful database environment. These include maintaining the database system, developing policies and procedures, training employees, and using the database management system (software). They may also be involved in the initial design and implementation of the database.

Database Developer

A database developer is someone who develops software that interacts with a database.

Engineer

An engineer in IT circles is someone who designs, programs, implements, and tests hardware, software, security systems, or networks. A software engineer may also be referred to as a systems engineer. Engineers may also be referred to as specialists, e.g. IT Security Specialist.

Executive Sponsor

An executive sponsor is the person who is ultimately responsible for a project within an organisation. Usually it is a member of senior management who champions the project by promoting it across the organisation, obtaining budget approval, handling problems relevant to their level of seniority, and by signing off documents such as the business case and project initiation document.

ROLES IN IT SERVICE AREAS

Help Desk/Support

Help desk and support staff provide assistance to users of information technology. Help may be provided in the form of telephone assistance, on-site visits, or referrals to support information held on an intranet or other server. Some help desk staff use specialised software to track and analyse problems.

Internet /Multimedia Designer

An internet or multimedia designer is responsible for designing the user interface of a web site or multimedia system.

Internet/Multimedia Developer

An internet or multimedia developer is responsible for programming the functionality of a web site or multimedia system.

IT Manager

The role of an IT Manager can vary from developing a company's information technology, to managing day-to-day operations and services, overseeing IT staff, to hands on system administration. In general terms, the IT Manager is responsible for all computer systems and services in an organisation. They often fill roles that in a larger company would be filled by a range of IT staff.

Network Administrator

A Network Administrator is responsible for managing the network within an organisation, usually a local area network. Tasks may include maintaining network security, handling software upgrades and licensing issues, backup procedures, and storage management.

Project Manager

A Project Manager is responsible for ensuring that a project is completed on time and on budget. They achieve this by managing people, ensuring each team member has what they need to complete their tasks, and by handling any situations that otherwise may result in the project being delayed.

Systems Administrator

System Administrators are responsible for maintaining multi-user computer systems which often include local-area networks. Their tasks may include provision and maintenance of desktop computers, managing user accounts, installing software, maintaining system security, and managing disk space.



Technical Writer

A technical writer is someone who can write technical information in a way that makes it easy for a non-technical audience to understand. They are often responsible for writing user or training manuals and on-line help.

Telecommunications Manager

A Telecommunications Manager is responsible for any communications systems within a business, such as internal and external telephone systems, radio links, emergency contact systems, and the internet and cable connections.

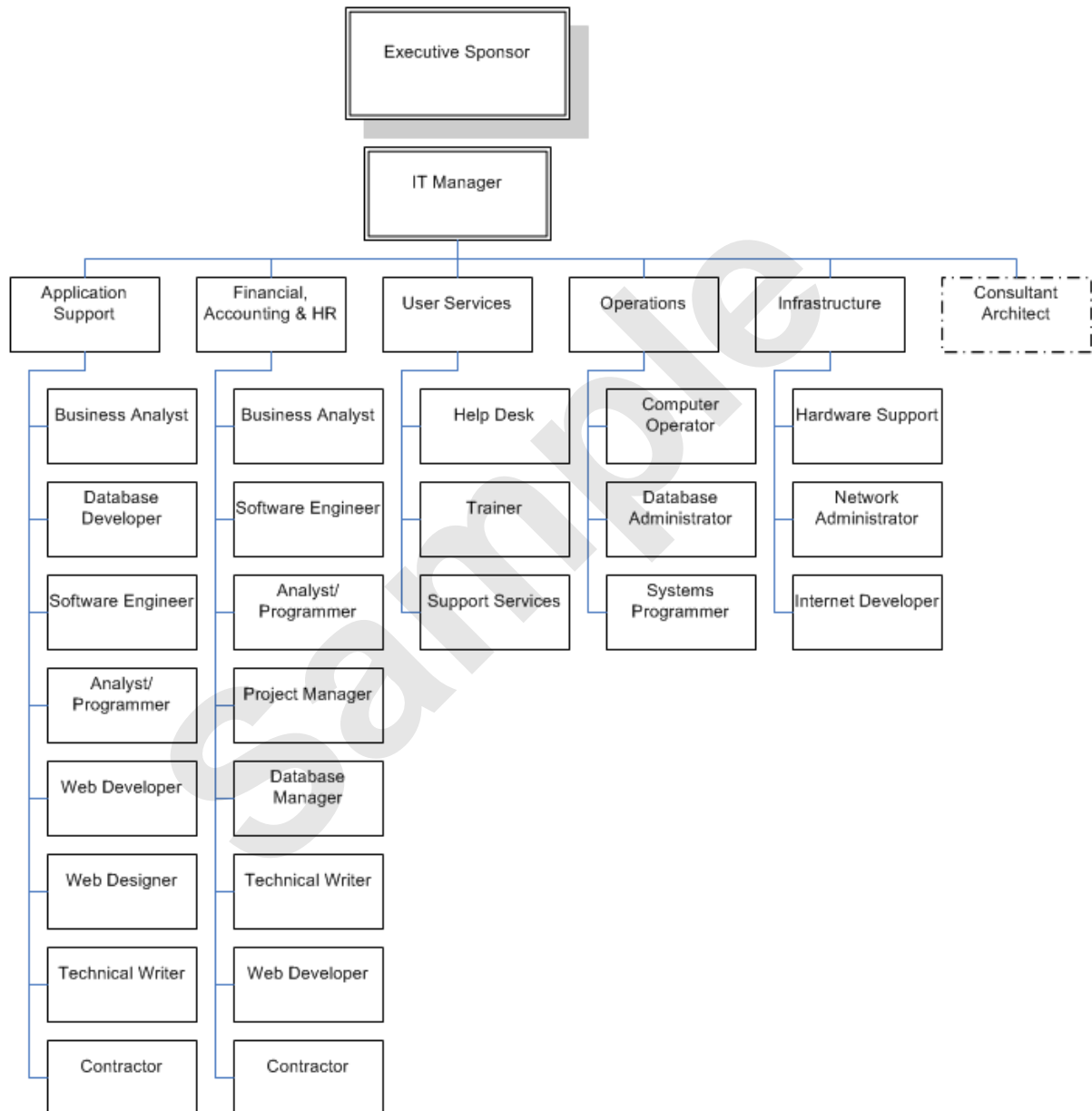
Trainer

IT Trainers are responsible for the development of IT skills within an organisation. They deliver training courses or one-to-one training, and often design and prepare the training material that they deliver. They may also be responsible for the marketing and promotion of their training resources.

IT ROLES IN AN ORGANISATION

The position and location of Information Technology roles in an organisation will vary depending on the size of the organisation, their IT policies and procedures, and their IT strategic

plan. Especially in the case of application development, employee numbers can vary enormously over short periods of time. Here's an example of where the different roles might fit.



IT ROLES EXTERNAL TO AN ORGANISATION

There are many people who provide organisations with information, products, and services that operate outside an organisation. These range from other IT organisations and

large businesses to individual consultants. They also include various forms of the media who review and comment on aspects of the IT industry, including software reviews and promotions.

IT Vendors – Products and Services

Some IT businesses exist to provide products and services to organisations with IT infrastructures. The IT positions held in these organisations include the following:



Business Development Manager

These IT-related personnel are responsible for managing existing clients, retaining vendor loyalty, and sourcing new business opportunities. They prepare submissions for tender, develop sales plans, present products and solutions to clients, and attend conferences and tradeshow. While their skills are probably more focussed on sales and building and developing relationships, they must have a thorough understanding of the business area of the IT industry in which they work.

Product Manager

A product manager in the IT sales industry is generally responsible for customer service strategies, working closely with clients and having a thorough understanding of software industry and the IT product that they manage. They may manage after sales service, conduct audits and surveys, manage distribution processes and analyse sales leads. They must have exceptional communication skills rather than IT skills.

Sales Representatives

Sales representatives in the IT industry perform a range of duties including generation of leads through telephone campaigns, handling incoming calls, delivery of solutions to new clients and on-going services to existing clients. They are likely to attend trade shows, and should have a good understanding of the products they represent.

Consultants

A consultant is a person with expertise in a specific field that is called on to provide technical advice. In terms of an IT service area, a consultant may be an expert from one service area called to give advice to another service area or department. In terms of an external IT consultant, they will be called in to provide expertise and knowledge that doesn't exist in an organisation.

Industry Publications

The Australian IT industry is supported by a number of publications that keep readers up-to-date with the latest technology and information. Some examples are:

Australian Personal Computer (APC)

APC is a leading Australian computer magazine. It is written for anyone interested in technology, from IT professionals to home users, and comes with a range of free software.

PC User

PC User is a leading source of PC information for home and small business users. It proudly boasts 100% Australian content, and has a readership of around 350,000 per month.

Managing Information Strategies (MIS) Australia

MIS Australia is designed for senior IT professionals. Rather than covering product information, its content includes business, analysis, strategy, users, and management techniques.

EXTERNAL IT ORGANISATIONS

There are a huge number of organisations that IT businesses and/or employees can become involved with. Each seeks to benefit their members, generally by helping to influence

policies or by providing member services to assist training, development and employer/employee negotiations. This page examines different types of organisations and their role in the IT industry.

Employer Organisations

An employer organisation is one that represents the interests of businesses. The **Australian Chamber of Commerce and Industry (ACCI)** is the peak council of business associations, and represents over 350,000 businesses from very large to very small at both a national and international level. Members of ACCI include the ACT and Region Chamber of Commerce & Industry, Australian Business Limited, Business SA, Chamber of Commerce & Industry of Western Australia, Chamber of Commerce Northern Territory, Commerce Queensland, Employers First, State Chamber of Commerce (NSW), the Tasmanian Chamber of Commerce & Industry Ltd, and the Victorian Employer's Chamber of Commerce & Industry.

There is also a number of specialist National Industry Associations, including the Australian Made Campaign Limited.

IT Professional Bodies

A professional body or organisation is an organisation (usually non-profit) created to further a particular profession and to protect both the public interest and the interest of professionals. The following professional bodies are examples of those created to promote professions in the information and communication technology (ICT) industry.

South East Asia Regional Computer Confederation (SEARCC)

SEARCC is a confederation of national information technology professional societies. It is non-political and non-profit, seeking to promote IT excellence in the Asia Pacific Region.

The Australian Computer Society

This is an association for ICT professionals. Their mission is to advance professional excellence in information technology, and their principle object is to promote the development of Australian information and communication technology resources. They are a member of the Australian Council of Professions Ltd.

Australian Information Industry Association (AIIA)

The AIIA is the peak body in Australia for the ICT industry, helping the ICT industry to meet their business objectives in corporate and government markets. Their aim is to set the strategic direction for the industry, influence public policy, engage industry stakeholders, and provide relevant business productivity tools.

Australian Interactive Media Industry Association (AIMIA)

This is the peak national body representing the Interactive Media and Digital Content sectors in Australia. They are dedicated to promoting the commercial development of the industry and of individual members and groups.

Unions

A union is an organisation of workers joined to protect their common interests and improve their working conditions. They operate for the benefit of their members, offering practical information, representation, and advice on employment and career advancement issues. Some unions are limited to workers of one trade, while others represent a wider group of employees. People working in the IT industry may belong to a union established either specifically for IT workers or for a specific service industry.

For example, the **Association of Professional Engineers, Scientists and Managers, Australia (APESMA)** is the largest national non-profit organisation which represents professional employees, including managers, engineers, architects, and IT professionals. Other examples include the Public Service Association of NSW, the National Tertiary Education Union, and the Finance Sector Union.

THE ROLE OF GOVERNMENT IN IT

The national and state and territory governments in Australia have a role to play in promoting and facilitating the growth of the information and communication technology industry (ICT).

Each government allocates resources and time to a specific department or office which then uses the resources to guide investment in ICT.

Australian Government Initiatives & Support

The Australian Government recognises that the application of information and communications technology (ICT) creates innovation in most industries. For example, it ensures that people in regional areas of Australia receive information and services that they previously didn't have access to. From a business perspective, the Australian ICT sector is a key player in the Asia Pacific region, hosting many local and international businesses. The Australian Government receives strategic advice and professional support for ICT from the Department of Communications, Information Technology, and the Arts.

In 2004, the Australian Government pledged \$308 million to boost ICT innovation as part of the \$5.3 billion Backing Australia's Ability – Building Our Future Through Science and Innovation package. The recipients of this funding were the National ICT Australia Ltd and the ICT Incubators and Advanced Networks Programs.



National ICT Australia Ltd (NICTA)

The National ICT centre of excellence known as NICTA collaborates with the ACT's government, the NSW government, the University of NSW and the Australian National University. It operates a world-class, world-scale ICT research and research training institute. The Australian Government's intention is that NICTA will assist Australia to develop breakthrough technologies, therefore creating a robust and profitable ICT industry.

ICT Incubators

There are 11 ICT Incubators in Australia, located in all states and territories. They facilitate the growth of new ICT companies by providing business advice, seed capital, and assistance to raise additional capital.

Advanced Networks Program

The Advanced Networks Program (ANP) funds projects to develop new network technologies, especially two very high capacity networks linking Perth, Melbourne, Canberra, Sydney and Brisbane. The technology is expected to support next-generation applications, such as a Virtual Critical Care Unit which will revolutionise aspects of emergency medical care. The ANP also funds developments in the arena of mobile wireless services.

State and Territory Governments

The following government groups promote ICT in their state or territory.

NSW	NSW Department of State and Regional Development
ACT	ACT Department of Economic Development
QLD	Information Industries Bureau (Department of State Development and Innovation)
VIC	Multimedia Victoria (Department of Infrastructure)
SA	Playford Capital (Department of Further Education, Employment, Science and Technology)
WA	The Western Australian Technology and Industry Advisory Council
TAS	Department of Economic Development
NT	Northern Territory Research & Innovation Board and Fund

IT POLICIES & PROCEDURES

Information technology in an organisation should be controlled by policies and procedures which specify what can be done and how it should be done. Ideally, they ensure that IT technology is

used safely and effectively with maximum benefit to an organisation. Employees should be made familiar with these policies and procedures when they commence work.

Policies

Policies specify the type of information resources employees can access, the software they can install on their computers, and the levels of access employees have within networks. A common example is a privacy policy which specifies which information will be collected, why it is collected, how it will be used and how it is protected. In other words, a policy specifies what should be done.

Procedures

IT procedures specify how things should be done in an IT environment. For example, they may detail how files should be named within an organisation and where they should be stored.

Government Policies

The Australian Government has many policies designed to provide a course of action or overall plan or guidelines for an industry or situation.

For example, the Department of Communications, Information Technology, and the Arts provides policy advice on innovation support that affects the ICT industry. The **ICT Framework for the Future**, which is part of the ICT Industry Innovation Policy, was released as the **Enabling our Future** report in 2003. It was developed jointly by Government, industry, research, and academic communities, and focuses on broad strategic directions for the ICT sector over the next decade. It includes recommendations to promote an internationally competitive Australian ICT industry.

Internal Policy – An Example

An e-mail policy, for example, may include these sections:

Introduction	An overview of how e-mail can be used to improve communication and how it can be used inappropriately to cause harm or used carelessly to cause miscommunication.
Policy Statement	A statement overview of the policy – aiming to recognise the benefits of a service and provide guidelines for use.
Authorisation to Use Electronic Mail Services	Who will be given an e-mail account.
A Standard Environment for Electronic Mail	A reference to the appropriate policy or procedure document that specifies which software and hardware is used to provide e-mail services.
Electronic Mail Directories	Information about any e-mail directories that are maintained by the organisation.
Confidentiality	A reminder that e-mail messages are generally not secure.
Representation	A reminder that all electronic correspondence is a representation of the organisation.
Use of Distribution Lists	Circumstances in which e-mail messages may be broadcast to large numbers of employees or clients.
Records Management	How copies of messages must be stored.
Associated Policies and Regulations	For example, the corresponding code of conduct, and a policy on acceptable use of information technology resources and so on.
Discipline	What will happen when someone misuses the e-mail system.

IT EQUIPMENT

The equipment (hardware) found in an organisation will depend upon the purpose of the organisation, their budget, the number of staff and their roles, and so on. For example, a small

desktop publishing business may have desktop computers, a scanner, a modem, several printers, a tablet, a PDA and a range of other devices. Here are a few examples.

Hardware

The term hardware refers to any physical part of a computer system. Hardware includes the following:

Computer

A **mainframe computer** is a medium to large computer or server used for very high-volume data processing and similar high-throughput applications. They are extremely reliable.

A **mid-range computer** is a medium-sized computer that provides the capacity between a high-end PC and a mainframe computer. These days most mid-range computers are used as servers in networks.

A **server** is a shared computer in a network. It may range in size from a single-user's computer to a mainframe.

A **personal computer** is designed for use by a single person. They include desktop computers and laptops. Hardware refers also to all equipment such as the mouse, monitor and keyboard.

A **workstation** may be either a generic user's computer and work area, or a high-performance single-user computer set aside for specific work such as graphics, CAD, software development or scientific applications.



Network

A network is a system of cables, bridges, hubs, routers, and switches used to transfer information such as data, voice messages, and video between computers.

Modem

The term modem is short for modulator/demodulator. It is used to convert the digital signals from a computer to an audio signal that can be transmitted via telephone lines, and then convert the audio signal back to digital.

An **analog modem** is the type of modem that dials the number of the server and answers the call. These modems are slower, generally operating at 56 kilobits per second.

A **DSL modem** also performs the modulation/demodulation role, but is connected via the computer's Ethernet or USB port, creating an 'always on' connection. DSL stands for digital subscriber line. These connections are much faster, transmitting up to 1.5 megabits per second.

Hard Drive

A hard drive is a high capacity storage device that either resides in a computer or exists as an external drive.

Printer

A printer is designed to create printed copies of information that resides on a computer.

Scanner

A scanner, in IT terminology, is a device used to read a printed page or picture and convert it into a graphical image for use on a computer.

Personal Digital Assistant (PDA)

A PDA is a hand-held, pen-based computer used as a personal organiser.

SOFTWARE

The software (programs) found in an organisation will also depend upon the purpose of the organisation, their budget, the number of staff and their roles, and so on. For example, a small

desktop publishing business may have an IBM Windows-based computer with Microsoft Word and Outlook, and an Apple computer with PageMaker. Here are a few examples.

Software

The term software refers to programming instructions or data that reside on a computer.

Operating System

An **operating system** is software that controls the hardware of a computer in response to commands issued by the user. Examples of operating systems include:

Operating System	Use
Unix	An operating system designed for multi-user, multi-tasking environments. It is widely used as a master control program for workstations and servers including those manufactured by IBM, Apple, Sun, Compaq, DEC, HP, Intel, and Motorola. Unix is freely available.
Linux	Linux is a version of Unix that runs on a wide variety of hardware platforms including IBM. Many servers using Linux as their operating system. It is available for free.
NetWare	Designed by Novell to run on servers, this operating system also supports computers running either Microsoft or Apple software.
Windows	Windows, developed by Microsoft, is the most widely used operating system for desktop and laptop computers. It is available in a server version and provides access to servers running Unix, Linux and NetWare.
Mac OS	This operating system was developed by Apple for their Macintosh computers. It comes pre-installed.
Windows CE	This operating system is designed for small handheld devices such as PDAs and is similar in function to Windows 95. CE stands for Consumer Electronics or Compact Edition, depending on whom you ask.

Application

An **application** is a single program or suite of programs designed to perform a specific task. Applications include off-the-shelf products, for example:

Data and document processing	Microsoft Office Products (e.g. Word, Excel, PowerPoint, Access, Outlook)
Accounting/Finance, Payroll, Asset Management	SAP (large business) MYOB (small businesses), Quicken
Security	Norton Products e.g. Personal Firewall, AntiVirus
Web Development	Dreamweaver, Flash, Fireworks, Studio

Some applications are developed in-house to suit specific data recording and processing requirements, for example:

Human Resource Information	Finance, Accounting, and Budgeting
Document Management	Patient Management
Student Information	Timetabling