

Visual Impact

The emerging face of business collaboration

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Effective communications make use of many of our senses but what we see presents a huge amount of information – a picture is worth a thousand words – and can convey all sorts of meaning with a glance. Face to face, we can rely on visual cues, but the amount of information transmitted in more distant communication is limited by cost and complexity. As this cost falls, while the costs of transportation, both environmental and commercial, rise, broader use of remote visual communications becomes increasingly viable. But, after the relative anonymity and privacy of more discrete forms of communication – letters, email, the telephone – is the experience useful and comfortable for the individual and does video now add sufficient value to the organisation to justify the cost?

- Businesses rely on many modes of communication, with email now as important as the phone**
While most still prefer to meet face to face, especially for meetings inside the organisation, many forms of remote or electronic communication are almost as important. For many organisations, email has become a vital tool, replacing not only the need to send a letter or fax, with around 95% of businesses thinking their use of email will continue to grow.
- Meeting face to face can be both costly and ineffective**
Despite this use of other media, it is still very valuable to see the other participants to gauge emotion, establish trust and grow relationships. But, not only are travel costs becoming increasingly significant, so is the time that has to be committed to scheduling, rescheduling and participating in a meeting. This escalates with the number of attendees and the distances that have to be travelled as dispersed teams and separate organisations try to work in collaboration.
- Productivity, not travel costs, is the main reason users replace journeys with video**
While saving money by avoiding travel and environmental concerns are often mentioned as benefits of video conferencing, those using it are more influenced by the productivity gains it offers and the increase in focus and attention of participants. There is also a recognisable personal benefit in freeing up time, releasing a weighty number of hours for the work/life balance.
- But those without video conferencing today are looking to cut future travel bills**
Short term travel costs, commuting and the longer term environmental issues are more important potential benefits to those currently without video conferencing solutions. Tangible and measurable benefits appeal to those evaluating what is still seen as a substantial investment.
- IT infrastructure capability needs to align with user demand and strategic direction**
There is a strategic drive for productivity and cost reduction, coupled with user demand for collaboration tools. Infrastructure investment plans are too conservative, and the mismatch is leading to back door deployment, which ultimately will not be in the best interests of the business.
- Visual technology starting to match the breadth of needs**
Frequent, informal and short visual communication takes advantage of low cost cameras, available bandwidth and simpler set-up. Desktop video will be broadly applicable for future communications in certain circumstances. The high end offers a growing range of expensive, but high quality 'immersive' visual communications suites, where the experience can be almost as good as "being there".

RESEARCH NOTE:

The information presented in this report was derived from 150 interviews with senior IT influencers and decision makers completed in late 2006 across the UK.

Respondents were from a mixture of large multi-nationals and medium to large national organisations, from across a broad cross section of industry sectors. In order to compare users and non-users half of the sample used are existing users of video technology.

Conclusions

The technology issues surrounding video have been addressed, driving down costs at one level and improving the quality of service at another, and now broader social issues make it very interesting. Restrictions and costs of travel, the difficulty in making everything clearly understood using other media such as email or the phone, the need for closer collaboration across larger groups and distances, and the attitudes and experiences of those entering the workplace all contribute towards the growing value and acceptance of remote visual communication. Initial thinking may start with high ideals of cost savings and environmental impact, but the real gains are productivity and business efficiency.

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1. Introduction

Businesses and individuals have an increasing number of communication tools available to them allowing contact anywhere in the world, at any time using a variety of media.

Different types of communication systems, each successively either faster, more interactive, or containing more information, have evolved; letter post, the telegraph, telephones, fax machines, email. Now we are in a world where the different media overlap, and the communication is not only interactive and instant, but collaborative, with many individuals working together at the same time, remotely.

The speed and ease of response is fraught with the danger of being misunderstood, especially when using media which do little to convey emotion. Emails which look positive to the author may convey a completely different meaning when received and read. Even listening carefully on a phone call, it is impossible to detect the facial expressions that represent the caller's true intention or how they really feel.

Nothing is quite as good as actually being there in person, face to face, but the costs associated are relatively high and increasing. At another level there is the increasingly perceived impact on the planet, the environmental cost of travel that could perhaps have been avoided.

For the business there are the direct costs associated with travel, and the indirect costs of time and lost productivity. For the individual it imposes on personal time, affecting work/life balance, increasingly, under the various raised levels of threat for rail and air travel, it may represent a risk to their personal safety. This threat is of increasing importance to the business as well – the loss of a senior member of staff can have a massive impact on the fortunes of the business.

Visual communications and video conferencing offer the potential to have face to face meetings without the need to travel, but the technology has historically been expensive, sometimes difficult to use, and not quite close enough to appear like having a face to face meeting. So, not everyone has been comfortable with the experience.

Remote video technology and the individual's perception of it have changed as the Internet has become more pervasive, with more and more people using rich forms of media to communicate and collaborate with remote friends and colleagues. The increasing acceptance of even low-end person-to-person video via web cams as a means of interacting is laying the foundations for the use of solutions aimed at better levels of visual experience.

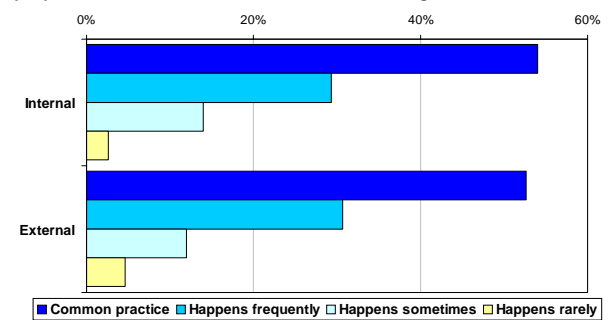
The aim of this report is to look at the impact and potential for visual communications in the workplace for small, medium and large enterprises and is intended to be read by those with responsibility for sourcing products and dealing with suppliers. As a background, 150 business and IT managers were interviewed from companies across the UK, half that have video conferencing or communications of some form and half where there are no such systems.

2. Distance no object

All organisations have a diverse set of communication needs, but fundamentally most employees need to communicate internally with one another, and most need to communicate outside the organisation with customers, suppliers and partners (Figure 1).

Figure 1

How much do employees have to communicate and collaborate with people in other remote sites inside or outside the organisation?



At one time, internal communications would be a simple matter of walking over to a colleague or to another department, most organisations being centred and centralised around a core location.

Both internal and external communications have changed. Co-workers and teams are spread not only to other business locations within the organisation's facilities – branch offices, decentralised depots or regional headquarters – but also beyond as employees work part of their days while mobile, at home or on customer, supplier or partner locations.

Increasingly, organisations also have virtualised employees – many specialists are now working as consultants to many companies, who gain cost savings by only paying for time utilised, rather than for a full time employee. However, these consultants and contractors still need to be included in the internal communication and collaboration that takes place.

There are many reasons why working locations are changing. Work-life balance has been very topical in recent years, and as well as legislative change from government, there are other demographic and commercial pressures:

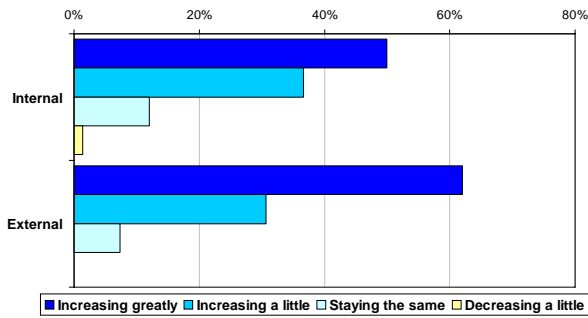
- An ageing population that is not only working longer, but looking for different phases of work during their working life and even a blurring into what is meant to be retirement.
- More transient employment, not only because of increased migration, but also a growth in small owner/consultancy businesses giving flexibility to both employer and employee.
- More women in the workforce: the Department for Work and Pensions expects 80% of growth in the workforce to be coming from women. European directives have increased the flexibility of both maternity and paternity leave, again with an impact on working choices.
- The economics of commercial premises. As city centre prices escalate, out of town locations become more attractive. Regional variations and government-led redevelopment incentives mean re-location of all or part of the workforce can be cost effective
- Environmental pressures to reduce congestion in major cities, and cut carbon emissions. This means less unnecessary travel, both commuting and other business journeys and a drive to cut down on the heating and lighting of underused office space.

Locating employees where they need to be, both from a personal as well as business perspective benefits the individual and organisation by reducing office and travel costs, improving staff retention and reducing absenteeism. (According to the Department of Trade and Industry, a

quarter of employers cite home and family responsibilities as one of the five main causes of sickness absence.)

Communicating and working closely with those outside the organisation, once the domain of relatively few employees - those tasked with selling to customers or purchasing from suppliers - is also becoming more widespread (Figure 2).

Figure 2
How is the need for communication and collaboration changing?



This communications challenge is exacerbated by different commercial agendas, different organisational cultures, and the different languages being used. This might be the international variation of mother tongues, but will also be more likely to reflect the varied jargon, phraseology and meanings understood in different types of organisations.

If we define effective communication as increasing the level of mutual understanding, there are clearly many challenges to overcome even before any technology is brought to bear.

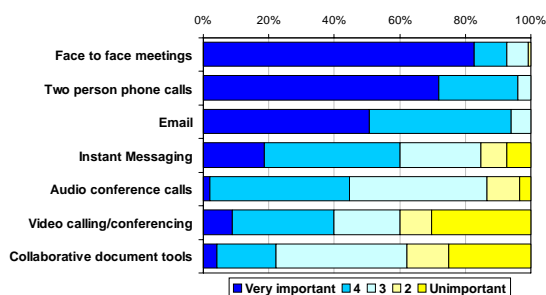
3. Communication complexity

Businesses have a wide array of communication tools available to them. This provides the individual with the opportunity to select the most appropriate for each circumstance.

Alternatives

Face to face meetings are still the most important form of communication and provide the best opportunity for a rich and meaningful interaction. Finding and reserving time to meet with more dispersed organisations, especially when employees face increasing pressures on their time means that the phone and email are also very important (Figure3).

Figure 3
How important are the following for *internal* communication)

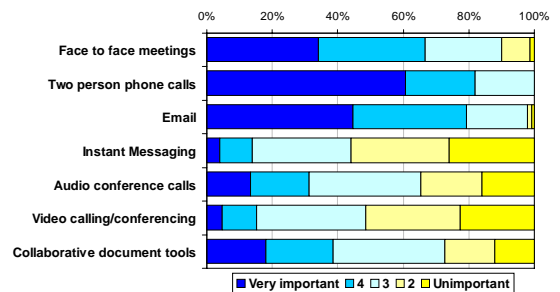


This is particularly true outside the organisation, where historically the phone and now email are the most important methods of communication (Figure 4). Email has become very important in recent years, and for many it is critical to their business.

Other, perhaps more sophisticated methods of remote collaboration and communication, such as sharing documents, video conferencing or even instant messaging have yet to be considered as important as email, although each has strong support among its own regular user communities; video conferencing in the boardroom, document sharing among professionals like doctors, engineers or lawyers, and Instant Messaging among those who have grown up with the Internet.

However for many, email provides workflow, document management and collaboration as well as simple message passing, and for others it offers a way to avoid other forms of communication.

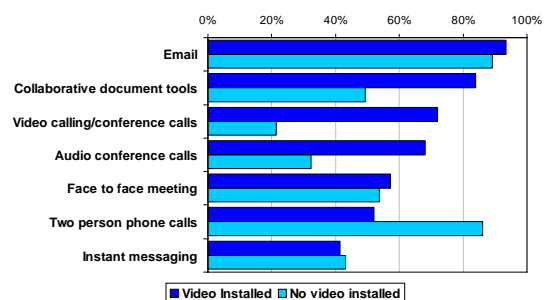
Figure 4
How important are the following for *external* communication)



Email is of course fraught with challenges. Although not interactive or immediate, many authors seem to think that once written and sent, an email will be read and acted upon almost immediately. They also forget that their emotion is unlikely to be conveyed with any accuracy, and often forget how easy an email is to forward, and how difficult it is to make it completely disappear, copies often being maintained on servers even when the user has deleted it from the desktop.

Despite these challenges, most companies think they will be using email even more in the future. Beyond email, future directions diverge for those with or without current experience of video communications (Figure 5).

Figure 5
What will you need to do more of in the future?



Those with experience believe they will increase their use of other forms of rich remote interaction – video, collaboration

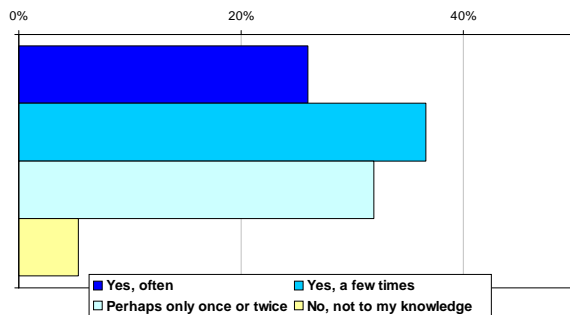
tools, and even audio conference calls – more than face to face meetings or regular phone calls, suggesting that some implementation leads to a change in perception. Those without video experience still see the one to one phone call as the main tool along with email.

Misunderstandings

Good communication relies on the listener, receiver or viewer being receptive and attentive to what is communicated, but deadlines, information overload and organisational pressures conspire against this. Modern business communications will often be misinterpreted or misunderstood (Figure 6).

Figure 6

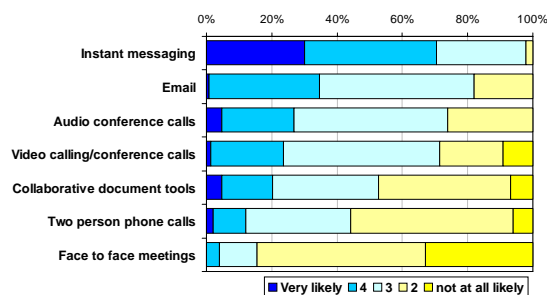
Has anyone ever misunderstood something you have communicated as a result of the limitations of the technology ?



Email is not the only method of communication where messages can be misconstrued or misunderstood, but the potential delay in the feedback loop means that unlike interactive forms of communication, it is difficult to test for understanding. Despite the relatively low levels of corporate usage, the multiple conversations offered by instant messaging are seen as even more problematic (Figure 7).

Figure 7

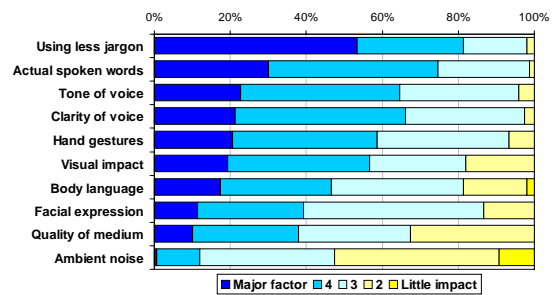
Which of the following are likely to be misunderstood?



The spoken word, supplemented by the presence of the individual with supporting imagery is most important for avoiding misunderstanding. It is the breadth and richness of content, combined with immediacy of feedback and the ability to correct mistakes that makes face to face meetings so positive (Figure 8).

Figure 8

What has the most impact on ensuring a message is understood?



Some of this is dependent upon the individual communicator, especially when there in person, but where technology is used to provide an audio or visual communication channel at a distance, there is the risk that the technology might restrict or impede the individual’s natural talent for communication.

4. The real cost of distance

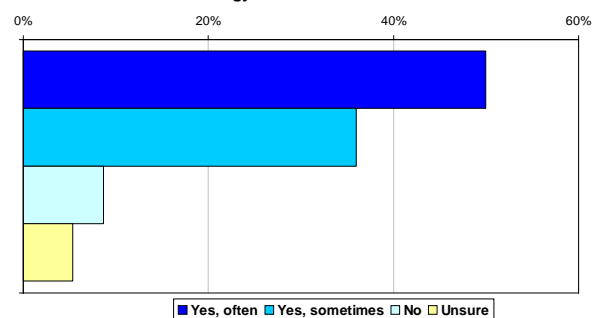
While the ideal for effective communication might be to meet in person, this is expensive in both time commitment and increasingly in resources used. The cost of travel has for some time been recognised as a discretionary burden on many departmental budgets. It is now also viewed as a ‘green’ cost as the environmental impacts are worrying businesses who feel increasingly expected to demonstrate their green credentials.

Travel Policies

The majority of organisations see many examples where employees make unnecessary journeys to meetings. In many cases, the meeting itself may have been unnecessary, and could have been avoided by better communication (Figure 9).

Figure 9

Do employees ever travel to meetings which could be avoided through the use of collaborative technology?



However, like the difficulty of substituting public transport for the personal use of the car, a suitable alternative needs to be in place first that is easy to access and use. There also needs to be recognition that the alternative will not be suitable in all cases.

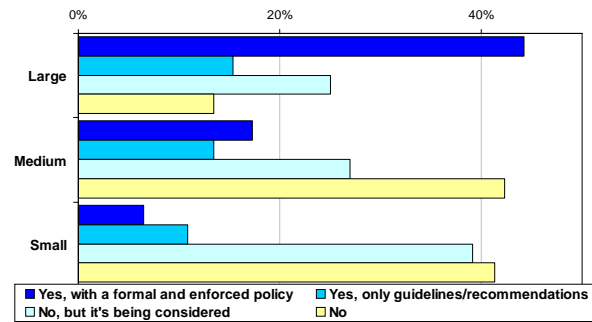
With suitable collaborative communication tools in place, individuals can be made aware of how to get the best out of them, when to use them and how to choose between technology and travel.

Many companies will set this out as part of a travel policy. Rather than being complex documents, filled with “thou shalt not’s”, this is an opportunity to make employees aware of alternatives they might find more preferable, and should also be used to avoid misunderstanding or feelings of preferential treatment.

It is still predominantly the bigger companies who put in place travel policies with formal rules and enforcement, but there is an opportunity for all sizes of companies to offer more guidance and recommendations for their employees to have an informed choice (Figure 10).

Figure 10

Do you have a travel department or travel policy which suggests the use of conferencing rather than travel to meetings?

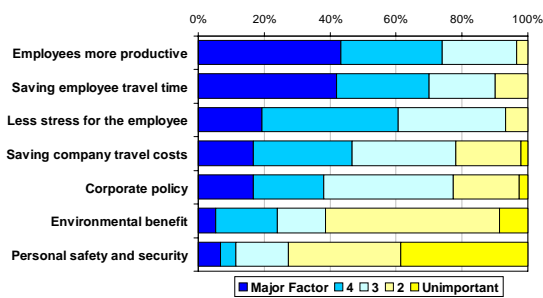


Personal and Global Impact

The starting point for a travel policy is generally when someone is looking to save on travel costs, and often emerges after a particularly bad period of expensive overseas expense claims or when a company has to make budget cutbacks in general. However there are more important reasons for setting out guidelines for how and when employees should travel (Figure 11).

Figure 11

How important are the following reasons for influencing why employees should not travel to meetings?



The time saved by not travelling is valuable to the organisation in terms of improved productivity, but also to the individual.

Gone are the days when making foreign business trips seemed glamorous. Low cost airlines, package holidays and fewer travel restrictions have meant that many people have plenty of opportunity to enjoy or endure the stresses and strains of travel at first hand.

New business travellers also quickly realise that business trips offer few opportunities to enjoy or experience the places visited, and time and cost pressures mean they will frequently be travelling in their own time, extending the

number of hours committed to work. Some will still try to use the opportunity to accumulate frequent flyer miles for personal use, and others may use travel as an excuse to escape from home life.

Familiarity with travel, in particular air travel, in personal lives not only dulled the novelty of the experience in the 1980s and 1990s, but also led to a more relaxed approach to personal safety, and to the environmental impact.

Both these issues moved back into the spotlight during the early part of the 2000’s, with terrorist acts and an ongoing feeling of increased threat level, along with an increasing awareness and concern about the effects of global warming and climate change.

While many travellers remain both sufficiently defiant and phlegmatic to allow their lifestyles to be disrupted by the threat of terrorism, there is now a rapidly increasing desire to make changes for the sake of the planet. Such is the pace of change in general public opinion, media coverage and even corporate strategies, that this is likely to become a very important reason for implementing travel policies with an aim to minimise travel.

Finally, there is the risk that travel might be legally restricted by government action or corporate dictate as well as more regular restrictions caused by natural phenomena. In addition to the risks of delays from changing weather conditions, there can be other external factors. The threat of spreading virulent diseases, such as SARS or the bird flu H5N1, has and could cause government imposed restrictions on individual travel.

There are also the sanctions imposed to limit smog build up in some Mediterranean and South America cities, where some or all private vehicles are banned from entering the city. The flexibility for anyone to travel anywhere at anytime is not an inalienable right.

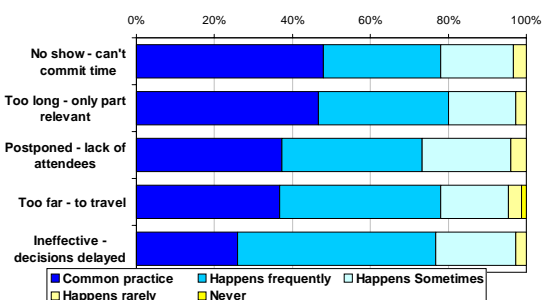
Meeting Efficiency

As well as the impact of travel on overall productivity and time spent by individuals, there are some wider organisational factors involved in how to conduct that most routine of business processes – the meeting.

There are many aspects of the working day that could be improved and made more effective, but for many employees, internal meetings often take up far more time and effort than the results justify. The main areas for concern are that meetings are too difficult to set up and get all the right participants together, too long and often not productive as the right people are not all present (Figure 12).

Figure 12

How often do the following occur in internal meetings?



All in all, this is often very non productive for the organisation and not good for the morale and enthusiasm of even the most driven of employees. In organisations everywhere, internal meetings are cursed every day for their lack of productivity.

The question though is how can businesses live without them? Does a growing culture of inclusion in the decision making processes and a growth in more dispersed individual workers and teams inevitably mean more meetings?

If it does it will mean an increasing need for processes that support collaborative, remote working, but this will need to take into account the volume and value of information that has to be shared.

For some, a conference phone call will suffice, for others more information will need to be exchanged, and yet others will be more emotionally charged. As the complexity of information and importance of a message increases, more sophisticated media become necessary. This leads ultimately to obtaining benefit from seeing live images of objects under discussion and even other participants.

5. The challenges for networked visual media

The potential of video for interactive communications is not new, and John Logie Baird, the inventor of the television thought that it might be a good idea to see someone when making a call.

The first interactive visual conferencing systems used analogue technologies developed from the television, using slower scan speeds to reduce the amount of information to transmit over regular telephony networks. AT&T built the world's first Picturephone in 1956 and unveiled it at the World's Fair in New York in 1964. It became commercially available in 1971 for \$160 per month.

Adoption only really started, however, with the advent of digital telephony networks, like ISDN in the 1980s, which provided sufficient bandwidth for bidirectional video and audio through a point to point link. Even with slight delay or jerkiness from the video and audio compression this provides a relatively useable, if expensive, link.

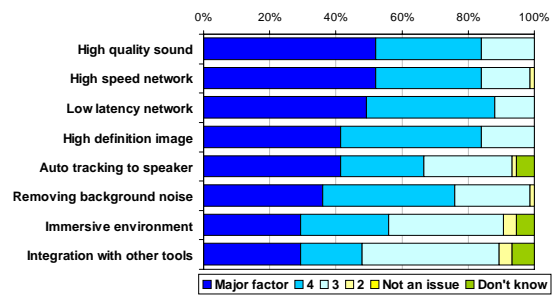
Standardisation of protocols, advances in screen and camera technology and convergence on the Internet Protocol (IP) led to broader and cheaper technologies in the 1990s, and eventually to the emergence of mobile video, low cost desktop video conferencing and "immersive" video rooms. At the highest end, these virtual conference rooms offer large high definition screens, so that participants appear life size audio that appears to emanate directly from the person speaking and a close proximity to eye contact.

Technical quality

Despite the significant advances and especially the widespread adoption of common standards, there are still several challenges that need to be addressed which can limit the effectiveness of visual communications. While the network performance is still an issue, those who already use video conferencing value the quality of both audio and the visual image (Figure 13).

Figure 13

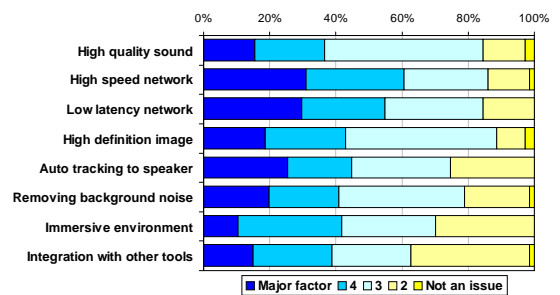
For video users, what makes the most difference to the quality of a video conference call?



The perception among those who do not currently use video conferencing equipment is that network performance is likely to be the main challenge. While for some this may still be true, the past experiences or knowledge of older video systems will still be affecting the perceptions of some (Figure 14).

Figure 14

What do those without video conferencing think might make the most difference to the quality of a video conference call?



But technology has improved significantly, and sufficiently fast well managed IP networks are now available at a reasonable cost. Although improvements in audio fidelity, high definition images and 'immersive' video wall environments will place increasing demands on bandwidth, for the average desktop user, even regular domestic broadband is more than adequate for everyday use.

Social and psychological considerations

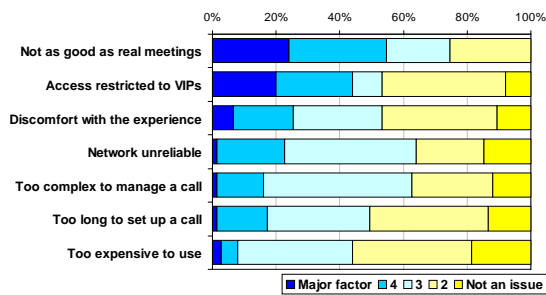
Technology is only part of the challenge. Much of the reluctance to use video has been due to social considerations of how people communicate, as well as the organisational constraints around managing to book a room with a video conferencing facility.

It might be that such facilities are generally reserved for the boardroom or meetings involving senior executives, or in many instances, the rooms where video is installed are simply being used for regular meetings due to the perennial challenge of finding unoccupied space.

Even companies where video is already in use realise that not everyone can gain access to the facilities, and recognise the limitations of the medium compared to meeting face to face. However the cost and complexity prevalent in early video conferencing systems is disappearing and users recognise the technology is easier to use (Figure 15).

Figure 15

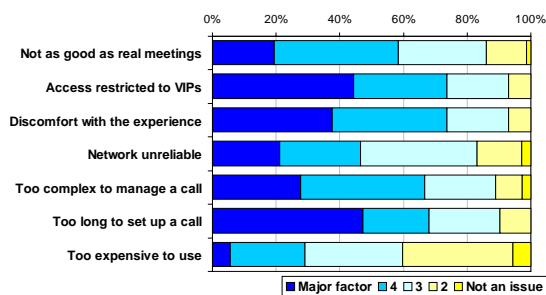
For those with video facilities, why do employees NOT use the video conferencing facilities that are available?



Those with no current video facilities have stronger negative views, and dwell on the limitations that were inherent in the older video conferencing solutions, in particular the difficulty in setting up calls (Figure 16).

Figure 16

For those with no current facilities, why might employees NOT use video conferencing if it were installed?



Most of these technical limitations are now no longer present in modern video conferencing systems, but there are still further psychological challenges to overcome.

One is the lack of direct eye contact. Much of the unspoken messages passed during conversations stem from eye contact, and it is one of the primary mechanisms for controlling conversation flow. In meetings where several people are present, eye contact helps show intention to interrupt or talk, and can show whether individuals are really paying attention.

Video conferencing systems that place the participant image on screen some distance from the camera sightline can sometimes cause confusion, especially in conferences where several people or locations are involved.

In these situations some technology can help, such as automatically tracking the camera to the current speaker and good use of stereo audio to correctly position from where the sound is emanating. However the ultimate solution involves placing the camera where the eyes have been projected on screen. This means either very clever positioning, or in the case of some research in this field, using stereo cameras to re-orientate the captured image to 'face' the viewer.

Another problem is self consciousness. Many people are more concerned with their appearance 'on camera' than they would be in person, and certainly than they would be while making a phone call or sending an email. This causes them to communicate in a less relaxed and natural manner during a video call.

While this is a major difficulty, it is one that tends to diminish with usage as the user's comfort level rises. There are also cultural and age-related factors, again partly related to the familiarity and frequency of appearing on recorded and live video footage. Just like the early days of self-consciousness everybody felt when first recording voice mails, this will reduce with increasing familiarity.

The growing acceptance of video surveillance, monitoring and even short videos recorded on devices like mobile phones means that these concerns are less likely to inhibit future generations of employees.

6. Generation IP joins the payroll

This new video aware and IT confident generation is already entering the workplace. Brought up in an environment where the Internet and multi-media are pervasive, they are the IP generation.

For as long as they have had access to the TV remote control, this generation have always been able to time shift their television viewing habits with a video recording device. They see video cameras routinely used for monitoring and security. Reality television is no longer considered to be a novelty 'fly on the wall' or an intrusive Orwellian 'big brother', but a much more acceptable and normal part of everyday life.

The Internet added a new dimension to accessing video content. From the days of the first webcam image broadcast over the Internet, the Cambridge University coffee pot in 1991, low cost webcams have made online visual access to any part of the planet – volcano cams, surf cams, snow cams – simple. Adding this to chat and instant messaging services was a natural progression.

This has now moved a stage further with user generated video content – YouTube and video blogs – where anyone from anywhere can film their own quarter of an hour of video footage and place it on the Internet to see if it becomes their own 15 minutes of fame.

Accessing and creating video content online is much more common with this younger age group than the working population as a whole, and this will undoubtedly have an impact on what technology and communication tools they are comfortable using and what they will expect in the workplace.

This is a broad phenomenon with similar trends across different countries and cultures, although at different adoption rates. According to Ofcom's International Communications market report for 2006, the number of 18-24 years olds downloading and watching music videos, or watching television programs online is significantly higher than the average for all age groups.

While the appetite for music video is no surprise, this age group is also far more likely to be downloading and watching user generated content, file sharing and using online networking sites to meet new people.

These increasing levels of familiarity and comfort with all forms of online media as well as widespread social use of live as well as recorded video footage, make the use of video in all forms of communications seem increasingly normal to this generation.

"Making a video conference call" is unlikely to be an expression Generation IP would use, as they are far more

likely to see video as being a natural extension of another form of communication or media they are already using.

The previous generation saw computing move from the protected enclosures of the glass walled machine room to the desktop and portable devices. Generation IP are also likely to expect the facility to use video in communication to be available whenever and wherever they need it, rather than located only in a special or dedicated location.

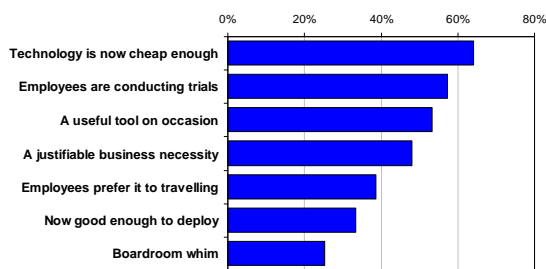
7. Strategy and Implementation

Investment in video conferencing has often been considered as a significant decision and taken at senior levels. For many organisations it has, after all, required them to dedicate at least one meeting room, probably per major location, for use as a video conferencing facility. It has also required a dedicated network connection to each location, and often someone to be on hand to manage its use and train or assist users.

All this is on top of the investment in equipment, but now the widespread access to high speed wide area networks running standard protocols, and the availability of lower cost conferencing systems, cameras and video compression technology has made video a simpler investment decision (Figure 17).

Figure 17

Why has video been installed?

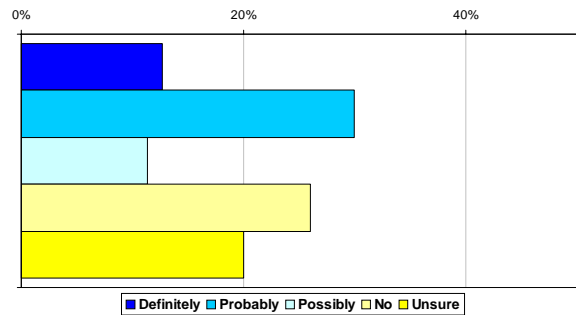


So simple in fact, that anyone with control of a departmental budget and unrestricted access to the core IT network can trial video services between two or more points. If it is sufficiently useful to provide business benefits from even occasional use, the level of investment does not require high level authority.

This has led to large numbers of deployments through the back door, as managers and individual users see how easy it is to deploy low cost collaborative solutions. By the very nature of these products, IT and communication managers will often not realise they have been deployed, and the perception of current levels of user deployments in Figure 18 is likely to be an underestimate of the size of the challenge.

Figure 18

Are users implementing back door solutions with products such as MSN messenger, Skype, Yahoo messenger, Net Meeting, desktop webcams etc?



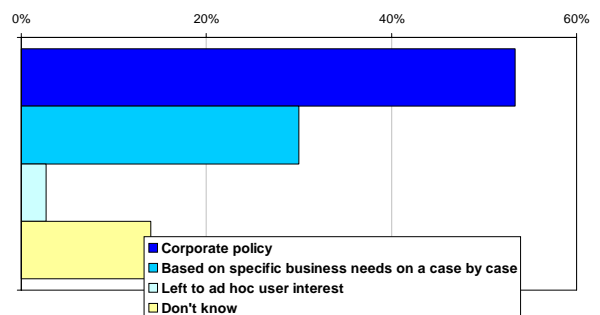
There is the potential for this to become the bane of IT infrastructure managers just like previous user deployed technologies, such as the attachment of Personal Digital Assistants (PDAs), mobile email devices, wireless LAN access points or Voice over IP telephones, to the network along with the uncontrolled usage of consumer-focused instant messaging clients that Quocirca has seen proliferate in large and small organisations.

Mobile devices and wireless LANs do cause significant security concerns. However the growing unofficial use of collaborative tools including application sharing, VoIP and video can have an impact on the network capacity and bandwidth available for other applications.

This means it is important that despite the low initial cost to trial, decisions to deploy these types of collaborative applications should be taken as part of a strategic policy (Figure 19).

Figure 19

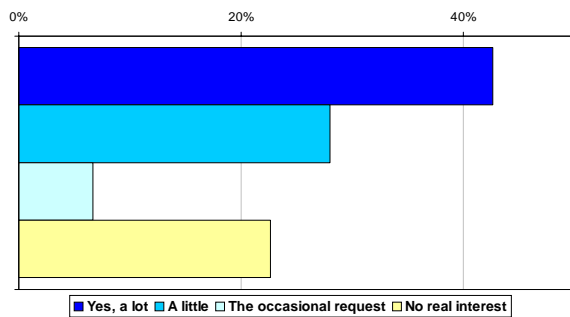
How should the deployment of desktop collaboration tools be controlled?



While waiting for strategic direction, it is important for IT departments and communication managers to realise that there is pent up demand from users for this type of technology, and the low costs make it all too easy to experiment (Figure 20).

Figure 20

Is there user demand for desktop collaboration tools, such as sharing applications, desktop audio or video conferencing?



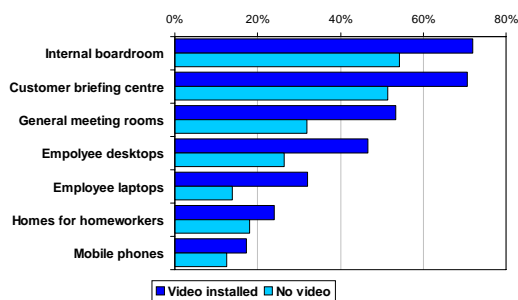
Some of these experiments may have a detrimental effect on the network, and some will fail because of uninformed technology choices. Rather than try to stamp on such endeavours completely, the IT and communications departments should take a pragmatic approach to encourage those users wishing to try collaborative tools to be involved in IT-led pilots. This way the impact on the infrastructure can be controlled, and users can be guided towards solutions that can be more widely and manageably deployed.

8. Video where?

With the level of investment required for video conferencing systems dropping, deployments are spreading beyond the boardroom and executive briefing centres, and onto desktops, laptops and even mobile phones. Those organisations that already have video as part of their communications have already noticed this trend to more personal video usage (Figure 21).

Figure 21

Where are video conferencing systems installed and where would those without systems install them?



There is still some hesitation from non-users, and perhaps a belief that the lower cost video technology has not yet moved far enough forward to be sufficiently effective outside of the more expensive traditional boardroom systems.

Part of the perception stems from the fact that almost everybody has had some experience of video communications. Some will have been put off by older dedicated systems in the workplace that were difficult to use or they were inadequately trained. Infrequent use, either caused by difficulties in accessing or using the equipment only reinforce how different and difficult the experience is.

Others will experience satellite video calls almost every day as part of news reporter broadcasts. Some will have tried and perhaps failed to make video calls on their mobile phones. In

both the experience is jerky and low quality, supporting the perception that video technology is not quite ready for serious business use.

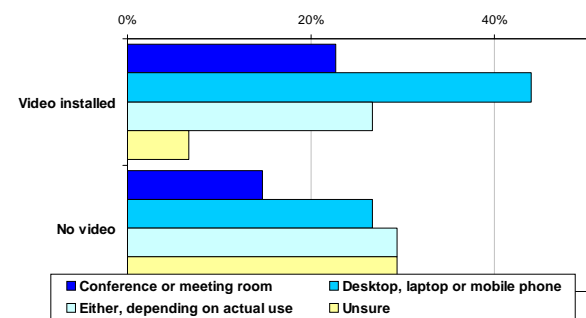
A more positive view might come from the use of video to supplement or enhance long distance calls to relatives or friends using the Internet and free or very low cost VoIP and Instant Messaging services. Although the desktop PC and laptop webcams are low cost, the improvements in compression and consumer availability of broadband networks make this quite acceptable.

The approach to the video experience is also different from the concept of having a 'video conference'. People are using the technology to make a text or voice communication link, and then extend it to video when the need arises.

This same approach makes sense in the working environment. Both existing video users and those with no current video deployments see the use of more personal video systems as the most effective way to go (Figure 22).

Figure 22

Where are video conferencing and collaboration services more effective - personal device or a conference or meeting room environment?



This does not mean there is no demand for more sophisticated systems. At the other end of the scale, the communications technology is being stretched further to make the remote experience as lifelike as possible.

This is partly as a result of improvements in network speed and capacity, but also enhancements in both audio and in particular video quality. High definition cameras, high definition flat panel screens, and improvements in image encoding and compression ensure that much more visual information and clarity is available.

This has been supplemented by improvements in sound processing to cancel out background noise, remove the distracting echoes, and match the direction of sound output to the actual speaker. On the most effective immersive systems, this creates a more natural experience and allows the participants to suspend their disbelief that they are not really facing each other in the same room.

Broad industry standardisation and adoption of common protocols has improved interoperability, and also led to extending the use of video. Rather than only being able to communicate between two identical systems or those of the same capability and resolution, those on remote lower quality systems can be added into a higher fidelity call.

The improvements in interoperability, coupled with developments at both the high and low ends of the imaging technology, allow video to be effectively used at a much greater number of endpoints. Just as with any other system of nodes, Metcalfe's law of the increasing value of a network based on the square of the number of participants, kicks in.

The real question then is, how much does the increasing value of the communication network translate into value for the organisation and the individual users?

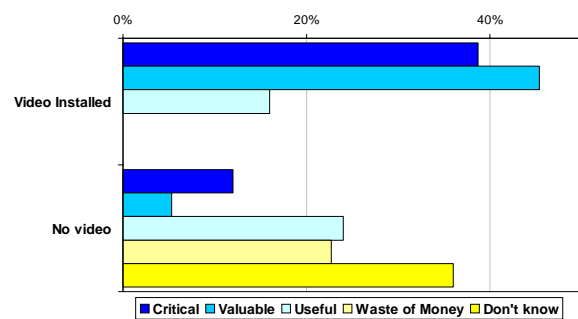
9. The value of video

At one time video conferencing was seen as a technology that many companies had deployed, but had not realised actual business benefits through usage. This was partly due to the expense and partly to the difficulties of using it. It was also because working patterns and external influences did not sufficiently warrant its use as a replacement or supplementary means of communication.

The advantages of remote presence were not seen as real business benefits, but the views of video users are now strongly supportive, and even a significant percentage of non-users believe there might be merit (Figure 23).

Figure 23

What is the business impact of video communications?



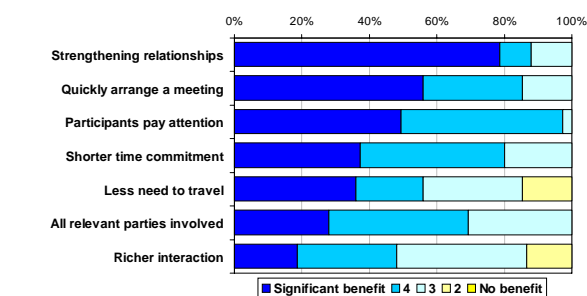
A significant percentage of businesses that currently use video conferencing recognise it is more than useful to the business, and less than a quarter of non-users think it would be a complete waste of money.

Many non-users are undecided or unsure. Although the technology has advanced and standards matured, it is the impact on how people interact that is harder to gauge – how will it change the way people work?

The feedback from existing users is very positive. Video helps in building relationships where individuals meet infrequently, or have been introduced by another medium, say an email or on a phone call. It is also seen as making the meeting process more efficient; getting the right people involved for as short a time commitment as possible, and then paying attention (Figure 24).

Figure 24

How do users regard the following benefits of video conferencing?



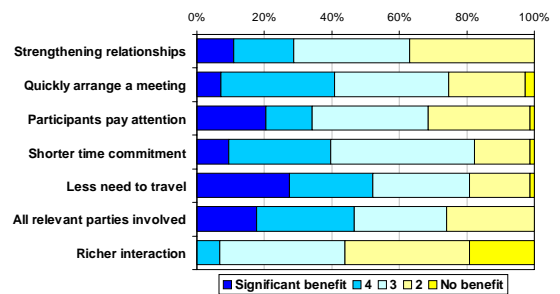
While individual productivity is often a primary perceived benefit this has a dramatic knock on effect on organisational efficiency. Time wasted in meetings generally affects a large proportion of attendees, and multiplying the time cost by the number of individuals affected soon adds up to a lot of lost group or team productivity – the impact on the bottom line has the potential to be huge.

Outside of the time taken for the meeting itself, there is also the time to organise diaries, travel time to get to and from, time taken afterwards dealing with those who couldn't attend, and the general time wasted from discussion and outpouring of frustration at the lack of progress.

Those companies who do not currently make use of video conferencing are less aware of these benefits, and probably think relationships are still best strengthened by meeting in person. However, the needs and costs associated with travel are more recognised problems (Figure 25).

Figure 25

For those without video conferencing – what would be of benefit if employees had access?

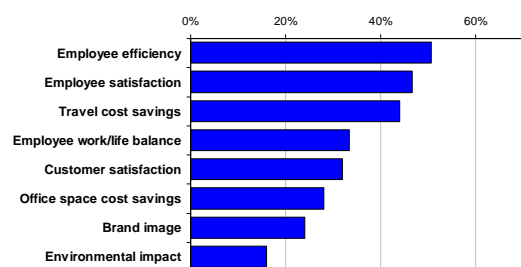


Either way, despite the availability of lower cost systems and higher network capacities, video conferencing will still be an investment that demands some identifiable business return. Many solutions are much simpler to use, but there will still be a need for investment in training, not only the mechanics of using a system, but getting used to the social niceties and etiquette. The cost is not simply hardware, software and networking.

In order to justify the expense, the benefits expected should be measured. Those with current deployments do largely measure their impact, and despite a strategic focus on productivity, also look for cost savings and to assess the impact on the individual (Figure 26).

Figure 26

How is the impact of existing video conferencing systems measured?



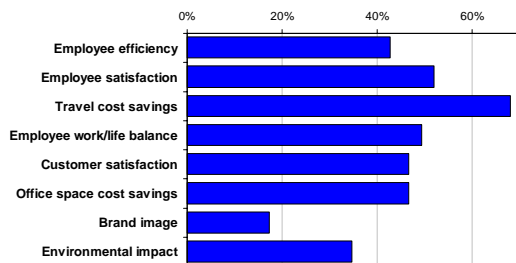
Although environmental impact was low on the list of priorities, assessment of this has rapidly gathered pace, and many organisations are putting in place greener policies.

Some of this concern is driven from wanting to green the company's brand image, some is coming from pressure from employees, shareholders and other stakeholders who want to see businesses driving greener agendas, and of course some managers actually think it is good for the business.

There is also increasing attention from legislators seeking to understand and lower the environmental impact of both businesses and individuals. This too will have a growing effect on costs and operational flexibility, so should play a factor in most businesses mid to long term planning.

This environmental impact and other costs associated with travel are again noted as more pressing yardsticks for those with no current video conferencing investment. For those who have deployed video, the environmental concern, at least in this area is already addressed, but for those without, it perhaps represents a nagging feeling of guilt (Figure 27).

Figure 27
For those with no current systems, how would the impact of video conferencing be measured if it were to be installed?



Travel expenses in particular are simple to measure and their impact on the bottom line can be quickly assessed. There is also a large amount of uncertainty associated with these costs. Fuel prices are becoming increasingly volatile and prone to external geo-political shifts, regional conflicts and changing weather patterns.

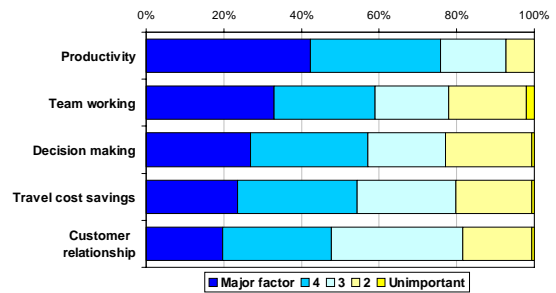
There are also taxation and governmental policy decisions that can impact all forms of travel, from congestion charges and road pricing to other supplementary green levies imposed nominally to change behaviour.

The costs and inefficiencies of travel are not only rising in absolute terms, but also becoming increasingly difficult to predict. This all influences businesses to reassess the value of collaboration at a distance, and look again at how they might be able to exploit technologies like video conferencing.

10. Conclusion

The primary motivation for any investment in technology is generally to improve productivity, but sadly it is all too often not the end result. The focus on collaborative tools is no different, with the internal effectiveness seen as more important than the impact on costs and external relationships (Figure 28).

Figure 28
What are the business benefits from the use of collaboration technology?



Video conferencing is generally widely found in larger companies and in a minority of smaller organisations, and for many of those companies using it, productivity and efficiency improvements, rather than travel cost savings, are the primary drivers.

Those who have purchased video conferencing most recently have benefited from the technology becoming more affordable, more interoperable and more able to sit alongside other IP based applications on a common network infrastructure. Widely deployed video services and resources can be centrally managed in larger organisations, or increasingly offered as a managed service to smaller companies. Conferences, even across multiple sites, can be more easily set up by the users, rather than requiring skilled staff, who will often be in other or remote locations.

This is leading to a change in the way that interactive video is deployed. No longer does it need board level approval and be made available only in boardrooms or awkward to reserve executive briefing room environments. Lower cost systems allow video to be placed in desktop, mobile and home environments, and interoperability using common standards allows the whole mixed environment to work together.

With increasingly common deployment in a wider range of locations, the experience of being on camera is becoming less daunting, even for those born before the age of the Internet and mobile phone. The experience of using video is then a more natural extension to other methods of communication. This means video will be used with increasing frequency, and for shorter durations as it becomes a daily occurrence rather than a special event.

Ultimately it means the term 'video conferencing' should no longer need to exist. The high end, high definition, immersive video calls become 'telepresence', a term already used by some manufacturers, and elsewhere video becomes just another medium for communication.

Its specific purpose will vary from user to user, and situation to situation. But combined with other applications and forms of communication video becomes an escalation route for when text, audio or other media are not sufficient, and the relationship, dialogue and emotion need the further enrichment that visual communications can offer.

APPENDIX

Interview Sample Distribution

The information presented in this report was derived from 150 interviews with senior IT influencers and decision makers across the UK completed in November 2006. 75 interviews were with companies with video conferencing or visual communications systems installed, and the remaining 75 were with companies with no video conferencing.

Distribution of the sample by company size and industry was as follows:

Figure 29

Company size segmentation (Large: 10,000+ employees, Small: < 5000)

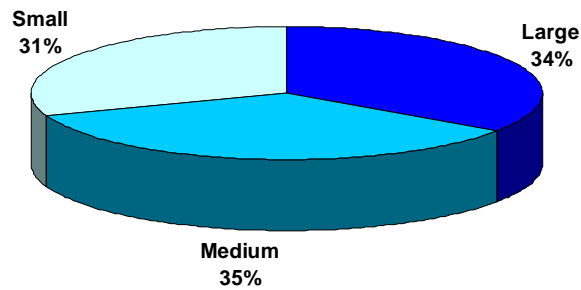
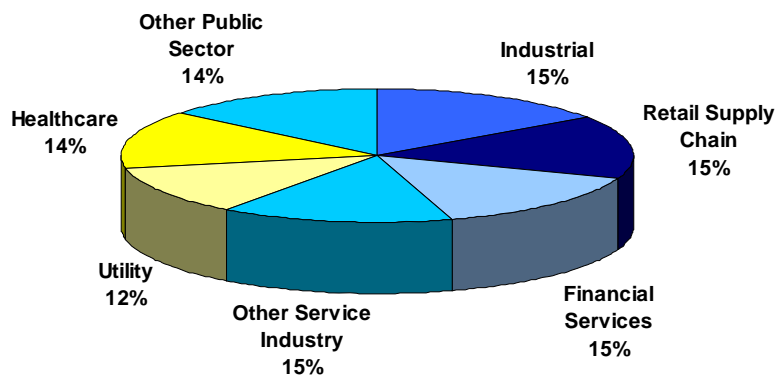


Figure 30

Industry segments



About Tandberg

Videoconferencing is part of a \$4-5 billion dollar real-time collaboration market that includes audio, video, and web conferencing products and services.

With TANDBERG on every continent and in nearly every industry, we are reshaping the communications landscape. Our worldwide growth is driven by the success of our customers who demonstrate how videoconferencing elevates performance — in mission critical communication and day-to-day operations:

- Speed up product development cycles and shorten time-to-market
- Reduce travel expenses
- Make more cost-effective use of billable employee time
- Improve hiring decisions from wider and deeper recruiting
- Improve work/life balance and higher employee retention
- Raise employee satisfaction from faster decision making
- Access experts or employees in remote locations more easily
- Expand your services to a wider customer base
- Improve the environment with lower hydrocarbon emissions, reduced fuel consumption, and less traffic congestion.
- Improve your communication with home workers, customers, partners and suppliers

Our customers come from a variety of industries spanning the globe. In the United States, state and federal government agencies communicate using TANDBERG systems, as well as numerous elementary schools and universities. In Europe, companies like AstraZeneca, Schlumberger and Repsol have implemented video technology throughout their organizations. In the Middle East and Africa, buyers include oil companies such as Saudi Aramco, contract production companies, government ministries, United Nations agencies and non-governmental organizations.

TANDBERG has long-term relationships with numerous Global 500 companies. Our Global Presence Program empowers local channel partners to serve companies of all sizes in their home markets and at their offices abroad.

TANDBERG videoconferencing solutions work seamlessly within existing enterprise environments; further extending visual communications across the enterprise, from telepresence to video telephony to desktop applications. TANDBERG have alliances with [HP](#), [Microsoft](#), [IBM](#), [Nortel](#), [Cisco](#), and [Avaya](#)

As a global company with strong corporate values, TANDBERG is committed to being an environmental leader and embracing technologies that help companies, individuals and communities creatively address environmental challenges.

TANDBERG is a leading global provider of visual communication products and services with dual headquarters in New York and Norway. TANDBERG designs, develops and markets systems and software for video, voice and data. The company provides sales, support and value-added services in more than 90 countries worldwide. TANDBERG is publicly traded on the Oslo Stock Exchange under the ticker TAA.OL. Please visit www.tandberg.com for more information.

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About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with first hand experience of ITC delivery who continuously research and track the industry in the following key areas:

- Business process evolution and enablement
- Enterprise solutions and integration
- Business intelligence and reporting
- Communications, collaboration and mobility
- Infrastructure and IT systems management
- Systems security and end-point management
- Utility computing and delivery of IT as a service
- IT delivery channels and practices
- IT investment activity, behaviour and planning
- Public sector technology adoption and issues
- Integrated print management

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation’s environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca’s mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca’s clients include Oracle, Microsoft, IBM, Dell, T-Mobile, Vodafone, EMC, Symantec and Cisco, along with other large and medium sized vendors, service providers and more specialist firms.

Sponsorship of specific studies by such organisations allows much of Quocirca’s research to be placed into the public domain at no cost. Quocirca’s reach is great – through a network of media partners, Quocirca publishes its research to a possible audience measured in the millions.

Quocirca’s independent culture and the real-world experience of Quocirca’s analysts ensure that our research and analysis is always objective, accurate, actionable and challenging.

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