



Guide for businesses: Purchasing or Upgrading a Telephone System

Provided **free of charge** by

Business Cost Consultants

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1. BACKGROUND

The telephone was invented in 1876 by Alexander Graham Bell. It has taken over 125 years to develop a worldwide telecommunications network as sophisticated as we see around us today. However, the whole nature of telephone communications is about to change. The relentless progress of computers and data processing technology means that the days of telephony as a distinct, separate network from data communications is coming to an end.

The volume of data traffic (or packet switching) now significantly exceeds voice traffic (circuit switching). The former is much more efficient because packet switching enables many people to use a channel simultaneously. Circuit switching ties up a channel, even when no traffic is passing along the channel.

The national and international backbone networks used to transmit calls are already digital. However what remains to be converted is the equipment used by businesses and the link between your premises and the local telephone exchange (or switch). Hence many organisations will be facing the challenge of upgrading or replacing their telephone systems over the next few years.

This Guide outlines points to consider when making a purchase, what features to look for and how the various technologies, such as ISDN and VoIP, can benefit your business. It covers some of the options available on the modern telephone systems and provides an introduction to the emerging technologies.

Our aim is to provide you with sufficient information to make an informed decision when acquiring a phone system for your organisation. It is probably one of the most important decisions you will make, since communications are vital for most organisations.

See how we saved one of our clients over £7000 [click here](#)

Clarification of the topics discussed and assistance is available from info@businesscostconsultants.co.uk or at www.businesscostconsultants.co.uk.

2. ASK QUESTIONS

As yourself and your users “What do we need from our new telephone system ?”.

Talk to the main users such as senior managers, sales executives, telesales people, receptionists, service co-ordinators, customer helpdesk staff and technical support people.

Ask them what features they would like to see in a new telephone system. They may not understand, or be interested in, the technology. However, they probably know if they would like features such as auto attendant, voicemail, manager/secretary answering, video conferencing, broadcasting from handsets, offsite broadcasting or automatic call distribution (ACD).

Take on board all the suggestions and use this as a wish list. It is always better to over specify and then knock off the less essential features if your budget cannot stand all of them.

Some of the more popular features include:

- Access control systems - the facility to link a door lock or videophone to the telephone system. You can see who is at your door and open it without leaving your desk.
- Automated attendant - callers are offered a series of numbers to press to get to the correct department or extension. It is often combined with voicemail on modern switches.
- Call logging - records the numbers dialled by individual extensions or departments and levels of incoming and outgoing traffic. It can be used to track down abuse of a system and help you keep track of call costs by person or by department.
- Call barring - bars users from dialling out to certain numbers.
- Calling line identification (CLI) - requires a good handset with an adequate display screen. It lets you see the number of the incoming call before you take it.
- Central directory - an internal directory listing all company contacts (internal and external) available for users to dial. Each handset will normally have an additional private directory.
- Conference calling - most modern systems provide this. It allows several people within and outwith your organisation to share in a telephone conversation.

- CTI - computer/telephony integration. The switch recognises the number of an incoming call, matches it to one in your database and causes a screen to pop up with information on that person or organisation. It is great for service or sales receptionists.
- Music on hold – this ensures that you can add your own choice of music. Watch out for copyright problems !
- Night services This allows you to set the system so that calls are automatically routed to particular extensions (called hunt groups) or to voicemail boxes at particular times of the day or night.
- Trunk to trunk transfers This is a feature of digital channels, rather than telephone simply the telephone system. A receptionist can put an incoming call on hold, dial a mobile or another office, announce the caller and transfer the call.
- Voicemail – this replaces old analogue answering machines and makes organisations much more efficient. A voice mailbox can be allocated to a person, a department or an organisation. Receptionists can reduce their workload by 80%.

Watch Out ! The problem here can be that you and your staff may not know all the features which are available. Hence you may miss out on some features which could greatly benefit your organisation. Also watch out for salesmen selling you many bells and whistles you may not need. You may want to seek independent advice.

3. HOW BIG A SYSTEM ?

Think big. Plan for any possible expansion of your organisation. Try to look about 5 years ahead. Most telephone systems last for about 5 to 7 years. Hence you want a system which will have the capacity to expand with your organisation.

How many staff will need handsets or headsets ?

How many fax machines will you need ?

How many point of sale devices will you need to check credit cards ?

How many lines or channels will you need ? (Digital lines are normally called channels).

In most commercial organisations it is best to work on a ratio of about one exchange line for every five extensions required. If you are currently using analogue lines you will find that you probably need far fewer digital lines. For example, if you currently get by with 20 analogue lines you will probably manage with 16 or less digital channels.

As soon as you pick up your handset on a fully analogue telephone system with analogue lines you are fully occupying a line until you finish your conversation and put the handset down. With digital lines you do not actually seize a line from the pool until you connect to the person or device at the other end.

Sometimes you can reduce your installation costs if suppliers of lines or channels offer incentives. However, you need to weigh the potential saving on installation costs against the cost of calls on that network. For example, BT may save you several hundred pounds on the cost of installing new digital channels. However, you may be able to save 20% or more by directing your call traffic to another supplier of telecom services.

You do not need to purchase a system set up to provide for 50 handsets and 20 lines if you currently only have 20 staff and 6 lines. However, if you think you will be at that point within 5 years, you should look for a system which has a capacity for at least 60 handsets and 25 lines. Hence you know the system can grow with your organisation, rather than have to be totally replaced. It is better to overestimate future numbers when doing your calculations.

The size of a phone system is measured by the number of 'ports' that can be supported. Buyers can specify a combination of external lines and internal extensions to the maximum number of ports.

Each line or each handset needs a port. However, other items of equipment such as voicemail can also require ports. If you wish to use your new telephone system to control access to your buildings (by a speakerphone or a videophone) you will also have to allow for extra ports.

The system handsets will normally require digital ports. ISDN channels will require digital ports. However, analogue lines, fax machines, access control devices, DECT wireless handsets and plain ordinary telephones (POTs) will all normally need analogue ports.

Watch out ! The difficulty here is that some fully integrated voicemail systems do not require ports. Some voicemail systems need 2, 4 or 8 ports. Some cordless systems require ports and some do not. Some special offers from potential hardware suppliers can be complex or misleading. Sometimes you will be offered old technology at a reduced price. Hence, technical advice may be needed here before you finish planning the size of your new telephone system.

4. HOW IMPORTANT IS RESILIENCE TO YOUR ORGANISATION ?

Resilience means taking a belts and braces approach. Because telephone communication is vital for most organisations it makes sense to protect your new telephone system. How far you take that protection is up to you.

Some items to consider are :

Installing an uninterruptible power supply (USP). This gives battery back up to run your switch in the event of a power cut. These can be expensive. The longer they operate and the more equipment they support, the more expensive they become.

Installing a power surge protector. That is designed to protect your switch from surges in the electricity supply and lightning strikes. Both are more common than most people think !

Installing or retaining some analogue lines. In the event of a power failure analogue lines should still operate because they receive their power from the public telephone network, not from the general electricity supply in your premises. However, the analogue lines will normally default to one or two handsets from which you would have to operate your organisations communications in the event of a general electricity failure. Using a USP would allow your switch to continue in operation.

Installing lines from a second telecoms company. In the event of a lightning strike, flooding or damage to a telecoms cable, it can take your telecoms company several days to get all customers fully operational. The more organisations affected, the longer it takes to restore all the lines.

Hence you may want to install a few lines from a second telecoms company to keep your organisation running in the event of a service problem with your main supplier.

For example, you may want instal a few lines from a cable company such as NTL or Telewest to use in the event of your BT lines going down. If most of your lines are digital, you may want to order those extra lines in analogue format.

Watch out ! Remember to instruct the cable company to bring the cables into the building via a different route from the BT lines and to terminate them in a different part of the building.

5. HOW SHOULD YOU CONFIGURE YOUR NEW SYSTEM ?

In general it is best to have most lines through your switch. That maximises the flexibility of your system and increases the number of lines in the pool (hence increasing the number of lines available to most users). It can also reduce your costs.

For example, many organisations use a direct line (i.e. one which does not go through the switch) for each fax machine. That is fine if the fax machine is busy all day. However, most organisations only use their fax machines a few times per day. Those dedicated fax lines could therefore be incorporated into the pool of lines on the switch for general use by fax, data or voice traffic. That will save you nearly £200 per line per annum.

Many organisations use dedicated direct lines to connect to their bank or to a maintainer of their telephone system or computer systems. Normally they are used infrequently and hence do not make good use of telephone lines. Sharing lines saves money.

Watch out ! Fax machines are relatively costly to run. Sending faxes takes time and hence costs money. You pay for the length of each call. More modern faxes do operate at slightly higher speeds (33.6 kb/second). However, if they are sending to an older, slower fax machine your modern fax machine will slow down to the speed of the older fax machine.

Incoming faxes cost money because they use paper and toner. You could be spending over £200 per annum on incoming faxes if you are receiving several faxes a day.

Modern IT systems and modern digital office equipment can greatly reduce those costs by allowing you to send and receive faxes from your computer or your photocopier. Most incoming faxes do not have to be printed and most outgoing faxes can be sent from your PC, again avoiding the need to print the faxes.

It is much cheaper, much quicker and more flexible to use email, rather than faxes, when communicating. Try to encourage as many people as possible within and outwith your organisation to switch from using faxes to using emails.

Some independent technical advice may be needed here before you finish planning your new telephone system.

6. INTEGRATING YOUR IT AND TELECOM SYSTEMS

It is very important to integrate your computer and your telephone systems. The starting point is normally the cabling. Traditionally the telephone and IT systems used different wiring and were completely separate. Computers often used leased lines to connect to the outside world. Telephone switches used analogue PSTN lines and then digital channels to connect to the outside world.

Nowadays many computers connect to the outside world via the digital telephone switch. That means that computers, fax machines or fax from the desktop share the lines with the telephone handsets.

Transporting voice and data over the same infrastructure is not the same as converging voice and data. Voice and data traffic can and often go down separate, but identical wires. Normally both can now use structured cabling such as Category 5 (CAT5) or Category 6 (CAT6) cabling. CAT6 cabling operates to a higher standard and can provide a greater bandwidth than CAT5 (or lower) cabling.

The most efficient way to cable a building is to flood wire it, as you would do with power sockets. When designing or upgrading your building you would plan for sufficient power sockets in each room to cope with the maximum number of electrical devices you might want to use. Similarly, you should think of the maximum number of data (computer) sockets and telephone sockets you might need in each room and plan accordingly.

If you are using CAT5 cabling you may decide to instal the sockets in pairs. Each double socket may have one data and one telephony socket or may have two of the same.

Flood wiring and integration of the telephone and IT systems enables both to operate more efficiently. The CAT5 cables normally come together in a patch panel. All the IT sockets lead to one section of the panel and all the telecom sockets come together in another section of the patch panel.

Traditionally, if you wanted to move a person to another office you had to call out an engineer who put in new wiring and reconfigured the telephone switch and the computer network. By integrating the two systems at a patch panel and flood wiring your building you can undertake moves and changes to the system yourself. That can mean a considerable cost saving over the years.

For some time it has been possible for voice or data traffic to share the same links. This has normally been done by means of time division multiplexing (TDM). This splits a link (typically a wide area network (WAN) into timeslots and places data items from separate traffic sources down the wire in turn.

This means that if a 256kbits/sec connection is split (multiplexed) into four 64kbits/sec slots, each of the four sources can be given a time slot. Hence a piece of data from source 1 would be followed by a piece from source 2, 3 and then 4, then source 1 again. At the far end of the link the data elements would be removed and rebuilt in their original streams.

7. A NEW ANALOGUE OR DIGITAL SYSTEM ?

The short answer for most organisations will be digital. Voice over internet protocol (VoIP) systems will be discussed later.

Analogue is old technology. If your old analogue system gives you all you want, you may want to stick with it until your needs change. If you are replacing your system you should be looking at a digital switch or a (VoIP) system.

Digital lines in the UK normally come in two types – ISDN2e and ISDN30e. ISDN2e comes in pairs and operates to a common European standard. Normally the minimum number of ISDN2e channels you can instal is two. ISDN30 comes in groups of up to 30 channels and also operates to common European standards. Normally you can instal a minimum of 8 channels.

Analogue lines can normally provide a bandwidth of up to 56k kbits/second) However, such a bandwidth is never achieved when sending or receiving data. However, ISDN channels guarantee a constant 64k of bandwidth.

7.1 THE BENEFITS OF ISDN

BT and other network providers offer a choice of analogue or ISDN (Integrated Services Digital Network) phone lines for voice and data traffic. Both are available on a ‘dial up’ basis, with charges based on line rental and usage.

As prices have fallen and its benefits have become more widely understood, ISDN has become the norm for business users and most large organisations. It has 2 clear advantages over analogue lines:

- It offers additional telephony services, such as Calling Line Identity (CLI) and Direct Dial Inwards (DDI)
- It can transmit text, data, images and video much more quickly than analogue lines (at a guaranteed rate)

ISDN also enables voicemail messages to be re-routed automatically to a mobile phone or home office.

Another useful feature is that it enables you to transfer calls to colleagues in other sites by simply entering a short extension code.

7.2 CALLING LINE IDENTITY (CLI)

With CLI, the telephone number of the caller is shown on the answering phone's LCD screen as the call comes in and some even display the name of the caller. CLI has two main benefits:

- It enables you to greet a caller by name when picking up the phone
- It enables technology for a variety of Computer Telephony Integration (CTI) applications, such as screen popping; when a call comes in the system reads the CLI data and pops the relevant customer data on to your PC screen.

7.3 DIRECT DIAL INWARDS (DDI)

DDI provides the ability to assign individual phone numbers to extensions and departments and also has far reaching consequences. By enabling callers to dial extensions directly, DDI reduces reliance on a receptionist and ensures that callers get through to the right people first time. Other services such as fax, e-mail or file transfer can also be automatically routed through the switch, thereby saving the cost of separate dedicated lines.

DDI is not directly associated with the number of lines or digital channels you have. For example, you may have only 6 ISDN channels but 20 DDI numbers. Hence all 20 of your staff can have a DDI number. However, they can only take a maximum of 6 incoming calls simultaneously, if you have 6 channels.

Each ISDN2 pair has 2 B and 1 D channels. When you call a person at the other end of the country you make use of a D (data) channel to transmit your initial data to the other handset. That means that the other two B (bearer) channels are still available for other people in your organisation. It is only once the person at the other end picks up his handset that you make use of one of the B channels. The net effect of that is that if your organisation normally used 20 analogue lines, you could probably operate just as efficiently with 16 or less ISDN30e channels.

7.4 VOICEMAIL

Voicemail is much more than a glorified answering machine. It can also take a message when you are on the phone, alert you when you receive an urgent message, send a single message to a group of people and forward a message to a colleague. It is also possible to record different greetings for internal and external calls and by time of day.

Voice mail packages vary in both capacity (the number of voice mail boxes the system can support) and sophistication. A 2 port voicemail system normally allows you to listen to one message whilst a colleague leaves a message on another mailbox. A 4 port voicemail system allows for 4 simultaneous transactions.

Most systems allow you to pick up messages remotely, although it is important that this facility is password protected.

7.5 AUTO-ATTENDANT

Auto-attendant systems are designed to direct calls to the correct individual or department without the need for a human operator, increasing productivity. It should be remembered that some callers are uncomfortable using auto-attendant services, so the option to speak to a human operator should always be available to callers.

7.6 INTERACTIVE VOICE RESPONSES

This service is used for automation of routine information transactions; for example they can be used for brochure and literature requests, or for order taking, where the caller is prompted to leave their contact details and account information.

IVR systems are also available with fax integration, so for example a price list can be faxed back automatically in response to a customer request.

7.7 CALL CENTRES AND AUTOMATIC CALL DISTRIBUTION (ACD)

The popular image of a call centre, is thousands of workers with headsets sitting in a vast hangar devoid of any windows. In fact, a call centre can consist of a handful of people and they don't have to share the same office or even be in the same building. What defines a call centre is not the scale of the operation, but the nature of the work.

Digital telephone systems used in conjunction with ISDN offer a number of features to improve call handling in formal and informal call centres. Simply by assigning a DDI (Direct Dial Inwards) number to direct calls to a specific call centre can help streamline the flow of calls into a business. CLI (Caller Line Identity), another ISDN feature can improve call handling by showing the caller's phone number on an agent's screens. CTI (Computer Telephony Integration) systems are another useful tool, as it uses CLI information to identify callers and a pop-up providing caller account information is displayed on their PC screen.

The larger a call centre is the more likely it is to require some form of Automatic Call Distribution (ACD) system to answer and route incoming calls, ensuring that callers are not left with a ringing tone or engaged signal. Most phone systems have in-built automatic call distribution functionality or ACD options. More sophisticated ACD packages provide call management analysis and real time reporting, allowing a call centre supervisor to monitor and manage the level of incoming calls and increase or decrease the number of agents accordingly.

8. CONVERGENCE

The impact of computer networks and the internet has been felt in all industries. The telecoms industry is no exception, where the ability to send voice traffic over data networks using Internet Protocol (IP) signalling, so called Voice over IP, is driving the introduction of local area network (LAN) telephony and software-based private branch exchanges (PBXs) or switches (Soft PBX.)

8.1 SOFT PBXS

Soft PBX is the term used to describe a software application that provides server-based telephony. Essentially you instal a software application on your server. That software on your server replaces a conventional telephone switch. Soft PBXs offer voicemail and integration with other server-based applications such as Unified Messaging and contact management systems.

Soft PBXs are available for use with conventional telephone handsets over a circuit-switched telephone network or as part of a packet-switched LAN telephony solution with IP (Internet Protocol) phones.

8.2 LAN TELEPHONY

Most businesses have two separate networks, one for data and one for voice. LAN telephony eliminates the need for two networks by delivering telephone calls over the data network. The benefits of having just one network to manage, coupled with tighter integration of voice and data, mean that LAN telephony represents a real alternative to conventional circuit-switched telephone systems.

Using the correct hardware and protocols, voice traffic will always be given priority over data traffic on such a network. That is important since voice traffic is obviously time sensitive.

The Gartner Group estimates that by 2006/7, 40% of businesses will have adopted a server-based PBX providing LAN telephony. The trend is accelerating.

8.3 VOICE OVER INTERNET PROTOCOL (VOIP)

Another option is to install an IP Gateway for an existing telephone system, which converts the circuit-switched telephony signal into IP for transmission over the data network, outwith the site. This means that businesses can continue to use a reliable, fully featured circuit-switched telephone system, with an IP routing option for voice and data over the company's private network. Such systems are commonly known as Voice over IP (VoIP) Gateways.

The concept of VoIP has been popularised by suppliers extolling the benefits of being able to make national and international calls over the internet for the cost of a local call, although the quality and reliability of this technology is very variable.

The main business benefit of VoIP is that it allows a multi-site organisation to transmit voice over the company's existing wide area data network, saving the cost of making inter-branch phone calls. It also enable breakout. If I want to call from Glasgow to London I can use the company WAN to take the call from Glasgow to out London office at no cost and then break out to make a local call to my destination in London.

For most organisations the real benefits from VoIP come when they are setting up a new site or new office. Installing one structured cabling network rather than two significantly reduces costs.

Using an existing server in place of a conventional switch can again produce savings. However, the other side of that coin is that you are putting all your eggs in the one basket. If your server falls over you lose not only your IT system, but also your telephone system. For that reason some organisations have two servers, one is a mirror of the other. Hence if one falls over, the other continues as normal.

There are alternatives such as hybrid systems. They are conventional telephone switches with a VoIP card. In theory that gives you a very robust switch and VoIP.

When making calls using a VoIP system you can do it through the public network (PSTN). That means that you are guaranteed a quality of service and pay for the time you are using the system.

The alternative is to place the calls through your connection to the internet. The cost of the calls is virtually nothing. However, the quality of service is not guaranteed. The quality of those calls is certainly increasing and may match the quality of conventional voice traffic at some time in the future.

If you have a VoIP system you can use special VoIP handsets which give you more features than a conventional digital handset. You can use your PC or a laptop computer as a softphone. Software is installed in your PC or laptop and by connecting a microphone and speaker to it you have a VoIP phone.

8.4 UNIFIED MESSAGING

Unified Messaging (UM) systems provide one centralised mailbox for all e-mail, voice and fax messages. Normally they would all reside on your server.

Business people today receive messages in a variety of formats, via different tools at a number of locations. Managing these messages can be confusing and time consuming, whilst increasing the likelihood that some will be lost or simply not replied to. By providing one mailbox for all message types, Unified Messaging gives users complete control of their business communications, and increases the likelihood that responses are given in a timely fashion and filed away safely when dealt with.

According to a recent study by Captaris and Comgroup, having just one inbox for all messages (voicemail, fax and e-mail) can cut the time spent accessing and responding to messages by up to 50% for office based workers and 70% for mobile workers. In some cases the return on investment for the system can be achieved within the first year, with the promise of further savings in the future.

Because the format of messages can be changed from text to voice and vice versa, all messages can be picked up from a PC, desktop or mobile phone, whether you are in the office or out on the road.

Watch out ! There are some real benefits and savings to be had from VoIP, under some circumstances. However, great caution is required. It is easy to be swayed by the apparent benefits of new technology and ignore the rising costs of a new VoIP system.

For some organisations the return on investment for VoIP will be a few years. For others it will not be worthwhile paying as much as 100% more for a VoIP system, if your organisation will gain no real benefits, compared to a well specified digital telephone system.

Before making your decision consider the following options :

- (a) Employ a fully featured modern digital switch. That may meet all your needs.
- (b) Employ a fully featured modern digital switch and use an IP Gateway (a router) to convert circuit switched signals to packet switched signals for use on your company WAN or via the internet
- (c) Go for a hybrid system using a VoIP card on a digital switch. That means you can employ conventional and VoIP handsets.
- (d) Go for a full VoIP system. Although putting all your eggs into the one basket, there are ways to build in resilience.

You may want to seek independent advice before entering this technological minefield.

9. CONNECTIONS BETWEEN SITES AND TO THE INTERNET

Many organisations operate from more than one site. Most will have a connection to the internet. Nowadays there are many ways to connect sites. Some to consider are :-

Leased lines - Leased lines are normally very expensive to instal and to operate. For example, in July, 2004 a client wanted to connect his head office in Glasgow with his new office in Belfast. Three telecom companies were asked to quote for a 212k leased line between the two sites. The average cost was about £3,000 for setting up the leased line and rental charges averaged £18,400 per annum.

Leased lines are always on, offer you security and a 1:1 contention ratio. Hence you do not have to share. They come in a variety of bandwidths from 64k upwards.

Watch out ! With such high costs is really pays to shop around. There are always good deals out there.

ADSL (asymmetric digital subscriber line) are always on connections to the internet and are now available in most parts of the UK. Many organisations now have broadband connections to the internet. They are always on and come in different bandwidths. Anything below 512k (half a Mb) is not really broadband. A dial-up modem runs at a theoretical maximum speed of 56k and an ISDN channel at a guaranteed 64k. Most ADSL suppliers will give you up to 2 Mb bandwidth. It is also possible to combine at least two 2 Mb ADSL connections if you have many users sharing the internet connection.

As the name suggests, the bandwidth is not symmetrical. The download speed is typically four times the upload speed. Hence with 1 Mb ADSL you can expect to download data at a theoretical maximum of 1 Mb per second and upload data at a maximum 256k per second.

Domestic customers are normally given a contention ratio of 50:1. Hence you could be sharing with about 49 others. Businesses are normally offered a contention ratio of 20:1. However, some suppliers offer a contention ratio of 1:1. Hence your bandwidth is guaranteed.

SDSL (Symmetrical digital subscriber line) is becoming available in most urban areas. It offers the same data transmission speed in both directions. Hence a 1 Mb SDSL connection to the internet would allow you to send or receive data at up to 1 Mb per second. It also offers a contention ratio of 1:1 and guaranteed service levels 24 hours a day, seven days a week, unlike ADSL.

SATELLITE CONNECTIONS If you are unable to get ADSL because your site is in a remote area, broadband can be delivered via a satellite link. It is quite expensive to set up and suffers from two main disadvantages. Whilst the download speed can be great when the contention ratio is low, the upload speed can be very slow since it normally depends on a dial-up (modem or at best an ISDN2 channel). This can lead to delays as the website on which you are working takes a noticeable time to react to your mouse movements.

Watch out ! It is a case of horses for courses. You need to decide what type of connection would suit each of your sites and then shop around. There are literally dozens of companies competing to provide organisations with telephone and data connections to the internet.

Most organisations benefit greatly by setting up virtual private networks (VPNs) to connect their sites together. One organisation might use leased lines and pay out hundreds of thousands of pounds a year for their VPN. Another may achieve the same objective for a small fraction of that cost. A working knowledge of both telecommunications and IT is necessary.

10. FUTURE TRENDS

To date people have expected very little from their telephone systems. In most companies all that's been required has been a simple, reliable means of communication. Most organisations are now expecting much more.

By breaking down the barriers between computing and telephony, ISDN and emergent technologies like IP telephony have enabled businesses of all sizes to exploit technology to change the way they work. The promises of greater flexibility, improved customer service and reduced overheads mean that in the future more and more companies are likely to adopt many, if not all of these technologies.

Homeworking and mobile working practises are far more likely to be successful when combined with ISDN features like DDI numbers and Unified Messaging. Similarly, hot desking practises can be more effective if combined with DECT cordless phones.

Dealings with suppliers can be revolutionised through videoconferencing, as the roll-out of broadband services, such as ADSL, combined with the desire to reduce costs and take the risks away from business travel, push through with increased usage.

The take-up of IP technology is still fairly low, but there is little doubt that in the next few years it will establish itself as a viable alternative to traditional, circuit-switched technology, finding favour with organisations of all sizes and types.

The fast changing nature of today's telecoms market underlines the importance of choosing a phone system that is flexible enough to adapt to your changing needs and sophisticated enough to accommodate technological developments. In today's fast moving world, it is important for businesses to remain flexible and the extra functionality of digital PBXs and LAN telephony systems provide businesses with the tools needed to adapt quickly to changing circumstances.

There can be little doubt that in the near future, DECT, CTI Voice over IP, ACD functions and Unified Messaging will become commonplace as businesses look for an edge over their competitors.

However, by 2010 most organisations will probably have made the transition from digital to VoIP systems.

11. WHICH TELECOM SERVICE SUPPLIER ?

When thinking about upgrading or replacing your telephone system, it makes sense to review the supplier of your telecoms services. There are over 250 competitors to BT, Thus, Cable and Wireless, MCI and Energis. Some have their own networks, some have their own switches and some are switchless resellers.

Prices and services vary substantially. With modern switches you can use carrier preselection and/or least cost routing. That enables you to potentially use one carrier for local calls, one for national calls, one for calls to mobiles, one for calls to Europe and another for calls to the USA. Reductions of about 20% in the cost of call traffic and about 15% in the cost of line rentals are often possible without sacrificing quality of service.

This is an area that is probably best left to independent experts who can :

- (a) Analyse your call patterns throughout the year
- (b) Match them up with reputable carriers who could reduce your costs
- (c) Ensure that you receive the quality of service you expect for you and your customers
- (d) Carefully check your telecom bills to ensure that your get the service and prices promised.

Normally a good independent telecom, consultant will offer to do all of the above on a contingency basis. If he makes no savings, he charges no fees. If he does make savings, he will be paid out of the savings. Hence his expertise will effectively cost you nothing – and save you a great deal of time and hassle.

Watch out ! Because telecom services are vital for most organisations, there is no point in saving a few hundred pounds a year and suffering a decline in quality of service. However, it is possible to get reduced costs and no reduction of service if you know where to find them.

12. INDEPENDENT ADVICE

After reading this guide you may feel that you are now equipped to procure a new telephone system on your own. Alternatively, you may not have the time to undertake all of this work, or you may feel more comfortable with an independent advisor to take you through this process.

Business Cost Consultants are able to co-ordinate the project from start to finish.

We can offer your organisation the following :

- By means of our detailed questionnaire and discussions with you and your staff, gather all the required information on what features are needed by your particular organisation.
- Research the market to find suitable systems which match your specification
- Draw up a detailed specification for your new system
- Agree that specification with you
- Draw up a detailed tender document
- Select a group of reputable suppliers
- Send them the tender document
- Vet the incoming tenders
- Summarise the results and report them to you in plain English
- Discuss our report with you
- Co-ordinate the installation of the new system

This will save you time and money.

See how we saved one of our clients over £7000 [click here](#)

Please contact us if we can be of any further assistance to you at www.businesscostconsultants.co.uk or info@businesscostconsultants.co.uk.



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