Technical support personnel offer support for individuals and organisations in a variety of ways. This unit focuses on help desk and desktop support but also includes an awareness of other options, such as remote support (connecting to the client machine and attempting to resolve the problem), field support and call centre support.

In completing this unit, you will increase your technical knowledge. You will be expected to develop your research skills and to show that you can select relevant and reliable information from different sources. You will learn how to apply this knowledge to help end users to resolve technical problems and to improve the performance of their IT systems.

After completing this unit, you should be able to achieve these outcomes:

- Be able to gather information in order to provide advice and guidance
- Be able to communicate advice and guidance in appropriate formats
- Understand how the organisational environment influences technical support
- Understand technologies and tools used in technical support.
This unit provides you with an introduction to the world of IT support. You will learn about the role of help desk staff. This should help you to understand what is expected of the people who provide guidance and support to users who are having difficulty with a computer system.

Help desks are the first point of contact for a user who is experiencing difficulty with a computer system. Teams of support staff are on hand, often 24 hours a day and 7 days a week, to answer telephone calls and process them. How do you think the teams are managed? What training would each member of the support team need to be in a position to provide useful help to a caller? How could the calls be filtered so that each member of the help desk support team receives only those calls that they are trained to handle? These and other questions are addressed in this unit.

Anger management is a topic which may be new to you. It is included in this unit for a good reason; it is now seen as important for many people, including IT support workers. However, it is a sensitive topic and one which may make you feel uncomfortable. Thinking about what makes you angry and uncovering causes of anger, or doing activities to learn how to cope with angry feelings may alarm you. However, your teacher will guide you through this topic and, hopefully, it will help you to become more helpful in your dealings with others.

Although you will be studying IT, many of the skills you learn in this unit would apply to customer support in other industries, such as retail or banking. This is because the way you handle people is important, whatever job you do.
The staff in a call centre are employed to service telephone calls from customers, and to record the details of all such calls on a call logging system.

Some call centres provide help desk support to IT users. Before the staff in the call centre can provide advice and guidance, they need to identify the problem. This will involve information gathering from a variety of sources. The end user who is having the problem should prove to be a valuable source of information, but help desk staff also need to consider other sources, such as a fault log or diagnostic software, and they may need to consult some technical documentation.

This section focuses on a range of information sources and how best to gather that information.

28.1.1 Information gathering

Information gathering requires a variety of skills, plus a strategy for success and a method of documenting your findings.

- Information can be gathered from a number of sources, such as direct questions to the client, consulting a fault log or using diagnostic and monitoring tools. Each of these requires different skills on your part: communication, research and analysis.
- There will be constraints on your time and pressure to find a solution quickly, so you will need to identify priorities. Having a clear idea of what you are looking for and where to look will help you to prioritise, so you need a strategy for success.
- Faults fall into broad categories – such as loss of service or poor performance. The ability to recognise patterns will help you to solve problems more quickly. So keeping accurate and detailed records forms an essential part of information gathering.

Each of these aspects of information gathering is now considered in turn.

28.1.1.1 Direct questioning

An end user has a problem and wants you, the support technician, to fix it. He/she contacts you and starts to tell you what he/she thinks is wrong. During the conversation that follows – either face-to-face or on the telephone – you need to find out as much as possible, so that you can start to make decisions as to where the fault lies, and how you might resolve the problem.

However, before you can accept the call from the end user, you may need to check that he/she is entitled to your support services. This may include asking for a user name and password, or maybe an account number and password. This personal data may allow you access to information about the end user that you can bring up on your screen. This may include the following:

- What level of service is the user entitled to expect from you? If there is a service level agreement (SLA) you will need to make sure you meet the expectations of the end user in full.
- When did this user last contact the help desk? The attitude of the user may be affected by how often he/she runs into difficulty and how effective the support has been previously. Often, end users are frustrated by problems they are experiencing and may be angry. Having as much background information to hand as possible may help you to cope with their anger. This topic is considered in greater detail on page 00.
Most problems relate to faults in the hardware and software being used or, often, the way in which they are being operated by the end user.

- If the problem appears to be a hardware fault, you need to know the make and model of the hardware (such as 'Hewlett-Packard printer, model PSC 1210' or a 'SpeedTouch modem, model 330'). This may enable you to access the relevant technical information, for example, on the manufacturer’s website, so that you can talk the end user through a sequence of steps towards identifying the precise fault and resolving the problem.

- It may also be relevant to know the software platform (such as Windows XP) and/or the software applications (such as Word) that they are running. Part of your training will be to become familiar with how the software works. In fact, you ought to be an expert in using any software that an end user might have installed on their computer.
Table 28.1 lists the questions that need to be answered and recorded at some point during the processing of a fault. Table 28.2 shows the data fields that might be needed to record the information so that it can be analysed. The items in the first three rows of Tables 28.1 and 28.2 are relevant for this unit. The data in the remaining rows is essential for a complete picture of the incident and how it was resolved, but relates more to the content of Unit 29: IT Systems Troubleshooting and Repair.

<table>
<thead>
<tr>
<th>Question</th>
<th>What needs to be recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who reported the fault?</td>
<td>Name and contact details</td>
</tr>
<tr>
<td>When was it reported?</td>
<td>The exact time as well as the date</td>
</tr>
<tr>
<td>Has someone been assigned to deal with this problem?</td>
<td>Who was assigned, and at what time it happened</td>
</tr>
<tr>
<td>Has anyone decided on a course of action?</td>
<td>What action was decided upon, when this took place and who made the decision</td>
</tr>
<tr>
<td>What was the actual problem?</td>
<td>Categorise as: End user error / Faulty hardware / Faulty software, etc.</td>
</tr>
<tr>
<td>Has the problem been fixed?</td>
<td>How it was fixed</td>
</tr>
<tr>
<td>How much did it cost to repair?</td>
<td>Time spent doing the repair, cost of replacement parts</td>
</tr>
</tbody>
</table>

Table 28.1 Questions that a call logging system should answer

<table>
<thead>
<tr>
<th>Data field</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call ID</td>
<td>A unique reference number to identify this particular call and all subsequent action taken to resolve the fault.</td>
</tr>
<tr>
<td>Date and time of initial call</td>
<td>It is important to record the time as well as the date. Some faults will be reported and solved within the space of a couple of hours. Others may take longer.</td>
</tr>
<tr>
<td>Who initiated the call?</td>
<td>The person who called may be noted by their name and department, or maybe an employee ID code, linked to other databases held by the company. This may allow the HR (human resources) department to identify employees who regularly call for IT support, and may need to be given extra training.</td>
</tr>
<tr>
<td>Technician allocated to supervise the solution</td>
<td>The help desk assistant will need to make an initial decision as to who best can help the caller. This will be based on information given by the caller, and the call assistant may have a questionnaire to complete which also helps to decide whether the fault is mostly hardware related or mostly software related.</td>
</tr>
<tr>
<td>Data and time of passing information to technician</td>
<td>A delay in passing details of the problem on to a technician will mean the end user might be waiting longer than he or she needs to. Keeping track of this data will ensure more efficient processing by the help desk assistant.</td>
</tr>
<tr>
<td>Report from technician(s)</td>
<td>This may include information such as what equipment was repaired on-site, what equipment was removed for repair, what loan equipment was given to the user as a temporary fix or what replacement equipment was given to the user as a permanent fix. Each event needs a date and time of action so that progress can be monitored.</td>
</tr>
<tr>
<td>Error diagnosis</td>
<td>Details of exactly what went wrong and how it was fixed will help if other users call in with similar problems.</td>
</tr>
<tr>
<td>Costs (money)</td>
<td>Equipment that is supplied to replace faulty equipment can be charged to a particular reported fault.</td>
</tr>
<tr>
<td>Costs (time)</td>
<td>Time spent repairing equipment or just on-site with an end user, trying to diagnose the problem, needs to be accounted for, and charged against each call.</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Lessons learnt in solving a problem should be recorded and considered when making decisions about staffing levels within the support team, the equipment that is to be purchased in future and training needs of support staff and end users.</td>
</tr>
</tbody>
</table>

Table 28.2 Data stored in a call logging system
Sometimes, lack of knowledge on the part of the end user is the root cause of the problem, and it may prove necessary to recommend training for individuals. If several end users ask the same questions, one solution (that may save on time spent providing one-to-one support) is to set up a web page (on the Internet or within a company’s intranet) listing FAQs and their answers – see page 00.

**What does it mean?**

FAQ stands for frequently asked questions.

ISP stands for Internet service provider.

How you communicate with the end user – your manner and attitude toward the caller – and how to extract relevant information, are covered in more detail in section 28.2.2 (see page 00). But at this stage of the call you simply have to collect facts and your direct questioning needs to be done courteously and efficiently, using a manner and tone that will not inflame an end user who may already be angry.

You may be provided with a script to help you through this initial stage, so that you do not forget to ask for particular information. When reading from a script, it is easy to sound bored because your conversations become very repetitive. The end user quickly realises you are using a script and might view this negatively. Therefore, it helps if you can develop some personality to your voice so that your end user feels better served by you.

**Case study**

**FAQs**

FastHosts’ FAQs answer the questions that are often asked, such as ‘What is broadband?’ , ‘How can I check that broadband is available in my area?’ and ‘What spec PC do I need to run broadband?’

1. Visit the site of one of your service providers and read the FAQs.
2. Compile a list of five FAQs that a novice user of one particular software package or one item of hardware might ask. Swap these with a partner and provide the answers for your partner’s FAQs.

**Assessment activity 28.1**

**Data collection forms**

1. A novice computer user is trying to connect to the Internet, without success. List the details you would expect this user to provide when calling the ISP’s help desk.
2. An experienced web designer is trying to upload a new page from Dreamweaver, and is having problems. List the details you would expect this user to provide to the host company’s help desk.
3. Design a form to collect relevant data when recording one call to a help desk.
28.1.1.2 Fault log

A log should be maintained for each computer system: when the equipment was obtained, and when software was installed, what settings have been used and so on. If the system breaks down, this information may be needed. When the system breaks down, the same log may be used to record what went wrong and how it was fixed, or a separate fault log may be set up just to record the problems and how they were overcome.

A fault log may be kept manually, or it may be created automatically by software. The fault log can prove useful if a problem keeps happening, and the cause is unknown. Noting the date and circumstances each time something ‘goes wrong’ may throw light on the source of the problem.

Electronically generated fault logs may be created by software tools such as Dumprep.exe. If a serious error occurs, this Windows XP fault-logging program writes the error details to a text file. The user is then prompted to send the error information to Microsoft (see Figure 28.1).

The software manufacturer can then collate information about problems that users are experiencing and use this data to help them to track down the cause of the fault.

Unit 29: IT Systems Troubleshooting and Repair looks at the value of the POST diagnostic information (see page 00).

Once the computer is up and running satisfactorily, in a Windows environment, the Control Panel offers the Systems Properties route to information about how the computer is functioning; see page 00.

Assessment activity 28.2

Help desk scripts

1 Call a help desk and note precisely the conversation that took place. Could you tell that a script was being used?

2 Compare the conversations that you and others have recorded. Check how similar the questions were, and the order in which they were asked. From this, devise the script that might have been used.

3 Working in pairs, role-play the process of calling a help desk, using your script. As the help desk technician experiments with ways of making the end user feel more like an individual receiving the level of attention he/she might expect.

28.1.1.3 Diagnostics and monitoring tools

As each new operating system is introduced, so too are diagnostic and monitoring tools aimed to help the user – and support technicians – track down faults and improve the running of the computer system.

When you turn on a computer, the POST checks the hardware to make sure everything is functioning correctly before the operating system is loaded and run.

If there are problems and these are found before the screen is operational, a sequence of beeps is used to indicate the nature of the fault. Once the screen is operational, instead, an error code is given on-screen showing which device is not functioning properly.

Unit 29: IT Systems Troubleshooting and Repair also considers fault logs; see page 00.

Microsoft Excel

You chose to end the nonresponsive program, Microsoft Excel.

The program is not responding.

Please tell Microsoft about this problem.
We have created an error report that you can send to help us improve Microsoft Excel. We will treat this report as confidential and anonymous.

To see what data this error report contains, click here.

Send Error Report  Don't Send

Figure 28.1 The prompt to send details of a fault to Microsoft
Event Viewer is one example of a monitoring tool that is supplied with an operating system (Figure 28.2). Windows XP logs major events such as the boot-up sequence, the start-up and closing down of applications, and any errors that are reported. These are recorded in the Application, Security, and System logs. The Event Viewer tool can be used to manage and view these events and therefore to track security events and identify possible software, hardware, and system problems.

Unit 29: IT Systems Troubleshooting and Repair (page 00) explains how Event Viewer might be used to predict and identify the sources of system problems.

There are other tools available from third-party suppliers, such as Dr. Watson for Windows (see Unit 29: IT Systems Troubleshooting and Repair, page 00) and [the one in the screen grab]. These utility programs exist to aid the end user or support technician in maintaining the system and, typically, promise to maximise a machine's performance (Figure 28.3).

It is possible to filter incoming calls to a help desk and to answer those that are considered more important first. However, the end users who are kept waiting in a queue are likely to be angry by the time their call is answered. This could mean that it takes longer to take the details of their fault and so this approach can prove counter-productive. It is not only fairer but also more efficient to accept calls in the order in which they arrive. Prioritising can then be applied on follow-up action, for example, in arranging for a support technician to visit the end user. There are three main ways of prioritising requests for support, although a combination of these may also apply.

**What does it mean?**

**POST** stands for ‘power on self test’.

The **Control Panel** is a folder which offers routes to files that can be used to manage the computer system.
28.1.1.5 Fault type

Although the root cause of a problem might be hardware or software – or inefficient use of the computer by the end user – the fault, as perceived by the user, is either loss of service or poor performance.

**Loss of service** includes:
- a crash – when the whole system goes down
- the system has ‘hung up’ – moving the mouse no longer results in a movement of the cursor and there is no response to a key being pressed
- a peripheral that no longer works: e.g. the printer or the screen or the hard drive
- failure to connect to the Internet – an error message reports that there is a fault: no dial tone, or failure to connect at the server end.

**Poor performance** relates to the slowing down of the system. It may take a long time for a web page to load, or for material to be sent to the printer. Either way, the system is not operating in a way that is satisfactory for the end user and he/she puts in a call to the help desk.

This unit focuses on the role of the help desk staff in fielding complaints. Tracking down what is causing a problem is the subject of **Unit 29: IT Systems Trouble Shooting and Repair** (page 00).

28.1.2 Validation of information

Some sources of information are more reliable than others. So, in the process of gathering detailed information, you need to make sure that the information is valid. Invalid information will get in the way of you arriving at a speedy solution to the problem.

1. For a service provider, establish how the calls are prioritised. Is the system fair?
2. Find out the details of a service level agreement that has been set up with a service provider at your college or place of work.

28.1.2.1 Cross reference checks with user

While talking to an end user about the problem, you may be able to call up data on your computer system, including the current configuration of the end user’s computer. However, this information may be out of date; the end user may have upgraded the equipment or
installed a more modern operating system. So, it makes sense to confirm this information with the user during the initial conversation.

- Simple direct questioning will ensure you are basing your judgements on correct information.
- Which operating system are you using? Windows? Which version?
- Which make of printer is it? Hewlett-Packard? Which model?
- Which modem are you using? The internal one or an external modem? An external one? How is it connected to your PC?
- What software are you using? Word processing? Which package? Which version of that software are you using?

Some users may not be able to answer these questions and you may have to direct them to how they can find out.

For example, to discover which operating system is being used, you may need to guide the end user to press Start, click on Control Panel and select System. The General tab window will then reveal the information you need to confirm (see Figure 28.4).

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**Assessment activity 28.3**

### Questions, questions, questions

1. Compile a series of questions that you could ask to confirm details about the end user’s PC – for example, the configuration of their PC.

2. Working in pairs, try out your questions on your partner. Discuss the answers and refine your questions so that a novice user could answer them.

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**28.1.2.2 Problem reproduction**

So far, the conversation with the end user has related to simple direct questioning to establish who the end user is, how you might contact them, and what configuration they are working on. Now you need to find out exactly what is wrong – and what needs to be done to fix the fault. However, the end user may jump to conclusions and suggest things that are wrong with the PC, rather than just giving you the facts.

As part of your problem-solving strategy, encourage the user to describe the problem as they see it, but ignore – or at least set aside – the interpretation that they give as to what is causing the problem. Problem reproduction is a useful strategy – asking the end user to talk you through what went wrong. This can reveal important information that the user might not otherwise have told you.

One important fact is the date when the problem was first noticed. If new hardware or software was installed immediately before the fault appeared, this might be to blame. Take the end user back to a time when the PC was working – this will help him/her to think through the events that led up to the problem, in the right order and exactly as it happened. This may reveal vital clues, but it will still be important to keep an open mind and to consider alternative sources of the problem.

The goal of problem reproduction is that, if you can recreate the same situation, you could be halfway to solving it.

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![Figure 28.4 System Properties: General tab](image)
28.1.2.3 Reliability of different types of information

Having gathered as much information as possible from the end user, you can start to form a picture as to what might be the cause of the end user’s problem.

You may also find some other sources of information helpful.

- Manufacturers’ websites are a valuable source of information (see Figure 28.5). If an application fails to work, you can search the manufacturer’s website for the latest information about known bugs in the system.
- Open user forums (see Figure 28.6) can also prove useful, although the advice given may not be tried and tested, so you ought to be cautious before following it.

![Figure 28.5 A sample manufacturer's website: Hewlett-Packard](image1)

![Figure 28.6 A sample open user forum site: Tiscali](image2)

Each posting on a forum is called a tile. A string of tiles is called a thread.

Open forum sites are moderated, i.e. someone has the job of checking every posting to make sure the site rules are followed. On this forum, Chris is the moderator.
You might also consult with colleagues. They may have met a similar problem before and be able to advise you. If good records have been kept of previously reported problems and the ways in which they were solved, this too can prove to be an invaluable source of information. Both of these sources are considered next.

28.1.3 Technical knowledge

Before you can hope to solve a problem which involves the breakdown of hardware or software, you need to have a good understanding of how the system works normally, and the kinds of problems that can occur. This technical knowledge includes lots of facts and figures – and knowledge and experience can be built up over a period of time.

However, to share this expertise and help people with less experience, written records such as product specifications, manuals and fault records are provided as a reliable source of documentation. Colleagues can also prove to be a useful resource, as well as software-oriented sources such as knowledge bases and those found on the Internet.

28.1.3.1 Product specifications and manuals

The product specification is written by the manufacturer of the product. It contains details of the technical aspects of a product, for example: its dimensions, the correct voltage to use and details of any consumables that are recommended. Failure to comply with the recommendations in the product specification may result in the product not working as intended.

For example, some PCs have a voltage switch (see Figure 28.7) so that they may be used in more than one location. In the UK, the normal mains power supply is 240 volts; elsewhere, it may only be 110 volts. The switch needs to be set for the correct voltage. Otherwise, the power supply unit may not be fed sufficient power to operate the equipment. This may result in the screen not functioning, for example.

A manual explains how to make the best use of a hardware or software product. It is also usually written by the manufacturer, but is addressed more to the end user rather than to a technician. Unit 29: IT Systems Troubleshooting and Repair (see page 00) explains how these manuals might be used to assist a user who is having problems, e.g. to create a particular effect with a software package. Some effects are more complicated to achieve, and greater experience in using the software is needed. Some manufacturers provide tutorials to introduce the end user to a particular concept (see Figure 28.8).
Some users need to be led through tutorials and would benefit from one-to-one tuition. These users are likely to call the help desk to ask for support. However, while you may have the skills to help these end users, it may not be the most efficient use of your time, so the organisation’s policy may be to refer the end user for extra training elsewhere; see page 00.

**28.1.3.2 Colleagues with specialist expertise**

Technical information can often be gleaned from the people around you. Colleagues at work, and friends outside work, can offer their experience in solving problems that you have just encountered. Knowing the right person to ask is the key to success. Sometimes, you may need to call on specialists: someone who is technically competent at a higher level. Such specialists may work within your organisation or you might be able to contact them via a telephone help line.

**28.1.3.3 Knowledge bases**

Expert systems rely on knowledge bases. Support technicians can draw on a knowledge base to help them to decide on a course of action.

The Microsoft Office Online knowledge base underpins the help options offered on all Microsoft applications (see Figure 28.10).

Using a knowledge base like this one involves searching for information that is relevant to the problem you are trying to solve. *Unit 29: IT Systems Troubleshooting and Repair* explores this aspect of using a knowledge base; see page 000.

**What does it mean?**

A **knowledge base** is a database of key facts.
2.1 IT Practitioners

... and you are given the option to search the knowledge base.

Or, you can go to Microsoft Office Online from the drop down Help menu.

Having entered a key term and clicked on the green arrow, the Search Results are listed ...

Pressing F1 (or selecting Help/ Microsoft Office Word Help) opens a Search panel.

Figure 28.10 Accessing the Microsoft Office Online knowledge base

Assessment activity 28.4

Knowledge bases

1. Bob is trying to print an Excel worksheet for an important meeting. He needs to present a one-page report, but the last column of his spreadsheet goes on to a second page. Bob rings the help desk and asks: ‘Is there a way to fit all the data on one page?’ Access the Microsoft Office Online knowledge base to locate information that you could use to help Bob. And find a tutorial on printing techniques for Bob to watch.

2. Bob does not have time to learn how to solve his printing problems. Suggest other ways that he could present his information to the meeting. What other communication routes could he use? Compare these options with the original plan to present a worksheet.

3. Search the Internet for more examples of knowledge bases. Pool your findings with others in your group.
28.1.3.4 Fault records showing previously found solutions

A fault log is most useful when it lists not only the problems that were encountered but also the way in which they were solved. There is no point in trying to reinvent the wheel – referring to these records can save a lot of time and energy. A fault log that includes the name of the technician who solved a particular fault will allow you to contact him/her if you have encountered a similar fault and need specialist help.

28.1.3.5 Internet sources

There are two main sources of help on the Internet: FAQs and technical forums.

Online help often supplies a list of FAQs. Providing answers to these FAQs, in this way, can solve the most common problems for users, with minimal effort for the help desk staff.

Technical forums (see Figure 29.x on page 000) provide a talking space for users experiencing problems with their hardware or software. Faults are often discovered after software has been released and will affect all users. As soon as such a fault is noticed and reported, the manufacturer can start to try to fix the fault. Meanwhile, technical forums provide other users with warnings of what does and does not work. This can save a lot of time wondering if a particular fault lies with the user rather than with the system.

Assessment activity 28.5

Sources of information

1 For a software package that you use regularly, find out what it has to offer in the way of FAQs. What other guidance does it provide for the novice user? Make notes of 10 top tips.

2 For a given problem, such as a peripheral not working, identify three sources of information that you could use to solve the problem.

3 Discuss with your friends: Whose advice do you value the most? Which of you is most expert – and can therefore help others – for a particular application? Make a note of your areas of expertise for future reference.

Test your knowledge

1 What is an FAQ?

2 Where might you find hints and tips?

3 What other source of technical support – apart from hard copy resources and electronic help – might prove useful?
28.2 Communicating advice and guidance in appropriate formats

Communication is an essential part of problem-solving. In this section we will be looking at the following aspects of communication.

- The type of end user – he/she may be experienced and know what is wrong, whereas a complete novice might have no ideas to offer. Your skills in communicating with all types of user will help you to discover as much as possible in the shortest time, and to keep the end user calm and happy in the process.
- The type of advice that you give – once you have arrived at a solution, you need to choose an appropriate way of offering advice or giving guidance. For example, if the root of the problem is the end user you may need to tactfully suggest that they have some training.
- How you communicate – forms of communication range from a face-to-face discussion with the end user to placing a guidance note on a website, for all interested users to see. You will need to choose the most appropriate form for the situation.
- Checking the outcome – communication is a two-way activity. It is not enough to tell the user how to resolve a problem and then leave him or her to it. You need to check that your instructions were clear enough to be followed and that your advice proved to be useful. Only then can you be sure that you provided support in a way that suited the end user. Some evaluative feedback is therefore needed.

28.2.1 End users

The end user is the person who has the problem, and your problem is to solve his or her problem.

Your skills in communicating with the end user are needed to help you to find out as much as possible about the problem in the shortest possible time. With the appropriate skills, you can also keep the end user calm and happy during what might be a time-consuming process of finding the source of the problem, and fixing it.

How you communicate – the vocabulary that you use and your manner of speaking – should be matched to the needs of the person with whom you are communicating.

- The end user may have little experience of the hardware and software that he/she is using. If you use technical terms which sound like jargon to the novice, you will create a communication barrier. Instead, use the correct terms but add guidance to talk the user through the steps involved. For example, you might say ‘I need you to open the Control Panel. To do this, click on the Start Button. Yes, the one at the bottom left of your screen. Yes, a left-click. Now, can you see the Control Panel listed as an option? . . . ’
- The end user may be more experienced – a power user even – and have a good idea of the problem and how to communicate it to you. With this type of user, you may use more technical terms and expect the user to understand them. However, at each step, check that the user is still with you! So, you might say ‘I need you to go to the Control Panel. OK?’ If the user replies ‘Yes. Now what do I do?’, you can continue. If not, you may need to give more guidance, similar to that given to a novice.
- The end user may be a technician like yourself. You would expect to be able to give high-level commands such as ‘Go to the Control Panel’ and be understood. You should not need to give additional instructions, nor check that the technician has carried out your command correctly. How the conversation continues will confirm that you are working together in tandem.

To summarise, your choice of vocabulary – the technical terms that you use – and the level of the commands you give, need to match the understanding of the end user. Finding out how much the end user knows and their level of competence cannot be done by asking outright ‘Are you a novice?’. This could offend the end user. Instead, during the initial stages of your conversation, give reasonably high-level commands but be ready to back them up with more detailed guidance. Then, according to the response of the end user, provide the appropriate level of guidance after that.

What does it mean?

A power user tends to use shortcuts and be adept at using the mouse.
28.2.2 Types of advice

There are no quick fixes. The advice you give must meet
the needs of the user in the long term, otherwise the
problem may occur again very soon.

To provide the right advice and to solve the problem
completely, you should consider the problem from all
angles and complete sufficient investigations to be sure
that you have discovered the cause of it. Only then can
you decide how the end user can proceed.

28.2.2.1 Recommendations for repair or
replacement

Your recommendation may involve the repair of an item
of hardware or the replacement of components. This
may involve a visit to the end user’s workspace, and you
will need to book an appointment that suits both the
end user and the technician who will be assigned for the
task. Unit 29: IT Systems Troubleshooting and Repair (see
page 000) considers this type of remedy in more detail.

28.2.2.2 Recommendations for training

You might decide that part of the solution should
involve some additional training for the end user. This
might mean your giving some direct instruction on a
one-to-one basis, and arranging a suitable time for this
to take place. Or, you may be able to direct the end user
to an online tutorial source. Meeting the training needs
of end users is considered as a remedy in Unit 29: IT
Systems Troubleshooting and Repair (page 000).

28.2.2.3 Recommending software solutions

Software is often released for sale under licence before
it has been tested enough to find all the bugs. The
manufacturer wants the product to reach the market
as soon as possible, before a rival company can get in
on the action. The organisations that are first to take
on a new release often find themselves testing the
software for the manufacturer – this is called the
beta test distribution stage. Once bugs are found,
and the fault identified, a patch is one immediate
solution that can be provided to users as a download
from the software manufacturer’s website.

The patch is not necessarily the best solution for the
problem. However, any better solution has to wait until
the next official release date of the software. As time
passes, the manufacturer completely debugs the software
and may then issue a new release. To acquire the updated
versions, the support team need to download them from
the Internet and install them on the network or
individual computers that are licensed to use that
software.

What does it mean?

A patch (or ‘fix’) is a quick repair job for a piece of
code which is found to be faulty after its release to the
market. It is usually made available as a replacement
for, or an insertion in, compiled code (i.e. in a binary
file or object module).
Depending on how recently software was installed, and how ‘clean’ it is, your recommendation may therefore include some changes to software, such as the installation of a patch. Depending on the skill level of the end user, you may need to arrange for someone to do this, either at the end user’s desk or remotely.

Often, after such an installation, the computer has to be restarted – or rebooted – before the fix applies (see Figure 28.11).

The manufacturer also leaves data on the user’s computer to show which version of the software is installed.

A system reset takes the computer back to its factory settings. Less dramatic is the Windows utility – called System Restore – that allows a user to restore the computer data to a specific former state (called the restore point). Any personal data saved since that time (such as new files created or new email messages, or changes to documents) remains intact, but all system changes are undone. The System Restore utility creates automatic restore points – called system checkpoints – periodically, to protect data from unexpected problems. The user may also be advised to create manual restore points before making any significant changes to the system, such as installing a new program or making a change to the registry. However, for some problems, a system reset may be necessary.

**What does it mean?**

**Rebooting** is another term for restarting the computer.

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**Assessment activity 28.7**

**Types of advice**

1. Bob (from Activity 28.4) is still having problems printing out material from his spreadsheet. Write an email suggesting that you provide one-to-one instruction to help him make the best use of the software. Plan what you might cover as an introduction to printing material from a spreadsheet.

2. Check the availability of software patches for one program that is installed on your computer. Download a patch as directed and then reboot your computer.

3. Anita’s computer has crashed for the fourth time this week. She has rung for help. Write down the instructions you would use to talk Anita through the process of rebooting her computer.
28.2.3 Communications

As a support technician, you need good interpersonal skills. You must be able to interact with customers and provide technical support in such a way that you arrive at a solution that meets the needs of the end user as quickly and efficiently as possible. There are a variety of methods that you can use to provide support; there are also a variety of ways you can present information to meet your end user’s needs. This section considers your options and looks, in particular, at how you might cope with the best and worst case scenarios in your everyday work as a support technician.

28.2.3.1 Direct to user in response to a query

There are three main options as to how you might communicate directly with an end user: by email, by telephone, face-to-face.

Some organisations insist on initial requests for support being sent by email. This allows the support team to prioritise the incidents and to deal with the most important people and/or the highest risk problems first. A standard email can be sent back saying ‘Your request has been noted and someone will be in touch soon’. This can give much needed breathing space, especially if the end user is very angry. Within a team of support technicians, it is also then possible to assign the technician best suited to deal with a particular ‘problem’ end user.

Email communication provides a written record of the request for help and, since it is written by the end user, it takes no time or effort on the part of the help desk technician, apart from reading the email.

Most organisations also offer a telephone link to the help desk. More information can be gleaned more quickly in a verbal conversation. However, the technician has no visual clues about the end user and he/she cannot use body language to show a caring, sympathetic attitude to the end user. That is why the tone of voice and the words used are so important. Telephone conversations can be recorded – but often, telephone help desks rely on the technician to record incidents, and this takes time.

Face-to-face conversations require that the end user and the technician are located in the same place. This may not be possible: for many organisations, the customers may be spread across the country and the calls centres may be overseas. In organisations where face-to-face discussions are possible, the technician should read the body language cues from the end user and respond in a manner which creates a sympathetic and caring atmosphere in which the problem can be solved.

28.2.3.2 Secondary provision of guidance

Sometimes, the support team needs to let everyone know about a change in operations: perhaps all the passwords have to be changed, or the network will be down for 30 minutes for essential maintenance. An email to all concerned is an effective way of broadcasting this information.

If there are more widespread changes coming up – maybe the provision of a new service with effect from the beginning of next month – it may be more appropriate to report this in the organisation’s monthly newsletter. This acts as a press release and can be used to improve the image of the support team. Photos of the support team might be included to present a personal image and this might help end users whose only contact is via telephone conversations.

Sometimes, especially after the introduction of new software, there is a flood of calls asking about the same thing. Rather than dealing with every caller individually, as soon as the pattern is noticed, a FAQ can be set up. End users can then be directed to the FAQ; this method works especially well when initial calls are via email.
If there are more complex procedures which require explanation, a technical help sheet can be devised and distributed to all end users. This might be announced in an email and supplied as a PDF attachment; and it might be pinned up on the notice board in the staff canteen.

### 28.2.3.3 Providing information to relevant people

The FAQ page on the Internet or intranet is accessible to all, but only those that have a problem will take the time to refer to them.

With newsletters, the tendency is to send to all employees, but to catch their attention the layout and general presentation has to be good enough to entice everyone to read it. The same philosophy now applies to regular emails; if it looks like the ‘same old stuff’ people will not find time to read it.

So, when sending out emails – with or without help sheet attachments – it is important to direct the emails to those for whom the information is relevant. If end users are bombarded with emails, some of which are not relevant, eventually the emails lose their impact and will be ignored.

### 28.2.3.4 Anger management skills (self and customer)

Nine times out of ten, the calls made to a help desk are from end users under pressure: their workflow may have been interrupted by a system failure or there could have been a loss of data or a communications breakdown. The end user is therefore likely to be upset and is calling you because he/she needs your help.

Anger is a natural response to feeling threatened. If a computer breaks down or fails to behave in the way it should, anger can result from the frustration that this causes the end user. Some users, who can see that they are not able to make best use of a computer, may be angry more with themselves than with the computer.

Anger ranges in intensity from mild irritation to violent rage. It affects the body by increasing adrenalin levels and speeding up the heart rate. If anger is the result of a threat such as imminent disaster, these two physical changes are essential – they prepare your body for fight or flight. If there is no physical threat, anger on a regular basis has adverse effects on the individual, as it raises blood pressure and prevents clear thought.

Anger in the workplace – as generated by malfunctioning computer systems – is therefore potentially damaging to workers and needs to be managed.

If attempts are made to ensure the smooth running of the computer systems, the chances of a malfunction are reduced and the frustration that downtime causes are largely eliminated. In the real world though, things do go wrong, and often a computer system fails at precisely the moment when the end user has no time to spare. That report is needed right now!

So, when the end user calls the support help desk, it is almost certain that you will hear a level of irritation in his/her voice, and if this is the tenth time he/she has had to call this week, the anger level may be high.

Some people can express their anger in a controlled and constructive way, but some can’t! If feelings build up, anger can erupt in an uncontrolled fashion. People can say things which would have been better unsaid and relationships can deteriorate.

In your conversations with end users, you need to take into account that any anger that is expressed is a natural – if socially unacceptable – response to frustration. It is your job to remove the cause of the frustration. It is not your job to upset the end user; so you must not take offence at what the end user has to say. It is possible that the user’s tone will be aggressive to start off with. A sign of your skills in handling such an end user will be how much the tone softens by the end of your conversation.

One way of managing anger is to talk things through with someone. At the help desk, you may find that you are the person the end user needs to talk to. He/she may have legitimate concerns about new software or hardware, and you will be the first to hear about these.

If, after a morning of angry callers, you are beginning to feel angry too, how can you control your own anger?

- Calming down is essential. Taking long slow breaths will slow down your heart rate. If you can, leave your workstation and walk around for a few minutes. Go outside and empty your mind of the previous caller. Look at the weather instead.
Distance can make impossible situations seem not so impossible. Distance can be physical, e.g. walking to the end of the corridor and back. Distance can also be time; e.g. doing something else for ten minutes and then returning to the problem. The problem might sort itself out in your head in the meantime.

Often, anger is not caused by what has just happened. The printer jamming may just be the final straw. Instead, there may be some underlying sense of frustration which is the root cause of a person’s anger.

If you feel angry, ask yourself if there are other factors that are upsetting you. Are you unhappy in your working environment? Do you feel undervalued in your work or in your relationships with your colleagues? Is the behaviour of other team members affecting you adversely? Have you got financial or health worries or other problems outside your workplace?

If you are faced with what seems like unreasonable anger from an end user, ask yourself what else may have upset this person. Assume that the computer breakdown is just the last straw for this person, and you happen to be in the firing line. Your task is all the harder, but you still have to resolve their computer problem and maintain a good working relationship with them. Most important, stay calm.

When angry, the ways in which end users express themselves – and how you might express yourself to colleagues or to your manager – leaves a lot to be desired. The tone used and the words that are chosen tend to make matters worse; sarcasm is often used. Suppressing anger does not work either, so saying nothing – or sulking – is not effective.

One way of dealing with anger is to be assertive. Assertiveness involves expressing yourself clearly and calmly, without resorting to anger. Being assertive is not easy; there are classes you can attend and books you can read on the subject. It takes practice!

Another way you can reduce feelings of anger is to change your lifestyle out of the office environment.

Regular exercise can help to reduce tension and create a window of time when you stop thinking about work. Taking out your anger on a squash ball is one healthy option. Less vigorous activities can work equally well: yoga or meditation classes teach you how to switch off.

Your diet, and especially sugar, caffeine or alcohol intake, can affect how you feel. If you eat a bar of chocolate, or have a cup of coffee, you may have a brief surge in energy but feel low later on. If you are feeling angry and then drink alcohol, the alcohol lowers inhibitions and you may say or do something you will regret later.

Having a more positive view of life can also fend off anger. If you are not happy with something in your life but cannot change it, then focus on other aspects of your life and make sure you have times when you are happy and relaxed. You might vent feelings by talking to friends, or express them through painting or writing. You might also immerse yourself in a hobby like DIY or gardening.

It is not part of your role to suggest how your end user might reduce his/her anger levels but, if you control your own, you will be better placed to cope with outbursts. You may also serve as a role model for those around you.
‘Soft’ skills relate to your attitude while carrying out these tasks. When it is just you and the computer, soft skills may not be needed. However, when you are dealing with end users and trying to resolve their problems, these skills are important.

You need to empathise with the end user. You need to try to understand things from his/her viewpoint.

- The novice user may be reluctant to experiment with software and so will not have wandered through the menus to see what can and cannot be done. They may have so little experience of software that even the standard icons for Save and Print are alien to them.
- The more experienced user may be confident in one way of working but a new software package requires a different way for doing the same things. This level of user may find the transition difficult. They may have to slow down as they are learning the new software and can speed up again, and this may irritate them.

One way of showing that you have empathy with the end user is to convey it through what you say. Use phrases such as ‘OK’ and ‘Yes, I see’ and ‘I am sorry. I appreciate how frustrating this is for you’. If you make sure that your tone confirms that you are indeed in sympathy with the end user, you should be able to placate even the angriest end user.

You also require patience. Give the end user enough time to say whatever he/she has to tell you. Don’t interrupt or cut across or use put downs. Apply active listening skills instead.

- In a face-to-face discussion, if you can maintain eye contact while the user is speaking, this will show that you are listening – or at least gives that impression!
- Repeating what the end user has just said, but rearranging it into a question and asking for confirmation, will convince the user that you have understood the problem. For example: ‘So, the printer was turned on, but nothing printed?’

Your body language can reinforce what you are saying. Nodding implies agreement. Head to one side, looking puzzled shows you are thinking about how to solve a problem. Even if you cannot be seen by the end user, using body language, somehow, conveys this in your voice.

**Assessment activity 28.8**

**Body language**

Body language is a subtle way of communicating. Posture, facial expressions and positioning of hands and feet all tell a story. One researcher claims that what is said only conveys 7% of a message, the tone used conveys another 38% but body language tells 55% of the story!

1. Look at the images in Figure 28.12. Working in pairs, decide what the conversation might be between each pair of people. Each of you assume one of the characters and write down what you might be saying.
2. Compare your notes with other pairs. Did you have a similar understanding of what was being said?

**Figure 28.12 Body language clues**
28.2.3.6 Escalating issues that are beyond scope of individual

There will be situations when the problem presented to you by an end user is one you cannot solve, and you need to refer the end user to a more senior technician. Most likely, you will be expected to take as much information as possible and then alert a more senior support team member that you feel you need help. You will advise the end user that ‘someone else' will look at the problem and contact the end user shortly.

An end user may request action which is beyond your authority, for example, compensation for lack of service or provision of replacement equipment. In this case, you will either have to direct the end user to the appropriate department or pass on the details for them.

It may happen that the end user demands that he/she speaks to someone with greater authority than you. This may be because they are frustrated with the apparent lack of action and believe that, by insisting on escalation, they will be given more preferential treatment. This may well be the case! You will only have the responsibility for certain aspects of support, and if the end user is demanding more than you can offer, you will need to refer them to someone higher up. However, be sure that you have explored all possible avenues first and collected as much information as possible. Your superior’s time is more expensive than yours, so if you present all the facts, the end user’s problem may be solved very quickly as soon as it is escalated.

28.2.3.7 Providing and communicating appropriate response times for resolution

An end user faced with a computer system which does not work wants it fixed, but they appreciate that this may take time.

Support is essentially about providing a service, but creating a good impression is important too. If you can give the impression that the end user’s problem is being dealt with, and that resolution will happen as soon as possible, the end user will feel reassured. But avoid making a promise that you cannot keep.

What does it mean?

**Escalation** means the referral of a problem higher up the chain of command.

If you say the problem will be resolved within 6 hours and at the end of the 6 hours it is still not fixed, the end user will complain. So, it is important to give the end user realistic information about response times. If you don’t know, don’t lie!

Assessment activity 28.9

**Bad news week**

1. Working in pairs, role-play a scenario in which one person (the end user) reports a fault and the other person (the help desk support technician) knows that, due to understaffing (holidays, sickness or lack of allocation of staff to the help desk), he or she will not have time to look at this problem for a further 24 hours.

2. Discuss how to convey bad news to an angry person without increasing their frustration levels. Make a list of do’s and don’ts.

28.2.4 Checking solutions

Having arrived at a solution, you could simply tell the user how to resolve the problem and leave him or her to it. However, you may not have fully understood the problem, or the end user may not have fully understood your solution or may lack the skills to carry out your instructions correctly. They could be back on the phone five minutes later with an even more complicated problem.

So, you need to check that your instructions are clear enough to be understood and then follow up to check that your advice proved to be useful in the form that it was given. Only then can you be sure that support was provided in a way that suited the end user. Evaluative feedback may take time to collect but it can prove helpful in adjusting how you solve similar problems in the future, and save valuable time then.

This subsection focuses on two aspects of checking solutions: testing and user review.
28.2.4.1 Testing

If a change has to be made to an end user’s configuration, you should take the end user back through the start-up process and make sure that the changes have worked as planned.

If a new component has to be installed or a peripheral replaced, you should test the computer system before the end user is given access to it again. Then you should ask the user to attempt to replicate the problem that they reported in the first place. Hopefully, your solution will have cleared any problem and the confidence of the end user will be restored.

28.2.4.2 User review

Sometimes the advice of the technician on the help desk is sufficient to solve the problem, but sometimes it is not. An end user may need to refer to other sources of help in order to find a satisfactory solution. If this is the case, the help desk should be told about it, and measures should be taken so that other end users do not have to do the same. If the end user manages to solve the problem more quickly than the support team could, the support team must be willing to learn from them.

A feedback form might be used to collect this type of information.

Assessment activity 28.10

Feedback

1. Explore the Internet to find examples of feedback forms.

2. For one particular problem that has been solved for you by another student, give feedback as to how the help that you needed was provided. Include positive and negative comments.

3. Review the feedback received about one of the problems you solved for another student. What changes could you make to how you interact with users? Set yourself some goals to improve your own performance.

4. Considering the types of feedback received and given, design a form that would be suitable to record the feedback. Compare your design with those created by others in your group.

28.3 The influence of organisations on technical support systems

As a support technician, you will work within an organisation, and this organisation will have procedures that you have to follow, and methods that you are expected to adopt. This section explores aspects of how your day-to-day work will be governed by these rules and other constraints such as time and the cost of the resources you use.

28.3.1 Working procedures and policies

As part of your induction training, you will be told how you fit within the organisation, who you will report to and what is expected of you. You may be working on your own or within a team of support staff, and your ‘clients’ may be in-house colleagues or end users working for another organisation.
Whatever the terms of your employment, it is important to follow instructions and work within the organisational guidelines set out for you.

### 28.3.1.1 Organisational guidelines

The organisation will have drawn up policy documents which set out the rules on the reporting of faults, Internet use and security, etc.

For example, it may be organisational policy that all requests for help desk support are emailed to the support team. You may work within a team of similar technicians, sharing the same inbox for these emails. You may be expected to use standard paragraphs in the compilation of the reply to the end user, so that there is consistency in how these emails are processed.

If calls come by telephone, there may be a logging system, and you may need to glean information from the end user about the details of the fault. If it an operational query, you may be able to talk the end user through a solution. If that is beyond your powers, you may pass the call on to a more senior technician, i.e. escalate the incident. If the fault is a hardware failure, your job may simply be to assign the incident to a queue, and advise the end user that ‘it will be looked into soon’. The logging system may give you an idea of how many other jobs are waiting for attention and you may therefore be able to give an estimate as to when a technical engineer might visit the end user’s workspace.

You might be expected to access the Internet for technical information – there may be guidelines telling you which sites are to be used. There might be an Internet site or intranet where any FAQs are displayed, so that end users can go there directly for help on common problems. It may be part of your job to generate material for that site.

Help desk technicians will often take calls from end users who have forgotten their passwords. Before revealing a user’s password, you will need to check his/her identity by asking suitable questions. You may then reset the password and email the new password to the end user.

### 28.3.1.2 Service level agreements (SLA)

An SLA may be an internal document drawn up between the support department and other departments within an organisation. Or an SLA may apply between an organisation and an external supplier of support services.

The SLA will specify service obligations, for example: response times, downtimes, schedules for work to be completed and/or security arrangements.

Special terms may be used to describe the problem.

- When a problem is first reported it may be called an **incident**.
- If the incident cannot be resolved within, say 30 minutes, by the help desk staff, it is escalated to **fault** status and a technician with more specialist skills is assigned to it.
- If the technician cannot resolve the problem, it really is a problem!

Within an SLA, the support level in terms of response time may be graded according to the user category.

- An occasional user (i.e. one who needs the IT system working for non-essential tasks or one who is an irregular user) might be promised a response on the next day or later.
- A regular user such as a typist, programmer or graphic designer (i.e. one who cannot do his/her job without a working system) would be promised same-day response.
- Essential users (i.e. people for whom downtime might result in loss of life or be critical to a business – e.g. workers in medical systems, financial systems or process control) would expect a response time measured in minutes rather than hours.

**Remember!**

A **service level agreement (SLA)** sets out what level of support is expected – for example, the speed of response for particular types of problem.
Keeping accurate records provides a measure of the success rate of the support team. Records should include the calls taken, incidents dealt with satisfactorily by the help desk staff, those faults that were escalated to a technician (and how these were resolved). These records also provide valuable information about the types of faults (see page 9) and where they arise. Recognising trends in this data can help in the formulation of plans to provide better (i.e. more reliable) hardware or software, and may also be used to target training for the end users who need it the most.

### 28.3.1 Confidentiality

There are a number of safeguards, both in terms of legislation and in terms of your contract of employment, which exist to protect the confidentiality of personal data, and you will be expected to abide by those rules and regulations.

In particular, the information revealed to you by end users may give you access to their private data. You must not reveal this information to anyone else, nor use it yourself for any other purpose than the one for which it was supplied.

Failure to abide by the given rules could result in disciplinary action and termination of contract. For more serious offences, you might face a fine or a term of imprisonment.

The Data Protection Act and other relevant legislation are considered in *Unit 29: IT Systems Troubleshooting and Repair*, page 000.

### 28.3.1.4 Sensitivity of information

Some of the information you need to carry out your job may be sensitive. It may relate to future plans for upgrading hardware or software, or relocation plans. As with any job, as an employee, you are expected to respect the sensitivity of such information. To reveal highly sensitive information, for example, to a rival organisation, may well result in dismissal.

If you are working for a government department, you might find that you are bound by the Official Secrets Act. Contravening this act is a very serious offence and can result in imprisonment.

### 28.3.1.5 Outsourcing and geosourcing

It is possible for the user support function to be outsourced.

Instead of having an in-house team look after all the IT equipment and maintenance needs, an organisation may decide to place this service with another organisation, which specialises in the field of support. The core competency of these companies lies in their technical expertise – ideal for support services which an organisation may not be able to staff from the in-house staff skills base.

Some service providers host the technology and provide all technical support, such as for desktops, networks, data centres and software applications, while the client retains responsibility for owning and handling the complete business process. For example, a service provider might host and support a company’s website, but all data entry and processing of the database on which the site is based continues to be owned and performed by the client.

The aim of **geosourcing** is to locate a business function in a place where costs are minimised and/or to exploit favourable exchange rates across countries. This may be done internally or externally to the organisation – branches may be set up in other countries or the work outsourced. Geosourcing may be applied to a particular business function or type of processing (such as a call centre) based on costs, expertise, technological infrastructure.

### What does it mean?

**Outsourcing** means arranging for an external service provider to carry out, on an ongoing basis, an activity that would normally be performed in-house.

**Geosourcing** is the process of seeking expert skills in the best geographical location.
28.3.2 Organisational constraints

Organisations have to balance their books. There will be income from products sold or services provided. Out of this, the organisation can allocate funding for purchasing materials and overheads such as office accommodation for staff and capital expenditure on equipment such as computers. The employment of staff to provide support for in-house colleagues is an additional burden on the budget.

This section considers how cost constraints impact on the day-to-day working of support technicians, and how the level of expertise of end users also affects the role of the support technician.

28.3.2.1 Costs of resources required

Although the costs of IT equipment tend to fall over time, they still represent a large capital investment. The person responsible for buying IT equipment will be careful to place orders with manufacturers who have a proven track record and will seek favourable rates through bulk purchases.

It is important to keep records of faults attributed to hardware. If a particular choice of hard drive is found to be unreliable, this will inform the next round of purchasing.

With software, the buyer will need to know exactly how many personnel require access to particular packages and to ensure site licences are purchased accordingly. A record of what software is installed on each computer then needs to be maintained so that it can be shown that the terms of the licence have not been broken.

28.3.2.2 Time

The support team needs to be on hand whenever other employees are on-site. The team also needs to undertake tasks overnight, like backups and essential network maintenance. For this reason, the support technicians tend to have to work on a shift basis. One week, you may be on ‘earlies’, starting at 8am and finishing at 4pm. The next week, you may be on 'lates', starting at noon and finishing at 8pm. The third week, you may be on nights, working from 8pm till 8am. Since coverage may be needed seven days a week, you might also have to work weekends. The pattern of hours worked can therefore become quite complex, with days off built in to make up for working overtime or at weekends.

When you are at work, you might also have to keep a log of how you spent your time: how long you spent answering calls, processing emails and dealing with faults – as well as giving details of the particular incidents or faults that you dealt with. Analysis can then be made of how the support team is being used, and the cost of particular aspects of the job can be identified. This log keeping will inform management of the needs of the end users, and provide data for future decision making about the deployment of the team.

Test your knowledge

1. Give two examples of working procedures that might be adopted within a support team.
2. In what two ways might the support desk receive requests for help?
3. Before resetting a password for a user who has forgotten it, what security checks might you apply?
4. What does SLA stand for?
5. What might an SLA specify?
6. Explain these terms: incident, fault, response time, escalation.
7. What is the purpose of the Official Secrets Act?
8. Explain these terms: outsourcing, geosourcing.
28.3.2.3 User expertise

The level of support needed for a particular organisation depends very much on the level of expertise among the employees.

For example, in a company that specialises in web designing services for other organisations, nearly all the employees will be competent in using computers and languages such as HTML and Java. The level of user support required for these employees is different from that required by an engineering company which has a large sales force, all using laptops, or in a factory where process control is used to create a range of products. The technicians working in the support team need to be trained to become expert users of the software that the employees have to use, as well as competent in maintaining the hardware. Since there are a variety of software platforms (Windows, Unix, etc.) and lots of versions of any given platform (Windows95, Windows XP, etc.), a technician needs to accumulate experience over time so that he/she can assist all manner of end user.

Assessment activity 28.11

Organisational constraints

1. You work for an organisation that employs 150 staff, all located in one building on four floors. All employees have access to the company intranet and the Internet via networked workstations. Normal working hours are from 9am to 5pm, Monday to Friday. There are eight full-time employees in the IT support team, each working a 40-hour week. Devise a rota for the support staff in which at least two members of staff are working from 7am until 7pm seven days a week.

2. Search for job advertisements for IT support staff. What expertise is expected? What training is offered? What hours are the support staff required to work, and at what salary? Present your findings to others in your group.

3. What might be the effects for staff in your organisation if IT were outsourced? Consider and evaluate both the positive and negative effects.

28.4 Technologies and tools used in technical support

As a technician, you are expected to make best use of available technologies. This section looks at what is currently available (at the time of writing) and considers what is likely to happen in the future.

28.4.1 Technologies

This subsection covers three of the technologies which IT support technicians may use on a daily basis: email, software diagnostic tools and the Control Panel.

28.4.1.1 Email

Email correspondence has increased dramatically in recent years. It is rare for an organisation to send a business letter, unless it is a mail shot; and it is rare to receive letters through the post, unless they are junk mail.

- Organisations such as banks, building societies and gas and electric companies offer to provide online bills and statements, rather than mail out a paper version.
Organisations send remittance advice as attachments to emails, telling suppliers that an amount has been credited to the supplier’s bank in payment of an invoice. Many airlines provide e-tickets and these are sent by email. This is far quicker than sending out conventional tickets in the post.

When sending an email, it is possible to send to more than one person at a time. The fields To:, Cc: and Bcc: can be completed with as many email addresses as are necessary. If you regularly have to send an email to the same group of addresses, it makes sense to set up a distribution list.

The method given here selects the addresses from an address book; you might also create a distribution list by copying names from an email. These instructions apply to Microsoft Outlook (see Figure 28.13). If you are using other software, use the help function to find out how to set up a distribution list.

### How to set up a distribution list

1. Select File / New / Distribution List.
2. In the Name box, type a name that makes sense for this group of email addresses.
3. Press Select Member – this opens a dialogue box.
4. In ‘Show Names from the:’, click on the down arrow to reveal the available address books. Select the one that contains the addresses of the people you want to include in the group.
5. For each person you want to add, select the name from the list. If you use the CTRL key you can select more than one person at a time from a single address book. When you press OK, any selected addresses are added to your distribution list.
6. To add more members, perhaps from a different address book, repeat steps 3, 4 and 5.
7. The distribution list is saved in your Contacts folder, and can be selected as the addressee for an email.

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**What does it mean?**

A **distribution list** is a collection of email addresses which can be referred to by a single group name.

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**Figure 28.13 Setting up a distribution list**

Choose a name to describe the group of contacts in this distribution list.

Select an initial list of members, or add e-mail contacts to the list, one at a time, later.

The notes section allows space for extra information about this group of addresses, e.g. what you plan to send to them and the dates mailings were actually made could be recorded here.
28.4.1.2 Software diagnostic tools

Software diagnostic tools are essential when you are troubleshooting. They provide much needed information, and can be used to eliminate what is working, until you are just left with what is not working. *Unit 29: IT Systems Troubleshooting and Repair* considers diagnostic tools and also tools such as WinVNC, that are available to monitor traffic on a network; see page 000.

Remember!

Diagnostic software attempts to diagnose a problem; it identifies possible faults and offers solutions.

28.4.1.3 Control Panel

The Control Panel provides access to everything needed to control a PC: from adding a new piece of hardware to setting the time, from choosing your Internet options to setting power options. It also provides options to customise the appearance and functionality of a computer. The Control Panel can be accessed through Windows Explorer, My Computer or by clicking on Start and selecting it (see Figure 28.14).

Email distribution lists

1. For the email software installed on your computer, check how you might set up a distribution list.
2. Write guidance notes on how to set up a distribution list, including screen grabs of each important step in the process.
3. Set up a distribution list which includes at least six of your friends, and email the guidance notes to them.
4. You will receive emails from friends with details of how to set up a distribution list. Notice where your name appears on the email. Check the attachment and try to follow the instructions given. Write a reply for each set of instructions received, commenting on the usefulness of the guidance.

Assessment activity 28.12
Within the Control Panel, there are many icons (see Figure 28.15): clicking any of these leads to a separate function.

You should visit every location on the Control Panel to become familiar with every dialogue box, and every option available. However, becoming familiar with every route through the Control Panel is not quite as big a task as you might think. Many of them lead to the same place, so what you need to learn is which route is best for you.

For example, in Windows XP, there are two routes for getting to the **Device Manager**:
- click on the Administrative Tools icon in the Control Panel (see Figure 28.2 on page 000) and then on the Computer Management icon (Figure 28.16(a))
- alternatively, click on System in the Control Panel, then select the Hardware tab on the System Properties panel (see Figure 28.16(b)).

Similarly, here are two ways of locating **Performance Logs and Alerts**:
- Control Panel / Administration Tools / Computer Management / System Tools
- Control Panel / Administrative tools / Performance.

And to get to the **Disk Defragmenter**, you can go via:
- Control Panel / Administration Tools / Computer Management / Storage
- Start / All Programs / Accessories / System Tools.

The settings that you change through the Control Panel are stored in the **Registry**.

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**What does it mean?**

The **Registry** stores settings that Windows makes itself, e.g. the hardware configuration identified during the boot process.
At each time you turn on your PC, the operating system refers to settings in the Registry so that it ‘knows’ the settings that you want to use:

- the hardware attached to your PC
- the applications that you have installed
- the machine’s IP address
- details of your user account
- the colour settings of your desktop.

Whenever you make a change to your settings, e.g. using the Control Panel, it is recorded in the Registry. There is no need to use the Registry itself, because settings can be changed more safely within the Control Panel.

**Assessment activity 28.13**

**The Control Panel**

1. Working with two friends, share out the list of icons on the Control Panel. From your share, select two or three that interest you.
2. Explore in detail the effect of clicking on each of your chosen icons. Make notes so that you can remember what you have discovered and be able to explain it to your two friends.
3. Take it in turns to present your findings to each other.

**Test your knowledge**

1. Give three examples of settings that can be changed via the Control Panel.
2. What information is stored within the Device Manager?
3. Explain what information is stored within Performance Logs.
4. What is the Registry?
5. Give five examples of settings that are retained within the Registry.
28.4.2 Future trends

Of course, it is impossible to predict exactly what will happen in the future. However, close inspection of what has happened in the recent past and of the latest inventions may help you to identify possible future trends.

This subsection focuses on three topics that have been identified by the awarding body. In addition, there may be others that develop as time passes.

28.4.2.1 Increasing reliance on remote support

It is possible to allow a remote user to have control over your screen and to show you, on-screen, how to do something. This can be activated through, for example, Messenger (see Figure 28.17).

The end user has to agree to accept remote control and can cancel it at any time. So, a basic level of control is retained by the end user. However, there are monitoring systems already available which allow monitoring of users without their knowledge and hence without their permission; see WinVNC in Unit 29: IT Systems Troubleshooting and Repair (page 000).

Balancing rights and responsibilities, and providing end users with help while still allowing them a level of privacy, is a juggling act which may prove difficult in years to come.

28.4.2.2 Development of systems that analyse and report on faults for other uses such as planning corporate training programmes

Part of the purpose of collecting statistics about incidents is to analyse the data and make decisions based on trends spotted within the data.

- If the same fault involving the failure of a particular component happens often, the person responsible for purchasing IT equipment needs to know, and perhaps a decision will be taken to change supplier.
- If the same end user makes repeated requests for support, perhaps this individual should be directed towards more formal training options?
- If the same questions are being asked by lots of end users, perhaps more training is needed on that particular topic? Or perhaps an FAQ or help sheet is needed.

Automatic analysis of the data would speed up the feedback time and allow management to make better decisions. It would also free up the person who currently completes the analysis manually. In the future, therefore, we might expect that all aspects of IT support activities will be monitored and analysed automatically.
The larger UK organisations, like BT and the major banks, have already set up call centres overseas. If these services prove successful, it may result in smaller organisations following suit and opting to contract out services and consider geosourcing. Over time, this could have an adverse impact on the availability of IT technician vacancies in the UK. It might, however, open up possibilities for suitably qualified technical support staff to take up posts overseas.

**Predicting the future**

1. Research the Internet for news reports on the setting up of call centres by banks and other large organisations. When were they set up? How many staff do they employ? How has this data changed over the past five or ten years? Present your findings as a report.

2. Working with others, search the Internet for call centres located within a 50-mile radius of your home. Extend your search, looking further afield, even overseas. Record contact information for each call centre and plot the locations on a map.

3. Describe two current software tools used by support staff – one should be a diagnostic tool and one a monitoring tool. Outline possible future developments in this area. Comprehensively review a recent advance in support systems technology and evaluate the impact it is having on the provision of such support.
The assessment tasks in this unit are based on the following scenario.

ITSMAGIC is a small company which makes props for magicians, such as top hats from which a rabbit can be pulled. ITSMAGIC employs 35 people, most of whom need access to information that is currently held on a number of standalone computers.

Most of the marketing work is done on computers. Customers are contacted by telephone, but the customer details are called up from a large database. Mail shots are sent out on a regular basis to a mailing list held on a computer. Leaflets and questionnaires are designed in-house to be sent in mailshots. The company administration tasks are performed on computer, e.g. the payroll details for all staff.

You are new to ITSMAGIC and your role is to provide IT support to all staff. Your immediate line manager supervises you and two other support technicians.

- For another of the situations your teacher provided, use different sources of technical information and evaluate your sources of information.

**Task 2 (P6, D1)**

Your teacher will provide you with a policy and procedure document, including details such as those regarding setting priorities and any working conditions of the support team.

- Describe how these policies and procedures impact on the provision of technical advice and guidance. Review the organisational policy, and evaluate the impact of this policy on the support service provided to internal customers.

**Task 3 (P2, P4, M2)**

Your teacher will supply details of some problems that ITSMAGIC employees might raise and requests that they might make. You will work with a partner for this activity and take turns to take the role of the ITSMAGIC employee and support technician.

Your teacher will check that you respond appropriately to questions raised by the employee (your partner) and that you checked that the solutions you proposed were successful.

- In relation to the specific technical problem that you addressed in the role play, explain the different communication routes you can use to make advice and guidance available to the ITSMAGIC employees.
- Produce support material that will guide the employees in relation to an appropriate specific area of expertise.

**Task 1 (P1, P3, M1)**

Your teacher will give you details of some problems that ITSMAGIC employees might raise and requests that they might make.

- Identify three different sources of technical information and, for each, discuss how useful these sources might be in resolving each of the employees’ problems.
- For one of the situations your teacher has provided, explain the techniques that you could use to gather information about the request from an ITSMAGIC employee.
MAGIC is considering disbanding the in-house support team and outsourcing the provision of technical support.

- Explain the advantages and disadvantages to users and organisations for outsourcing the provision of technical support (ignoring the fact that you will be made redundant).

Task 5 (P5, D2)

- Identify two current diagnostic tools and one current monitoring software tool that may be used by the ITSMAGIC support staff. Describe these tools and outline possible future developments of these tools that might prove useful for ITSMAGIC.
- On behalf of ITSMAGIC, comprehensively review a recent advance in support systems technology. Prepare a report evaluating the impact it could have on the provision of support within ITSMAGIC.