

# Video Conferencing Buyers Guide



Almost everything you need to know about Selecting, buying, and maintaining a single or multi-site video conferencing system in a corporate environment.

**Includes a section on High Definition!**

## **Introduction**

Welcome to this guide to selecting, buying and maintaining your new video conferencing system.

Desktop, portable, integrated, IP, ISDN, High Definition, content sharing ... what does it all mean and how do you know what is important to you and your organisation?

With video conferencing becoming more widely available and more importantly, recognised as an essential part of an organisations unified communications capability it is vital that any acquisition is carefully thought out, specified and deployed in the right way.

It is important to make the right decision, as you will be living with the consequences for the next 3 to 5 years.

Without good information it is easy to be tempted to acquire on price alone, a decision that could end up creating problems from day one, and one you could often regret for the next few years. On the other hand, a budget system may be the right decision. The important thing is being able to decide what is right for you before you commit.

This report provides a guide on general systems rather than dealing with specific equipment. As technology changes so rapidly it is almost impossible to provide a definitive guide that is product specific.

This unique report contains valuable information to help you make the best decision. If you would like more information and friendly expert advice, call Innovations free on 0800 214463....

Enjoy...

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# Everything you need to know about selecting, buying, and maintaining a single or multi-site video conferencing system

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## **What is Video Conferencing?**

The answer is very often found when asking the key people in your organisation why they want it.

Video Conferencing is the name given to a method by which delegates from different internal offices, home offices, or locations around the globe hold meetings face to face with full sound and image without having to travel.

Everybody is starting to see the potential benefits and there are many diverse applications throughout educational establishments, corporate organisations, local government, legal professions and the health sector.

The biggest misconception aside of is that video conferencing is just for speaking to people in another country. Many organisations save thousands of pounds by using the technology to connect offices around the UK saving a fortune in regional travel.

It is inevitable that face-to-face meetings will remain essential but it is fair to say that a lot of time and subsequent lost productivity can be saved by holding a 30-minute conference call between two UK cities instead of wasting the majority of the day stuck in traffic.

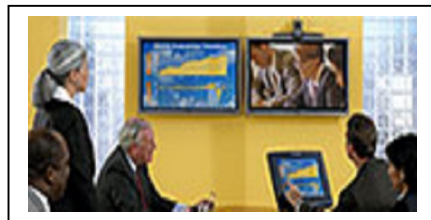
## Why Consider Video Conferencing?

In today's economic climate every pound of a companies spend has to be justified and this includes something that many regard as a 'no brainer' money saving scheme.

But money is not the only issue. There are family, environmental and health issues to consider.

Much has been written and will continue to be written about your **carbon footprint**. All businesses have the responsibility to adopt a sustainable working policy. While everyone is striving to reduce their CO2 emissions we continue to travel short or long distances needlessly for meetings that could easily be conducted via a video conference call. The knock on effect of this travel, whether by land, sea or air is both damaging to the environment but also your budget. Escalating fuel costs are doing more to justify an alternative meeting strategy.

Extra travel reduces productivity and efficiency as well as increasing costs. Imagine being to hold that important ad-hoc meeting now rather than trying to arrange a meeting with several colleagues in different locations, especially when they all have busy diaries.



The big benefit is the ability to bring many people from the same office into a single meeting as the immediate saving in travel and lost productivity is immediately apparent.

Video conferencing will alter the way your business communicates and the flexibility will enhance your work/life balance. Meetings with offices in all corners of the UK can be held in a morning rather than potentially taking a working week away from home for overworked, highly paid employees who are increasingly spending time away from their families. Not only will efficiency increase but stress related illness will reduce causing a decrease in absenteeism.

## **Benefits of Video Conferencing**

Video conferencing is a very versatile communications tool for any size of business. Big benefits include:-

- Meetings can be held at short notice.
- It is a very cost effective solution, aside of the capital or rental cost for the equipment calls can be made inexpensively or at no cost across your corporate network.
- Resources can be optimised, as travel is not necessary. Instant and informed decisions can be made face to face rather than on the telephone.
- Crisis management is more efficient.
- Reduced time away from the office for meetings.
- Improved productivity.
- Company wide messages can be broadcast from a single location.
- Inter office meetings can be conducted at the desk instead of walking around a site for a one off meeting.
- Presentations can also be shown across a conference call allowing delegates to still enjoy the benefit of on the spot reaction to contentious topics.
- Reduced operating costs.

The current economic climate focuses an awful lot of attention on cost reduction, add into the equation the political focus on climate change and the pressure continues to be pushed onto companies to find ways to save money and contribute to worldwide carbon reduction. Global terrorism and a reluctance to travel have also contributed to the surge of video conferencing deployment with many companies installing systems into even their smallest offices if only for contingency or simply for consist operational facilities company wide.

Many other technologies go hand in hand including flat panel monitors or projectors for presentation; interactive whiteboards, which allow your conference audience to physically see you presenting and changing screen content as it happens.

The advent of high definition technology has brought distance learning on dramatically as the quality of images is detailed enough for surgeons to demonstrate intricate clinical procedures live; during a call.



## **Identifying the correct solution for your organisation**

It is important to understand what you are setting out to achieve and how you intend the system to be used. Who do you want to talk to, what systems do they use and why?

There are various options to consider and it very easy to get confused with all the variations that are seemingly readily available for minimal cost. The term video conferencing covers a multitude of variations and can also encompass low cost web conferencing tools such as Skype® and Instant Messenger®. These use low cost webcams on a stand alone PC to provide basic conferencing facilities across the Internet. These rely on the activity level of the internet and some would argue that they are a great tool for speaking to family abroad but is not of sufficient quality for a business meeting.

**One quick call maybe all you need to test and measure this.**

The other end of the scale is a bespoke room with designed lighting, quality audio and high quality cameras perhaps used on multiple screens like the very latest Telepresence systems costing anything up to £350k. There are many options in between.

Do you need a system that will connect to a single system during a call or do you need to be able to connect to multiple sites simultaneously for a group conference call. Most systems have an inbuilt option to connect to multiple sites, depending on the level of sophistication required you may wish to expand the system to allow connection of lots of sites in a single call. If this may only be an occasional requirement then you may consider it more cost effective to rent the services of a 'conference bridge' who will administer your call and bring multiple sites together into one call even if your own systems capability does not usually allow this.

Is your system going to be used in a single room or moved around between rooms? Do you an existing audiovisual resource to use as a screen. Does your company have the required network resource to allow use of the system, have a look at page 10 which describes the various networks available and what to expect from each one.

Do you wish to use multiple cameras on your system to perhaps show off another area during a call? A production line perhaps or a bust call centre. Will you need to share a PC presentation during the call or a picture of an object?

Make a wish list of desired uses, no matter how far fetched they may be. Far better to question a possibility before making a decision instead of finding out subsequently that you have missed an opportunity to acquire a system that would enhance your potential use. Choosing the correct partner for your purchase should assist as they should know the right questions to ask that will reveal the information needed for an accurate recommendation.

## **Compatibility Standards**

Each video conferencing manufacturer produces systems to be compatible with certain international standards.

There would be little point in different standards, as this would seriously impede the use of video conferencing as a global communications tool. The International Telecommunications Union (ITU) has a series of internationally accepted standards, which govern audio and video communications, the most widely used of these standards are:

- H.320, for video conferencing using ISDN telephone lines
- H.239, for sharing PC content across a video conference link during a call
- H.323, a standard for IP (internet) based communications
- H.261, a video standard for use over ISDN telephone lines
- H.263, a video standard for video compression during a conference call
- H.264, a high definition video standard

Session Initiation Protocol (SIP) is a relatively new protocol widely used for IP based communications. It is speculated that this will eventually replace H.323 for IP based communications, if this is the case there is no reason to suspect that support for H.323 systems will disappear overnight due to the sheer numbers being used.

It is fair to say that recognised brands have great regard for compatibility and that interoperability between them remains at a reasonably high standard.

It is, however, usual that most organisations will standardise on a brand in order to maintain consistency and to facilitate a single point of contact for systems support.





## **Which Network is Best?**

This is the question that often promotes the greatest debate and is also probably responsible for the surge in new systems sales.

The type of connections used fall into two categories. ISDN2 (Integrated Service Digital Network), common place line types in many offices and IP (Internet Protocol), which in its raw format is the Internet.

All users of video conferencing want picture stability during a conference call. It is only quite recently that organisations have managed to start implementing faster and more cost effective Wide Area Networks (WAN's) that have brought home a cost saving advantage for video conferencing users. Actual calls across an IP network attract no variable call cost; you only pay for the line. With ISDN2 your call is charged by the minute per line, the same, as a normal telephone call would be. The higher your connection speed the better the call quality will be. This is where the two connection types differ so much.

With an IP call this is simply a matter of having more bandwidth to increase the call quality. With an ISDN2 you need more ISDN2 lines and as each line has two channels this equates to two telephone calls each time you dial out on the line. Remember that the higher the connection speed the better the call quality. As ISDN2 lines can be grouped together many users use up to 8 channels of ISDN2 for conference calls (a 512K connection speed) so this will mean a total of 8 calls all charged individually for the duration of the call. An equivalent IP call will be free...

An ISDN2 line is a closed circuit, which established a dedicated connection between the individual systems in the call. As it provides a direct connection the quality of the call is generally good, as you are not sharing the line with anybody. Depending on the quality required you could use anything from 128k upward, the higher the speed the better the call quality.

An IP connection in its raw format is a broadband line, which uses the internet to transfer data packets. There are no call costs but you do have to pay a rental on the line. On a simple broadband line your connectivity may be limited if you share your connection with others. Ask your service provider what your contention ratio is, the higher the number the more likely the possibility of a slow connection resulting in poor video conferencing performance. This is because of the unpredictability of the packet switching nature of the Internet. If your company has a dedicated network then it is likely that there will be no quality of service issues. Each case should be looked at on its own merit before determining any possible connection issues prior to installation.

## Choosing The Right Equipment

### Desktop Systems

#### **Typically only suited to single person use**

For simple one to one conferencing, especially useful for home workers, there are software solutions which utilise a simple webcam and a piece of software, this does perform better than typical web based conferencing and is also ideal for corporate use to save personnel having to move to a room for a one off conference call.



### Set Top System

**Also referred to as mobile systems, they usually end up sat on top of or under a screen of some description.** (We would recommend a good quality LCD screen as Plasma Screens do suffer image burn and video conferencing systems may display a static menu screen for a period between uses.)

A typical system is good for 2-20 people. Some have fixed cameras and some use a more sophisticated PTZ (point, tilt, zoom) camera for tracking around the room. ISDN or IP systems are available and configurations vary between single monitor, dual or triple monitor, projector or a mixture of each.

Many systems have the capability to initiate multi site calls (there is often a cost for activation) and this will put the specification on a par with higher end systems.

Many set tops can be incorporated into larger AV systems as part of a Boardroom incorporating touch screen control from a system like Crestron. Other capabilities also include the ability to share a PC application with the other people in your conference call.



### Room Based System

**These would normally be installed as part of a larger audiovisual system with high quality audio speakers and microphones.**

A room system is usually a permanent fixture although the same system could be used on a mobile trolley if required. High quality built in displays, controlled by a Crestron or similar touch screen control system would be part of the hub of this system which may often be shared among several meeting rooms. Many integrated room systems have other items including a DVD player, electronic document camera for showing printed information or objects to other parties in the call as well as sharing a presentation. This may often be installed in an equipment rack. Due consideration needs to be given to your room layout and lighting.

## **Running Costs**

By far the main investment is the initial acquisition of the equipment. On the face of it this may seem expensive especially if you are furnishing multiple offices.

Many organisations choose to lease their solution so that they have the option to change or upgrade in the future. This widely accepted acquisition route is cost effective as it allows you to budget accurately for the future whilst also enjoying any tax breaks associated with lease or rental of capital equipment. Most companies lease vehicles and general office equipment so why not their audio and visual systems.

So, lets cover ongoing running costs...

If you are using the system across digital ISDN2 lines then remember these lines need to be installed and are supplied on a quarterly rental basis. The more lines you have the better the quality of call because you will have more bandwidth available for the system to use. Call costs are based on conferences dialled out by your system. Any calls into your system are paid by whoever is calling you and are usually charged per channel on a per minute basis. There are lots of least cost routing options available but you need to choose your supplier carefully to guarantee quality of service. British Telecom do publish their call rates on the web.

Conferencing across IP exploits your own infrastructures availability so essentially there is no additional rental or call costs. If your connection is limited then you may find the need to increase your bandwidth by buying or renting a larger connection facility. Each case needs looking at on its own merit. Your IT department will no doubt be able to advise on the capabilities of your systems.

All new video conferencing systems come with a manufacturers warranty. This is usually a return to base warranty with a repair turnaround of anything up to 30 days. We advise our clients to consider a support contract that will guarantee them a same or next day engineer call out and a replacement loan system while their own is fixed. Video Conferencing systems tend to be mission critical items so adequate support is essential. Support contracts usually also entitle you free of charge software upgrades that are often released to enhance the user experience and functionality of the system.

## **Standard or High Definition**

HD is everywhere. Manufacturers would have you believe that you could not possibly continue watching standard definition TV at home and that the only thing you can possibly buy is HD. It is fair to say that the difference High Definition makes to a picture is dramatic. But surely each user should be able to make up their own mind how they want to view a picture?

It really is back to the first question. What do you want to use your video conferencing for now and in the future?

The future is definitely leading towards HD. Traditional, standard definition has provided the building blocks for the future and given us the ability to meet face to face over distance. For many organisations, just that facility is perfectly adequate and still delivers the ability to hold meetings whilst sharing presentations.

High definition imagery moves things to the next level by delivering up to ten times the image quality. There are some trade offs. The cost premium is significant although technology advances and competition will drive prices down eventually. High Definition is a very different viewing experience. It will redefine people's expectations about what to expect from a video conferencing experience. Every detail is clear and crisp. This is already proving invaluable in distance learning especially in medical applications. It is easy to see why when a standard definition image contains just over 101,000 pixels and HD contains over 900,000 pixels. Delegates no longer need to sit close to the camera to be viewed clearly.

There is a trade off; High Definition requires a higher quality connection to be effective. For many in the UK that may not be possible, or may just prove too costly to achieve. Infrastructure is becoming more affordable and in many cases the equation of cost saving against expense still works positively.

## Choosing The Right Supply & Installation Company

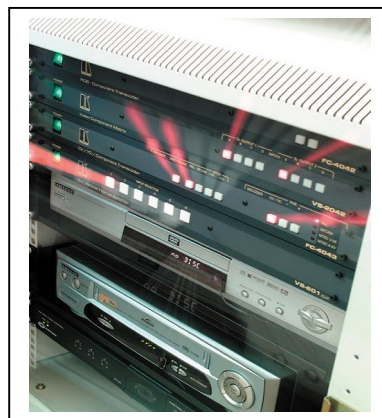
If your video conferencing requirement is simple you may decide to purchase from a reputable company and set it up yourself. This will save you some money but remember you will also have to trawl through the 200+ pages of the manual and learn how to use and install it your self. A quality supplier will assist with this for you.

If you are integrating the new equipment into an existing system or designing a brand new one then a professional integration company is the best route for you.

They will take into account the equipment you already have and integrate it into your equipment rack if you have one. Post installation support is essential and you will find that many professional organisations provide a test number for ensuring your new equipment can speak to the outside world as well as a good deal of technical support.

If your systems are mission critical then it is worth considering a service and maintenance contract, as this will often include period scheduled maintenance and a facility for obtaining a loan system should your own fail.

You can take a chance but should your unit fail during the warranty period then expect to wait a few weeks at the least for it to be repaired under warranty.



## Installing Your Video Conferencing System, Room Design

It really is not just a case of sticking a system in the corner or on the wall and hoping for the best. If you are going to the expense of installing an audiovisual system installed then make sure it is going to offer a comfortable user experience or it will not be used as much as the budget you spend dictates.

Care should also be taken when deciding wall colour, furnishings and lighting. Simple elements such as sound quality and position of your new equipment in relation to windows are often forgotten.

Many meeting rooms are decorated white as a way of creating a light and airy meeting environment. Nothing could be worse for video conferencing. Pale tans and blues work well as they are neutral colours but experience suggests that the best backdrop behind delegate's heads is a darker blue colour. This makes participants more defined, as there is no reflection back into the camera.

Any shiny objects such as table tops, mirrors or pictures in the camera line of site could cause the camera to over compensate for lighting or even go out of focus. The furniture should always be arranged in order to maximise the number of seating positions so that each participant in call can be within camera shot if required. For smaller meetings, focus on a 'top table'. Larger meetings usually suit a horseshoe shape with the camera being mounted central to each point of the table arrangement.

Many meeting rooms have windows, which is the downfall of any modern camera. If the camera points towards a window the image will be impaired as the cameras shutter closes to restrict the amount of light going into the lens. If you must use a room with a window then ensure that you have adequate blinds to block the glare. With the blinds close you will need to rely on the rooms lighting, which should as even throughout the room as possible to reduce shadowing. Do not point lights towards the camera, this is like pointing it to a window without blinds. Modern lighting with quality diffusers work well and often lighting can be controlled as part of an audiovisual system so that the correct levels are set when you select video conferencing on your touch panel.

The above is so important especially as most videoconference systems use some form of flat panel as a display device. Just think of the reflection issues you have at home when trying watch TV on a summers afternoon.

