

CHAPTER 1

INFocus

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 what **IT** service areas may exist in an organisation
- ✓ gain an understanding of the roles in **IT** service areas
- ✓ gain an understanding of additional roles in **IT** service areas
- ✓ gain an understanding of how **IT** roles fit in an organisation
- ✓ gain an understanding of **IT** roles external to an organisation
- ✓ 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?

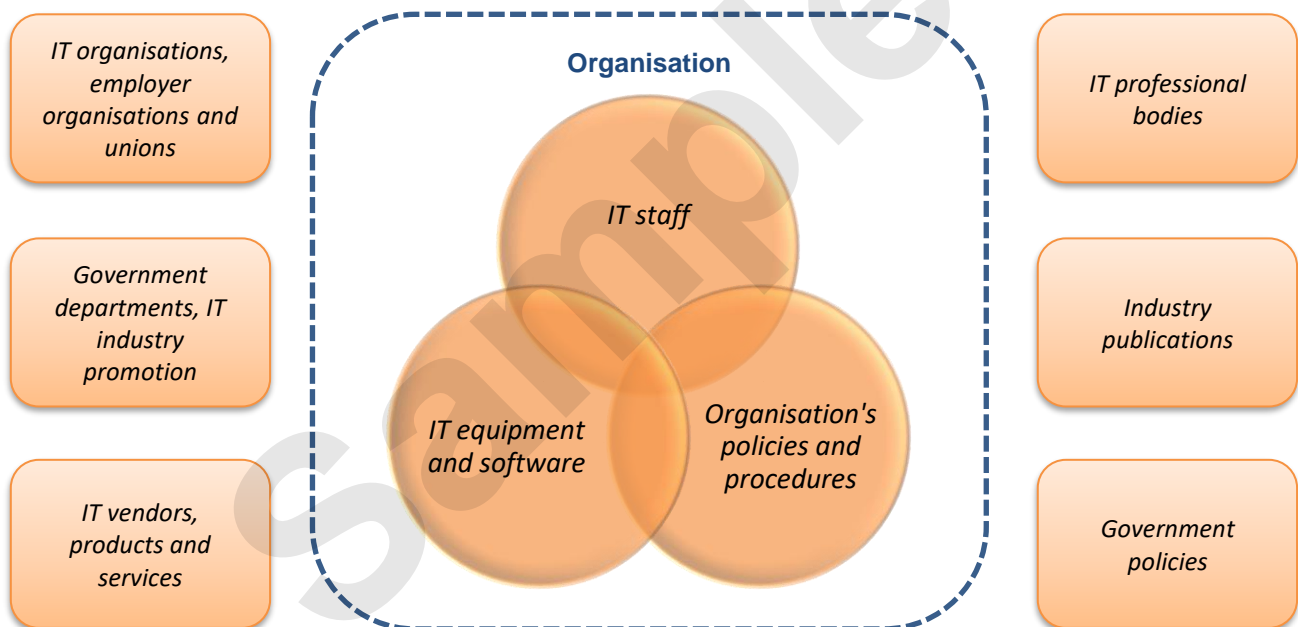
Information Technology (IT) refers to all forms of technology that are used to create, record, store, exchange, manipulate and use information. Information technology is used in many aspects

of people's lives – from managing their days with a smart phone to controlling their washing machines. Information technology provides tools in both the workplace and home.

The Information Technology Environment

The **IT environment** is anywhere that IT is used – from restaurants to schools, 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 but they all provide 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, analysing, 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, analysing, coding, configuring, implementing, and supporting 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.

Email Services

This service area is responsible for all email support activities and resources, including email account management and application support, mail server configuration, content and virus filtering, email software upgrades, web mail, and email 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 organisation includes a wide area network, this service area will be responsible for the design, installation and support of the network components, including the wiring of external hubs and routers, maintaining the link to the Internet and 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.

RESEARCH – IT SERVICE AREAS



Individual
Activity



Group
Activity

Research Task

At Work

If you are currently employed, list three IT services (or separate service areas if you work in a large organisation) that are provided in your organisation. Include a description of the main jobs performed by each of these services. To get this information you may need to consult with your supervisor or other staff, check your intranet, etc.

At School

If you are still at school, ask an adult who is currently employed to describe three IT services (or separate service areas if they work in a large organisation) that are provided in their organisation. Ask the adult enough questions so that you can include a description of the main jobs performed by each of these services.

| Service Areas | Jobs Performed |
|---------------|----------------|
| 1. | |
| 2. | |
| 3. | |

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 Java, JavaScript, C#, PHP, C++, Python, C, SQL, Ruby, Objective-C, Perl, .NET, Visual Basic, R and Swift.

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.

Backup Administrator

A backup administrator manages all onsite and offsite backups. They create backup scripts/jobs and reviews logs and schedule regular meetings with Data/system owners to update backup jobs.

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.

Contractor/Consultant

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 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 and handling problems relevant to their level of seniority. The executive sponsor is also responsible for signing off documents such as the business case and project initiation document.

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.

ADDITIONAL ROLES IN IT SERVICE AREAS

On the previous page we listed several different kinds of roles in the IT service area including business analysts, engineers and executive sponsors. The list of roles is continued on this

page and includes positions such as project manager and technical writer.

Internet/Multimedia Designer

An internet or multimedia designer is responsible for designing the user interface of a website 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 and 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.

Security Administrator

The Security Administrator is responsible for monitoring the overall security including physical and logical, reviewing change management processes, and so on.

Systems Administrator

Systems 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.

Web Administrator

A Web Administrator is responsible for installing and maintaining all web setups and monitoring their performance.

ACTIVITY – ROLES IN IT SERVICE AREAS



Individual
Activity



Group
Activity

Roles

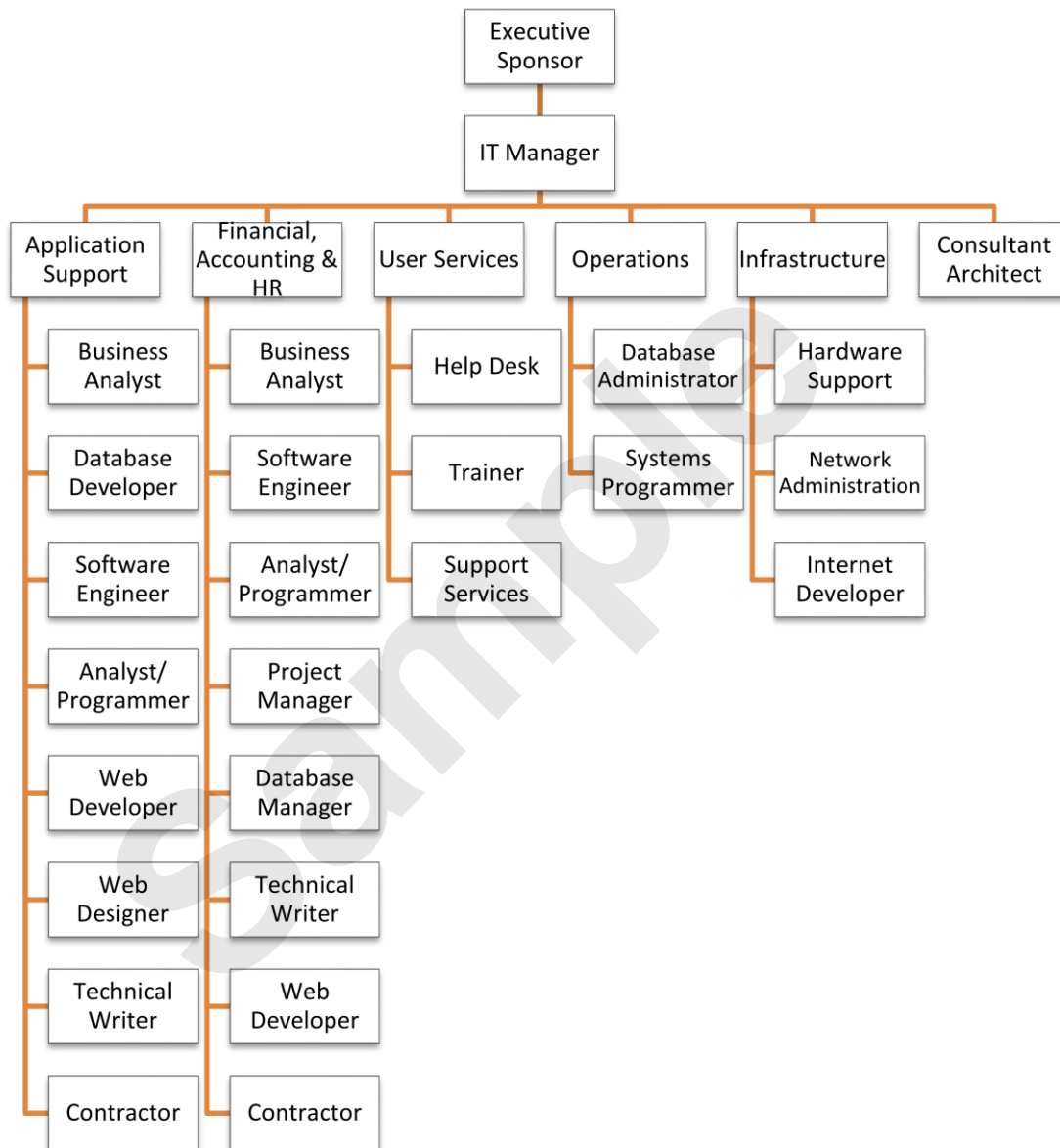
Have a think about each of the following and, using the information on the previous two pages, jot down what role you think each responsibility is describing, or write **None** if you don't think that it is a valid role in an IT service area.

| | Responsibilities | Role |
|-----|---|------|
| 1. | I'm responsible for maintaining multi-user computer systems which often include local area networks | |
| 2. | I'm responsible for designing the user interface of a website | |
| 3. | I write training manuals | |
| 4. | I regularly test security systems | |
| 5. | I regularly use Oracle in my line of work | |
| 6. | I am responsible for the BSS project | |
| 7. | I'm responsible for ensuring that the BSS project is not delayed | |
| 8. | One of my favourite jobs is to take minutes at the weekly HR meetings | |
| 9. | At the start of a new project, I enjoy working with end users to determine their requirements | |
| 10. | Every day I take many phone calls from users to help them with their computer problems | |
| 11. | I spend most of my time either teaching new users or preparing the materials for the classes | |
| 12. | I'm responsible for overseeing the staff in IT and managing the day-to-day operations and services | |

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 the 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 Managers

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 Managers

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 the 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 of incoming calls, and delivery of solutions to new clients and on-going services to existing clients. They are likely to attend trade shows, and they should have a good understanding of the products they offer.

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 Websites and Publications

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

APC magazine

APC is a leading Australian IT and internet news monthly magazine. It is written for anyone interested in technology, from IT professionals to home users, and comes with a range of free software. APC's website (apcmag.com) also provides users with the latest news and reviews.

PC & Tech Authority magazine

PC & Tech Authority is a monthly magazine that provides reliable and objective product reviews suitable for both PC enthusiasts at home and small-medium business decision makers at work. The foundation of the magazine is the fact that every reviewed product is systematically and thoroughly evaluated and tested by the tech team in their labs. See their very comprehensive website at www.pcauthority.com.au.

TechLife magazine

TechLife magazine is a monthly magazine (printed or digital) that includes a buyers's guide for the latest tech products, reviews, how-to articles and more. You can find even more information on their website at www.techlife.net.

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 300,000 businesses from very large to very small across Australia. Members of ACCI include the ACT and Region Chamber of Commerce & Industry, Business SA, Chamber of Commerce & Industry of Western Australia, Chamber of Commerce Northern Territory, Chamber of Commerce & Industry Queensland, Employers First, NSW Business Chamber, Tasmanian Chamber of Commerce & Industry, and the Victorian Employers' Chamber of Commerce and Industry.

There is also a number of specialist national industry associations, including the HIA, Australian Beverages, Pharmacy Guild of Australia, and 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 forum of national information technology professional societies in the Asia Pacific region. It is non-political and non-profit, seeking to promote IT excellence in the Asia Pacific region.

Australian Computer Society (ACS)

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 industry 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 digital content, services and applications industry 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, **Professionals Australia** 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, 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 And 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.

National Digital Economy Strategy

In May 2011 the Australian Government announced the **National Digital Economy Strategy**. This strategy outlined how the National Broadband Network (NBN) would help Australia become a leading global digital economy by 2020. Since then successive governments have been working diligently towards achieving this goal.

To achieve this vision, the current government is undertaking a number of initiatives.

The **Digital Business** website provides practical guidance for small businesses and community organisations to establish and enhance their online presence. **Digital Business kits** address industry-specific gaps in digital knowledge and promote use of innovative digital solutions to market products and services, engage with clients and improve business operations. The **Digital Careers program** is a four-year initiative, aimed at fostering interest amongst high school students in digital technologies, ICT study and increase awareness of ICT career options. The **Digital Enterprise program** helps small-to-medium enterprise and not-for-profit organisations improve the way they do business online and participate in the digital economy. The **Digital Hubs program** helps communities gain the digital literacy skills needed to effectively participate in the digital economy. The **National Cloud Computing Strategy** was released in 2016 to promote the adoption of cloud services.

National ICT Australia (NICTA)

The government also recognises that for Australia to become a leading digital economy by 2020, it must continue to collaborate with industry, state and territory governments, and the community. One example of this is seen with NICTA (National ICT Australia) which is Australia's information communications technology research centre of excellence and the nation's largest organisation dedicated to ICT research.

NICTA is funded by the Australian Government through the Department of Communications and the Australian Research Council. NICTA is also funded and supported by the Australian Capital Territory; the New South Wales, Queensland and Victorian Governments; Australian National University; University of New South Wales; University of Melbourne; University of Queensland; University of Sydney; Griffith University; Queensland University of Technology; Monash University and other university partners.

State And Territory Governments

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

| | |
|-----|---|
| NSW | NSW Trade & Investment |
| ACT | Innovation, Trade and Investment |
| QLD | Department of Science, Information Technology and Innovation |
| VIC | Department of Economic Development, Jobs, Transport and Resources |
| SA | Department of State Development |
| WA | Department of Commerce |
| TAS | Department of State Growth |
| NT | Department of Business |

ACTIVITY – KEY PLAYERS IN AN ORGANISATION



Individual
Activity



Group
Activity

Key Players In Your Organisation And Their Importance

Have a think about each of the following questions and record your answers in the space provided.

| | | |
|----|---|--|
| 1. | What is your job title and role? | |
| 2. | What is your supervisor's job title and role? | |
| 3. | What is the job title and role of the most important person in your IT department (and we don't mean the pay master!)? | |
| 4. | Does your IT department engage any consultants? If so, what are their roles? Why do you think an organisation would engage a consultant rather than employing them? | |
| 5. | Do you or any of your colleagues in your IT department regularly read any industry publications? If so, which ones do you read? Why do you read them – are they important for your job? | |
| 6. | Do you or any of your colleagues in your IT department belong to a union or an IT professional body? If so, which one/s do you belong to and explain why you belong to them? | |