

Telepresence Guide

Eight steps to understanding the possibilities of telepresence

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1. Introduction

Telepresence: The next best thing to being there.

Did you know that 55 percent of communication is determined by non-verbal cues — namely tone of voice and body language?¹ How many of these important nonverbal details get lost every day in e-mail exchanges or teleconferences? Face-to-face communication is more personal. It builds a higher level of trust, reduces confusion and makes people more accountable for their actions.

Of course, in today's business environment, communicating in person isn't always possible. But video can be the next best thing. Telepresence is a powerful multi-media tool that allows for natural, face-to-face communication even when people are miles — or continents — apart.

What does that mean for your business? Many organizations consider telepresence a key cost reduction tool. It is true; the typical telepresence customer can reduce travel by 30 percent or more, resulting in significant cost savings. Cost, however, is only one element of a video strategy that can also include increased productivity, environmental responsibility and work/life balance.

Telepresence affects the way that business is conducted across an entire organization. With video, you can interview job candidates remotely, enhance telework programs, get real time feedback from suppliers straight to the manufacturing floor, record training sessions and CEO messages and much more.

Today, organizations use video for more than just meetings from conference room to conference room. Video can be a very personal experience when people at all levels of an organization can choose the solution appropriate for them and participate in video calls on their schedule.

TANDBERG, one of Xerox Audio Visual Solutions' key telepresence partners, has developed this guide to help you put together the right elements of a video communication solution, ensure user adoption and measure your post-implementation success.

2. Changing the way people communicate

Discover the benefits.

Telepresence can deliver immediate benefits to your organization. Not only will you save money and improve productivity, but video can also create a competitive advantage by:

Helping you make decisions faster — Inefficient communication wastes an estimated \$297 billion each year in the United States alone.² The time we spend traveling, waiting for materials to arrive or trying unsuccessfully to explain complex issues over e-mail is time that could be better used to bring new products to market or solve customer service issues. Video enables all parties to share ideas, show detailed images and take action more quickly.

Providing immediate access to experts — Sometimes there's just no substitute for an expert. Video enables you to leverage the expertise of a few people across an entire organization without asking them to travel to different locations. Training, translating, consulting and troubleshooting can happen in real time. And, with video streaming and archiving solutions, an expert's knowledge can be saved and accessed by anyone at any time.



¹ Mehrabian, A. Silent messages: Implicit communication of emotions and attitudes. Belmont, CA: Wadsworth
² TANDBERG/Roper, Visual Communication Survey, Reston, VA

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Bringing the organization together — Multiple offices doesn't have to mean isolated teams. After a global expansion, merger or outsourcing initiative, departments often find themselves stuck in silos, disconnected from project goals and a communal company culture. Video creates a virtual meeting room for collaboration, keeping everyone on the same page.

Improving work/life balance — Traveling all day for a two hour out-of-town meeting means sacrificing family and personal time. Not to mention the added stress of delayed flights and lost luggage. By using video to attend that meeting — or even working from home instead of sitting in rush hour traffic — employees can maintain a balance between work and personal life, save costs and protect the environment.

Video is the new green.

A one day worldwide break from commercial air travel would mean sparing the atmosphere approximately 90 million pounds — or 41,000 metric tons — of carbon dioxide emissions. And, that's not to mention the difference that reducing automobile travel and commuting can make. By eliminating unnecessary business travel, telepresence solutions help organizations become more environmentally responsible while improving their competitive advantage.

3. Your return on investment

Imagine the possibilities.

Good news! If you're considering a video purchase for your organization, you have a wider range of options than you did even just a few years ago. The telepresence industry is changing rapidly. With the proliferation of IP, simplified user interfaces and the introduction of new form factors such as personal video for the desk or PC, video is more accessible than ever before. At the same time, the introductions of telepresence solutions and high definition video have raised the bar for quality and design. This expanding video universe also means you'll need to carefully weigh a broad array of features and functionality to assemble the video program that is best for your organization.

The first step? Imagine how your organization might use video. Almost any workflow process that you currently implement with telephone, e-mail or travel can be improved with video. Once video is in place, you may be surprised at the additional opportunities you discover to improve communication. Have a look at the examples below to see how different types of departments have successfully used video.

Executives

- Hold regular management meetings
- Conduct board meetings face-to-face
- Reach key decision makers whenever you need them
- Stream CEO briefings live or record them for later viewing
- Speak at seminars or trade shows without traveling
- Improve work/life balance



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R&D and Product Development

- Show product documents or drawings immediately
- Reduce confusion across cultures and locations
- Keep a virtual water cooler on between locations for instant Collaboration
- Get real time feedback from suppliers and customers
- Access remote experts in real time
- Get products to market more quickly



Sales and Marketing

- Build stronger relationships with clients by seeing them face-to-face
- Provide customers at branch offices with expertise from the home office
- Link remote sales people to the headquarters
- Conduct market research with customers face-to-face
- Get marketing messages out to the field
- Serve more clients in a day by reducing meeting travel

Human Resources

- Interview faraway candidates
- Conduct ongoing training
- Retain your company culture after a merger
- Enhance and sustain telework programs
- Conduct all-company town halls

See how different industries use video to meet their needs

Manufacturing

- Make decisions on product development and design
- Hold quality control inspections across different locations
- Provide experts for remote machinery repair
- Coordinate shipments with suppliers
- Create a single company culture with overseas branches
- Prepare for business continuity plans
- Conduct focus groups with customers
- Offer ongoing staff training

Finance

- Collaborate in real time — set daily strategies, share news and market conditions and make decisions without confusion
- Extend expert financial services to customers in remote branches

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- Interview potential job candidates from afar
- Offer training and consulting opportunities

Healthcare

- Provide remote diagnostics from rural to urban centers
- Link medical professionals for mentoring and consultations
- Offer translation services for patients and medical staff
- Participate in continuing medical education programs

Public Sector

- Coordinate action with national, state and local agencies
- Conduct briefings with high level security
- Provide cost efficient training opportunities
- Promote telecommuting/telework initiatives

Public Safety

- Coordinate disaster recovery efforts
- Establish mobile field command posts
- Disseminate information to a wide audience

Education

- Collaborate with other educational institutions
- Extend classes to students in rural or remote areas
- Include presentations from experts and virtual field trips in your curriculum
- Offer continuing education and training for instructors and staff
- Hold administrative meetings among multiple campuses

ROI - the three most important letters in the alphabet

Once you've identified the ways your organization could use video, sit down and calculate the time and resources you currently spend on the activities you would like to replace with video.

- How many people are traveling to meetings? What does that travel cost?
- How could staff be using their time more effectively by reducing that travel?
- How long does it take your organization to bring a product to market? Complete a consulting engagement? Hire a new employee? Repair a problem?

Each time you replace a practice with video communication, you gain the opportunity to measure your return on investment (ROI).



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It's worth investing five minutes to conduct an online self assessment of your potential savings. The TANDBERG Business Advantage Calculator (<http://tandberg-business-advantage.com>) can help you calculate the cost of travel to your organization, based on the number of people traveling, typical distances traveled and average salaries, and demonstrate the potential cost and time savings of video.

For a personalized assessment of your potential ROI for travel as well as specific business functions within an organization, you can utilize the TANDBERG-Forrester Total Economic Impact Calculator by visiting www.tandberg.com/video-conferencing-learning-center/roi-calculation.jsp



4. Elements of a telepresence solution

Essential video components.

Camera. Microphone. Monitor. Speaker. Codec. These are the five essential components that constitute a telepresence system. The camera and microphone capture the image and sound at one location. The codec converts the video and audio into a digital signal and compresses it before sending it out over the network. At the other end, the codec decompresses the signal and feeds the picture to a monitor and the sound to a loudspeaker.

A video call can incorporate two units or many, with considerable options for functionality. Depending on your application requirements and budget, you will have numerous options for the video solution you choose. There is a system for every workspace — from boardrooms to desktops and from field locations to manufacturing floors. If you choose a vendor with a common platform, all of the systems you implement will work together easily.

A Total Solution

An end-to-end telepresence solution incorporates a full suite of video systems, infrastructure for multiple environments and centralized management tools. You can expand it even further by integrating with external devices and productivity tools.

Your end-to-end solution may include some or all of the following products:

Telepresence

Telepresence creates the most realistic in-person meeting experience and provides an ideal platform for communication and interaction. Meeting participants feel as though they're having a conversation with colleagues right across the table — even though they may be miles or continents apart. The telepresence category can include immersive, room-based telepresence environments and personal telepresence systems for executive desktops.

Group Telepresence Systems (sometimes called Room)

These high quality systems are designed to be used in meeting rooms, boardrooms, auditoriums and other shared environments. High definition telepresence solutions can offer the same clarity of picture and sound as telepresence system.

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Desk or Personal Telepresence Systems

These systems are designed for personal or single-person use and include Video VoIP phones, executive systems and PC-based systems optimized for use in the office workstation, home office or even the coffee shop.

Industry Applications

Tele-health, Distance Education, Defense and other industries have special video systems designed to meet their specific application. You may find that your applications match up to a specialized solution.

Centralized Management and Scheduling Tools

Management systems enable you to control an increasingly complex communications environment without decreasing the level of service or significantly increasing associated support costs. With a management system, you can perform remote diagnostics and system upgrades, control associated resources and link to third party communication tools, generate usage reports and calculate your return on investment.

Multipoint Control Unit (MCU)

With MCUs, you can join multiple video and voice participants into a single conference. You can find MCUs that offer High definition continuous presence to ensure the quality of your High definition units across the whole network, and ones that are highly scalable media services engines that grow with your business demands.

Video Infrastructure

As video adoption in your organization grows to include multiple sites and advanced functionality, you will require network infrastructure to support your solution.

Video Infrastructure ensures:

- That users on different networks can connect through the same video solution
- That bandwidth can be regulated
- That calls across different networks and user domains can connect securely with NAT-firewall traversal

An intelligent infrastructure component such as TANDBERG's video communication server (VCS) can make your network more reliable by ensuring that all calls are routed properly, convert IP addresses into directories for one click dialing, and allow your video units to interoperate with phones and other devices.

FindMe

Now you can call the person, not the device. With applications such as FindMe, a part of the TANDBERG Video Communication Server (VCS), callers can find you regardless of where you are. Individual video users can log on to a Web-based interface and control where and how they are contacted. If a user will be away from the desk, for example, he or she can have inbound calls to a video unit automatically forward to a cell phone.



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Content Server

By adding a content server, you can record and stream video meetings — such as company-wide announcements or trainings — to be shown to a wide audience at a time most convenient for viewers.

Peripherals and Accessories

There is a wide range of peripheral equipment that can enhance your visual communication environment. High definition and wide angle cameras, as well as upgraded speakers and microphones, enhance the visual and audio experience. With document cameras, you can transmit drawings and other documents via video. You can connect your video systems to DVDs, VCRs, whiteboards and document and multimedia applications via your PC.



5. Vendor and system selection

One size doesn't fit all.

There is no one video system that is right for all organizations. It's important to select a vendor and the video components that are the best fit for your goals and needs.

Selecting a vendor. The ideal vendor acts as a partner in your business. When drawing up a short list of vendors, you should evaluate the following characteristics:

- A sound financial profile and a good business model
- A strong company history, ethical business practices and professional reputation
- Proven and responsive customer service
- Cost effective maintenance, support and training programs
- Progressive research and development
- A global presence for one-stop-shop implementation wherever you may use video
- Satisfied customers
- Knowledgeable staff who can provide best practices for video usage in your industry
- An end-to-end solution, with infrastructure, management and a variety of endpoints (possibly telepresence, video VoIP phones and PC video)
- A commitment to developing standards-based, non-proprietary solutions
- Integration with other unified communications tools

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Matching solutions to your goals. How you answer the following questions will help you decide which elements of an end-to-end telepresence solution are best suited to your goals.

- How do you envision your company using telepresence?
- What kind of information do you exchange — product details, spreadsheets, multimedia, high security information?
- Would it be helpful to see and speak to colleagues either at their desk or at their home office?
- Would you be communicating visually with suppliers, customers, partners or anyone outside of your organization?
- How many sites do you want to be able to connect in one meeting?
- How many people would participate in each type of meeting, in each location?
- How many video meetings might be occurring simultaneously?
- On what type of network will you be placing your video system (dedicated network, IP, MPLS)?
- What bandwidth will be optimal for your communications?
- Do you want to set different bandwidth options for different types of employees?
- Do you want a fully integrated system or a set-top solution where you can use an existing monitor?
- Will you need to record meetings and/or stream video calls, such as CEO briefings or trainings, for those who were not in attendance?
- Will employees want to stay visually connected while they are traveling?
- Will people make calls on an ad-hoc basis or will they always want to schedule calls in advance?
- How will you want to integrate video with your other Unified Communications tools (Instant Messaging, scheduling applications, IP phones, 3G mobile phones and existing video systems)?
- Will people use their video unit as their primary phone?
- Will you want to connect to a PBX?
- How will you conduct diagnostics and maintenance?
- Will your IT organization manage your video network from a central location or multiple locations?



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6. Selecting your network

Make the right call.

You may choose to run your telepresence traffic over dedicated IP networks or ISDN networks. If you already have an IP network in place for voice, your natural next step may be to deploy video over IP. Many companies run video systems in a mixed environment. More than a quarter of all video conferences ran on an IP network in 2006, according to Frost and Sullivan, with that number now reaching over 50 percent.

When selecting your network, you should ask yourself:

1. Whom do you plan to call?

For example, are the sites you plan to call all internal? Do you plan to call other sites not owned by your company?

2. How widely available is the desired network?

Not all networks are available worldwide. For example, ISDN is widely available in many countries but is still in the early stages of deployment in some countries and rural areas. The same applies to IP networks. Not all countries or areas are connected to the Internet with the same speed and reliability. Be sure to check which networks are available in the geographic areas where your company operates.

3. What are the costs associated with the network?

Costs will vary based on your choice of network. If considering an ISDN network, remember that you will have local and long distance charges involved. When looking at an IP network, consider the implementation costs and your existing network architecture. Take into account your costs over the long term for each type of network.

4. How reliable is the network?

It is important to note that public Internet is not as reliable as private IP networks.

5. How much bandwidth will you require?

Will you be using embedded multi-point functionality, high definition video or other features that require higher bandwidth? You may wish to restrict the bandwidth for certain users or applications, but allow higher bandwidth for your most critical video meetings. You will want to choose a solution that allows you to adjust the bandwidth or one that automatically balances the bandwidth based on the application.

6. Will the solution work with your network partner?

High-end video meetings, such as those over telepresence, can benefit from dedicated, managed networks. You will want to make sure that any solution you choose will work with the network partner you choose.

7. Are you operating in a Unified Communications environment?

If you are, it means you need to build networks that will support varying types of communications systems, devices and applications, ensuring they are able to integrate. Inadequate bandwidth capacity, processing bottlenecks or inappropriate network design can compromise mission-critical applications and negatively affect the adoption of video and other communication tools.



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Unified Communications Over IP.

With a converged network over IP, the concept of Unified Communications becomes a reality. IP promises lower costs, easier management, remote monitoring and control, higher bandwidth calls enabling higher quality audio and video and integration into the corporate information technology mainstream. Video users switching from ISDN to IP can reap as much as 40 percent to 50 percent savings as soon as deployed.³

On an IP network, the ongoing costs of running a video conference are minimal — just maintenance and technical support (and those can be minimized further with management and scheduling tools). Once ROI for the initial deployment has been met, any additional conferences are essentially free. And because there's no incremental cost involved in running a video conference over IP, employees and managers are more likely to use the technology. As usage goes up, payback times go down, further boosting ROI.

Voice over IP increases IT's control over network management and performance. This applies to telepresence, as well, where one of the biggest complaints has long been that video requires significant time and energy investment on the part of IT. With lower setup, configuration, resource requirements and maintenance costs, video over IP makes IT's job easier. Administrators can remotely manage telepresence from anywhere, increasing reliability and performance. Video over IP also reduces the cost and time spent training IT staffers and end users, and frees up IT staffers for other strategic initiatives.

IP networks can be easier to benchmark, before and after the installation of telepresence. That's important for performance, especially as more users start to take advantage of the technology. As a result, the technology will run better — and that, in turn, will lead to even more usage. Better data and usage information also makes measuring ROI much simpler.

With Unified Communications, separate communication tools are integrated into one system so that they can be seamlessly used together. It combines applications and services — such as video, telephony, calendaring, Instant Messaging, Presence and Web Collaboration — with any type of communications device and multiple networks for connectivity anywhere, anytime.

Video offers an essential element of conversation that other technologies cannot — the face-to-face experience.

7. Room set-up

Make your meetings feel more natural.

Once you've chosen your video solution and prepared your infrastructure, it will be time to deploy. That means setting up the best possible experience for your users.

You can use video in many environments — boardroom, manufacturing floor, work station or home office. A few simple adjustments (and a few things to keep in mind) will ensure that your meetings have the best possible image and audio quality. If you are in an immersive telepresence room, additional recommendations are available to make your meeting seem as true to real life as possible.



³ Frost and Sullivan's July 2005 report, "Guiding Enterprises towards IP Migration — End to End IP Telepresence Services."

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Background:

- Remember that the camera shows what is behind you. Provide a calming back-ground with a neutral color, medium contrast and soft texture. Avoid patterns on the walls.
- Avoid moving backgrounds such as curtains in a draft or people walking behind you. This may reduce image quality and distract the attention of those on the far end.
- Do not place the camera facing a doorway.
- Choose a table that is light but not reflective. A light natural wood is a good choice.
- Avoid unnecessary furniture or clutter in the room.

Lighting:

- Avoid direct light on people, presentation materials or the camera lens. Direct light will create harsh contrasts and shadows.
- If you have poor lighting in the room, you may need to use indirect, artificial light. Indirect light from shaded sources or reflected light from pale walls often produces excellent results.
- “Daylight” type lamps are most effective. Avoid colored lighting that might tint your image.
- Don’t place reflective whiteboards directly behind people or where lighting may reflect and cause glare. If they are not required, re move them altogether.

Placement:

- Place your video system about two to three feet (60–100 cm) away from the person who is speaking, taking into consideration screen size and what feels natural

Set up:

- Set the unit to Automatic Answer, but mute the microphone.
- Position the camera in the top center of your unit.

For Desktop Telepresence Units:

- Video should be located close to your PC, along with your other everyday tools. This way you can easily share presentations without having to move. You may even be able to use your system as a PC screen.
- Use a headset for privacy in an open office environment.



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For Meeting Rooms:

- Place the microphone at the front of the table to ensure that all speech will be detected. The best position is at least 6.5 feet (approx. 2 meters) in front of the system, on a flat surface with at least one foot (0.3 meters) of table in front.
- Keep the document camera close to the leader of the meeting or the designated controller. Remember to arrange all the peripherals so that one participant can reach each of them to point, change the display, record or perform other functions during the conference.
- To help ensure the most natural meeting environment, position the camera on the top center of the receiving monitor. The camera should point directly at the meeting participants to guarantee eye contact with those at the far end.
- A room with carpeted floors will help absorb sound and prevent echo problems.



Loudspeaker Volume:

- The audio system will use the loudspeakers built into the monitor or TANDBERG's Digital Natural Audio Module. You can set the default volume level by adjusting the volume on the monitor with the monitor remote.

Brightness Control:

- To adjust brightness, colors or other settings of the monitor, use the monitor's own remote control. Adjust the monitor to suit the conditions of the conference room.

Ease of Use:

- To help meeting participants dial, add presentations and use other functionality during a call, station a poster, table tent or other quick reference guide in the room.

8. Set yourself up for success

Be a video champion.

It is essential to the success of your program that your end-users are excited about the video solution and prepared to book, set up and join video meetings. TANDBERG's Video Champion site, www.videochampion.com, has a wide variety of resources on training, user tips, promotional ideas and roll out programs. Below is a sample of the resources you can find to help you raise video adoption and become a video champion.

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Effective Video Meetings

A video meeting is just like a live meeting — almost. If you're used to conducting live presentations, you are already well on your way to becoming an effective video communicator. The techniques that ensure powerful live presentations and dynamic meetings also work for video communication (see sidebar).

However, video meetings and presentations do require some minor adjustments. Here are a few tips to keep in mind.

1. Be more than a talking head.

Your video system gives you the ability to share multimedia source materials such as video clips, Web sites, spreadsheets and other presentations. Taking advantage of this ability to communicate visual information will make your video meetings more engaging and effective.

2. Look 'em in the eye.

Eye contact is important in any presentation. In a video environment, eye contact comes from looking toward the camera — not the display. Make certain that your camera is positioned as close as possible to the top center of your video display. This will give the impression of strong eye contact, and help to build trust and understanding among your participants.

3. Speak up.

If you mumble and cannot be heard by the person seated next to you, the people on the other end will also have a problem hearing you.

4. You're in the spotlight.

Cameras and video displays tend to make everything "bigger." Nervous habits or little recurrent gestures will be magnified and a distraction to participants on the other end. Try not to rock, sway or fidget with paper or pens. Remember to relax. A video meeting is like any other meeting, except it includes people who are not physically present in your room.

5. The camera is always paying attention.

When you are connected in a video call, the camera and microphone will faithfully pick up all images and words. Smart remarks, quips and asides, or demeaning gestures such as rolling eyes, will be greatly amplified at the far end. You should assume that the other meeting participants can hear and see everything, even when the camera is not pointed in your direction.

6. Cede the floor.

Secondhand noise is distracting and makes it hard to hear other speakers clearly. So mute the microphone on your side when not speaking. This keeps coughing, rustling papers and other noise from drowning out the speaker.

7. You're not on TV.

A video conference is two-way communication — unlike television, which is passive and one way. Be sure to build in opportunities to verbally engage the participants at the far end. Vary your source materials and provide visually interesting items that will elicit responses.



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8. Play to the crowd.

When you're in the middle of a presentation, it can be easy to forget that you are not just presenting to the people in your room but also to the participants at the far end. Be sure to speak to, make eye contact with and engage all parties on your call.

9. Testing 1-2-3.

Be sure to test your system and source materials prior to your meeting. Do not assume that because the systems worked well in one type of connection, they will work for every connection. You may be connecting to a dissimilar and less capable system or into an unstable network — this may result in small difficulties that need to be worked out ahead of time.



Prepare your Presentation

- Identify your goals for the presentation or meeting.
- Know your audience and what they want.
- Prepare an introductory overview (for a presentation) or agenda (for a meeting). Develop a conclusion to reiterate presentation points or confirm meeting decisions.
- Rehearse your presentation ahead of time.
- Don't just read your presentation. Look up from your materials every five to ten seconds.
- Vary the volume and rate of your speech. Avoid a monotone.
- Allow time for Q&A

A Final Word

Let's get started.

At Xerox Audio Visual Solutions, we're changing the way people communicate. Video is making our customers more productive by:

- Accelerating decision making
- Scaling knowledge
- Unifying organizations
- Improving work/life balance
- Enhancing environmental responsibility

Xerox Audio Visual Solutions offers a complete range of solutions designed to meet your business objectives, including telepresence, high definition telepresence and mobile video.

The success of any solution depends upon products and services that are high quality, reliable, easy to use and deliver excellent value. With customers in every industry in more than 90 countries, our company is at the forefront of the video industry — consistently the first to deliver fresh functionality and realize new applications.