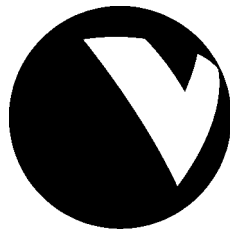


***Achieving Payback with
Videoconferencing:
Total Cost of Ownership Analysis***

Sage Research

As Commissioned by VTEL Corp.



VTEL™
Digital Visual Communications.™

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Introduction

Understanding a technology's impact on the bottom line is important to any organization—whether the technology is comprised of computer systems, networks, or Digital Visual Communications. Many prospective, and even current videoconferencing adopters have questions about how to measure actual costs and benefits. However, measuring the Total Cost of Ownership (TCO) for any technology is a challenge, and Digital Visual Communications is no exception. After all, there are various costs, including equipment, wide area network (WAN) charges, information Systems (IS) support, and training. And there are also many benefits, many of which are not easy to quantify.

Key questions exist about videoconferencing costs—both initial and ongoing costs. How much do the various items really cost? What does the average owner of videoconferencing room systems really spend and what do they gain as a result? To answer these questions objectively, Sage Research interviewed fifty Information Systems (IS) and telecommunications professionals about their actual videoconferencing costs and returns.¹ Conducted in March 1998, these interviews gathered details on over seventy potential costs. Information regarding the benefits (travel and increased productivity) was collected from each interviewee. The interviews were conducted by telephone, and ranged in length from twenty to forty minutes. To qualify for participation, the participants had to represent organizations with at least five room systems currently installed. The interview participants represented a broad range of organizations, including various vertical industries as well as government (state and federal) and education.

¹ The research gathered data about room systems, not desktop videoconferencing systems.



Quantifying Payback

While videoconferencing has many benefits, the one that is easiest to quantify is travel savings. Based on this survey of fifty current Digital Visual Communications users, thirty have videoconferencing systems that pay for themselves in travel savings alone. The following examples show how both small and large implementations have achieved rapid payback based on travel savings.

Example 1

This US division of a multinational entertainment and broadcast firm has five room systems, one in each of five US cities. The primary uses are to watch focus groups, conduct staff meetings, hold budgeting and planning conferences, and remotely view talent auditions.

The initial costs for this organization included the cost of the five room systems, the cost of installing cabling for the ISDN connections to the rooms, and the cost of one document stand (the other four sites did not require document stands). There were also some personnel costs due to managing the project (reviewing bids, evaluation suppliers, and overseeing installation). In total, the initial costs were \$182,969.

The total monthly costs for this organization are \$7,779, which is divided as follows:

- 39% recurring charges (including ISDN charges and bridging service costs)
- 22% personnel costs (part of the time for a secretary to schedule the systems, and some IS time for administration, call set-up, and maintenance)
- 39% equipment depreciation charge

The systems are attributed with saving \$50,000 a month strictly in reduced travel costs...

The systems are attributed with saving \$50,000 a month strictly in reduced travel costs, due to the fact that in a given month, ten to twenty people avoid air travel. Given the total monthly expenses, this organization realizes a benefit of \$42,221 per month. Considering the total initial costs for purchasing the equipment (\$182,969), this organization achieved payback in less than five months.

Example 2

This multinational pharmaceutical company has sixty room systems in the US alone. Videoconferencing uses include project meetings, meetings between offices and plants, and training (for example, about new Environmental Protection Agency developments). Some meetings are held with customers.

The initial costs for this organization primarily included the cost of the sixty systems (94% of the initial costs). In total, the initial costs were \$3.6 million.

The total monthly costs for this organization are \$97,301, which is divided as follows:

- 34% recurring charges (including ISDN charges and bridging service costs)
- 4% on service contracts and software upgrades
- 62% equipment depreciation charge



The systems are attributed with saving \$300,000 a month strictly in reduced travel costs, due to the fact that in a given month, over 200 conferences are held—allowing various employees to avoid both domestic and international air travel. In addition, this organization has calculated money saved due to employee time savings—at \$256,000 per month.

This is due to the fact that on average, four work days are saved per conference (by avoiding travel time and other downtime associated with travel). Given the total monthly expenses, this organization realizes a benefit of \$459,000 per month. Given the total initial costs for purchasing the equipment (\$3.6 million), this organization achieved payback in eight months.

Example 3

This state government agency has six room systems located throughout the state. This agency does administration functions for the state court systems, overseeing MIS, payroll, and all other administrative functions. The room systems are used for inter-office meetings, vendor presentations, and project meetings.

The initial costs for this organization included the cost of the room systems, the cost of installing cabling, some minimal training costs, and the staff time for managing the project. In total, the initial costs were \$247,500. This organization had very low WAN equipment costs, because an existing T1 multiplexer (for a leased line network) was already in place.

The total monthly costs for this organization are \$14,994, which is divided as follows:

- 68% recurring charges (including leased line charges)
- 2% personnel costs (estimated at just a few hours per month for scheduling the systems and the rare maintenance or troubleshooting required by IS)
- 3% service contract costs
- 27% equipment depreciation charge

This state government agency conducts an average of 26 conferences per month, with five to twelve participants per side for each one. Even though the travel is within the state, travel savings have still been achieved and are estimated at \$54,000 per month. In addition, travel reduction has saved employee time—resulting in a time savings benefit of \$8,100 per month. Given the total monthly expenses, this organization realizes a benefit of \$47,106 per month. Considering the total initial costs for purchasing the equipment (\$247,500), this organization achieved payback in less than six months.

...this organization achieved payback in less than six months.

Other Benefits

Many research participants reported other benefits, but were unable to quantify them. Following are a few examples:

- One such research participant is from a pharmaceutical company. Due to videoconferencing, the company was able to reduce prod-



uct development time for a new drug by an entire month—allowing his company to be first to market. The new drug generated sales of over one billion dollars in its first twelve months.

- Another participant knows of a customer crisis that was averted in very little time thanks to videoconferencing. As the customer account represents \$2 million in revenue, videoconferencing is credited with saving an important account.
- A computer manufacturer has many large customers who prefer not to fly in for product demonstrations. So instead, the company handles preliminary meetings and final closings by utilizing videoconferencing. The result is that at least two new business opportunities are created each year, with a typical contract in the range of \$500,000 to one million dollars.

Total Costs of Ownership

Start-up Costs

An initial videoconferencing installation can include many components and associated costs, depending on an organization's specific needs. Some of the common start-up costs are as follows:

The result is that at least two new business opportunities are created each year, with a typical contract in the range of \$500,000 to one million dollars.

- The systems themselves (the codec and monitor). Also, many organizations have dual monitor systems (e.g., two monitors in one room).
- Cabling. In almost all cases, new cabling needs to be brought into the meeting rooms. While this is usually for ISDN access, cabling can also include wiring for power or microphones.
- Lighting. Not a very common expense, but some customers find that their existing meeting rooms have poor lighting, or lighting that will cause glare on the monitors.
- Furnishings. The most common furnishing is a cabinet for the system itself (to house the codec). However, while it is uncommon, some organizations also buy new tables and chairs, or even take on construction to modify existing rooms.
- Inverse multiplexers and other WAN equipment. The most common approach is to buy an inverse multiplexer for each site in the network. Many videoconferencing customers use ISDN as their WAN connection, and for most, the purchase of room systems is their foray into ISDN.
- Document stands. This is a fairly common item, and most organizations have them in at least half of their videoconference-equipped conference rooms.
- Staff time. An important part of the initial costs is the staff time required for managing the RFP process, planning network designs, and overseeing actual installation. These costs vary widely, primarily for two reasons. First, the level of IS person involved varies; in some cases, organizations use IS staff with total costs of \$100,000 or more per year for such tasks, while others assign such tasks to more mid or junior level IS staff. Second, many customers report that some of these tasks were performed by their VAR, and that the costs were included as part of buying the system.

Other less common start-up costs include custom programming, administration software (such as for scheduling), and LAN equipment (for those organizations connecting the room system to a LAN).

The total start-up costs average \$1.6 million (based on our fifty participants), which is based on an average of 16 room systems per installation.



Operating Costs

What are the real costs of owning and operating a videoconferencing system? How much is equipment as a percent of the total cost? How much are training, line charges, and maintenance?

The actual TCO costs are categorized by the following six items:

1. Depreciation expenses. The average number of years for depreciation is five, although some organizations have a three-year schedule. The majority of the depreciation is for the costs of the videoconferencing systems (the codecs and monitors), but also includes multipoint control units and room furnishings. However, not all organizations own MCUs (some prefer to use bridging services instead). The cost of furnishings is minimal for most organizations, but there are extreme cases where custom or other expensive furnishings were purchased (for example, to set up auditorium-style meeting rooms or board rooms).

2. WAN connectivity and bridging services. This primarily includes ISDN and other carrier charges. However, of the fifty organizations interviewed, several also use bridging services for multipoint conferences.

3. Personnel. The interviews inquired about many possible areas for personnel costs, including room scheduling, call set-up, administration, maintenance, operators/greeters, WAN management and so on. However, in most cases these costs were minimal. Research participants reported that little time is spent on scheduling and call set-up (in most cases an administrative assistant assumes these tasks, and spends fewer than five hours per month on them). Further, the majority reported little or no expenses on maintenance or other IS support; the room systems have been reliable, and require little or no support once they are installed.

The room systems have been reliable, and require little or no support once they are installed.

4. Costs associated with failed conferences. One hypothesis in this research had been that room system users would have costs due to failed conferences. For example, if a scheduled videoconference were not completed due to equipment or WAN issues, this would result in costs. However, this was not the case. Nearly all participants reported that in the rare cases where a conference is canceled, the parties simply conduct a teleconference instead. Since a teleconference costs less than a videoconference, this did not result in costs in most cases. In fact, only four out of fifty participants reported any costs—and these were minimal. The costs incurred were due to travel that had to be conducted in place of the conference.

5. Training. This was another item that was expected to have some measurable costs. The assumption had been that most organizations would have some formal training in place for either users and/or IS staff. However, this was rarely the case. Most organizations have formal training only when the systems are initially installed, and this training often has little or no costs because it is provided by the reseller or equipment manufacturer as part of the initial purchase. In fact, only eleven of the fifty research participants reported any ongoing training costs, and their average monthly cost for this item was \$760. While the low training costs appear attractive, the lack of training may be the single most com-



mon deterrent to successful videoconferencing deployment. If companies paid more attention to training, and invested accordingly, both the quality and amount of videoconferencing use would increase.

6. Service contract and software upgrades. This item includes both the service contract for maintaining and supporting the systems (which may be with the reseller or with the manufacturer), and the costs of software upgrades. In some cases, software upgrades are included in the service contract. In most cases, software upgrades occur every two years or even less frequently.

Given these six categories, Figure 1 shows the average monthly expenditures for the fifty organizations interviewed. For example, on average, 36% of the monthly cost of owning room systems is related to WAN charges (which may or may not include bridging). Another way to look at this is to say that the average organization incurs most of its expenses due to the equipment and WAN charges—that there are relatively minimal charges due to other items such as training, personnel time, and so on.

In most cases, software upgrades occur every two years or even less frequently.

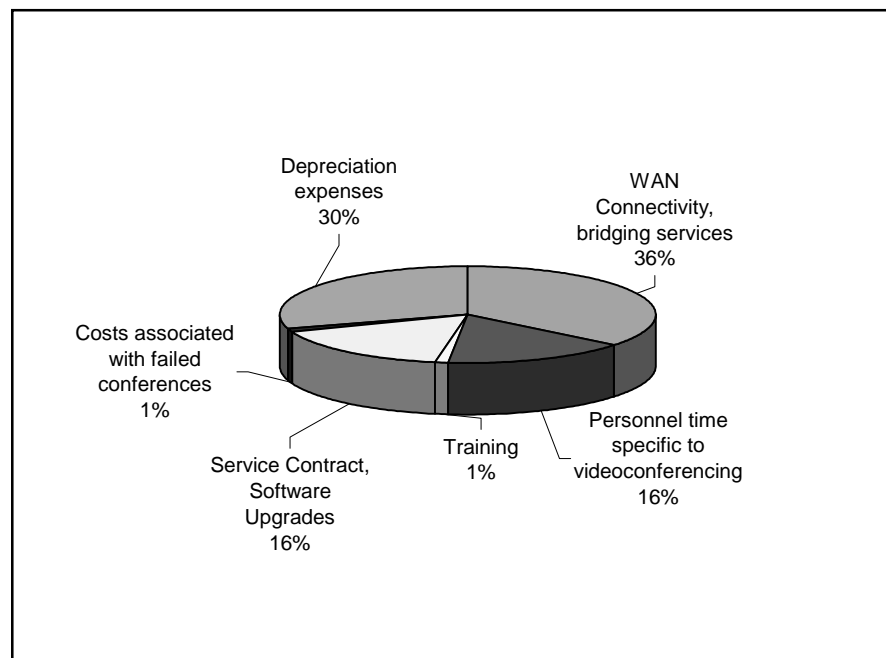


Figure 1 • Average Monthly Operating Costs

Five Year Costs

Another way to examine the costs is to look at them over a five year period. Thus, they include the initial investment as well as ongoing costs. Figure 2 displays this information for the average organization. Over five years, the initial equipment costs account for 19% of the total cost of ownership—the majority of costs are the ongoing operating expenses (such as WAN charges, personnel, and service contracts). As a result, organizations seeking to reduce the total cost of ownership of videoconferencing should focus on reducing operating costs—the initial equipment costs are really not the issue.



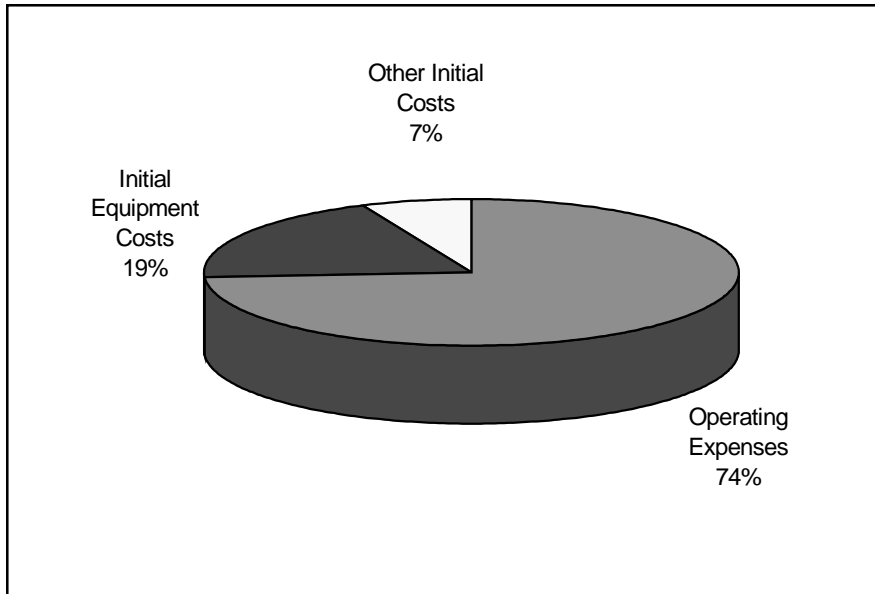


Figure 2 • Five Year Cost of Ownership

Average Monthly Expenses

The actual monthly expenses, in dollars, vary. The variation is due to many factors, but primarily to number of systems (equipment costs) and frequency and duration of conferences (which impacts WAN costs). Figure 3 shows the average amount spent per month for the fifty organizations. The average number of room systems per organization is sixteen. As the figure shows, on average, WAN and depreciation expenses account for the vast majority of monthly expenses associated with the room systems.

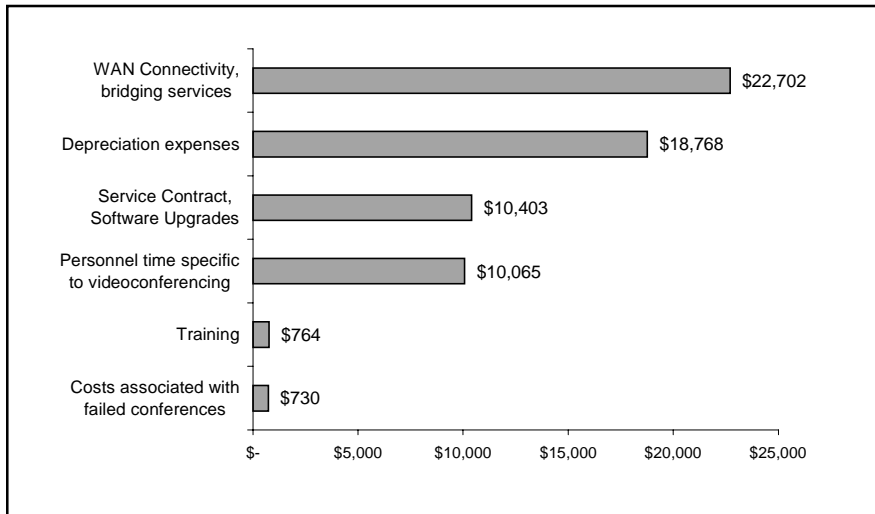


Figure 3 • Average Monthly Expenditures

However, the average figures should be used with caution—Figure 3 shows averages which do not convey the wide variability in actual expenses incurred by individual organizations. Consider the following examples from the research.

Clothing Manufacturer

This US-based clothing manufacturer has 34 room systems installed at 32 different sites across the United States. Its total initial cost for installing the systems was \$1,270,000. Of this, the vast majority was the cost of the room systems themselves and the cost of an MCU (\$952,000 and \$40,000 respectively).²

This organization incurs \$53,444 per month in total costs:

Deprecation	\$25,056
WAN Costs	\$21,352
Service Contracts	\$5,236
Personnel Costs	\$1,800
Total	\$53,444

Financial Services Firm

This financial services firm has offices throughout the US, largely in support of its vast credit card business. The company has twelve room systems currently installed, which required an initial investment of \$1.15 million. Of this initial investment, \$860,000 was the cost of the room systems themselves plus one MCU. Other initial costs included three external PCs (for collaborative applications used in conjunction with the conferences), modifications to six meeting rooms, and project management costs.³

This organization incurs \$43,058 per month in total costs:

Depreciation	\$17,700
WAN costs	\$13,213
Service Contracts and software upgrades	\$10,000
Personnel costs	\$3,210
Training costs	\$925
Total	\$45,048

Healthcare Organization

This healthcare organization (an HMO) installed eight room systems, which required an initial investment of \$340,000. Of this initial investment, \$320,000 was the cost of the room systems themselves plus some associated peripherals (two document stands and one electronic white board).

This organization incurs \$17,296 per month in total costs:

Depreciation	\$9,188
WAN costs	\$3,000
Service Contracts and software upgrades	\$156
Personnel costs	\$4,952
Training costs	\$0
Total	\$17,296

² The remaining initial costs were from the following items: lighting for the meeting rooms, extra microphones, cabling for ISDN to each room, inverse multiplexers, staff and consultants time on system and WAN installation.

³ This organization's IS staff spent a significant amount of time managing the purchase process and overseeing network design and installation. The total costs for the staff time spent on these tasks was calculated at \$43,875.

Calculating Costs and Benefits

Costs

When calculating your own total cost of ownership, the most important step is to make sure you are gathering information on *all* of the possible costs. The following table can be used as a check-list to make sure all costs are included in your analysis.

Item	Notes
Room Construction, Modifications	This should include costs of modifying existing rooms as well as building new ones.

Equipment Purchased

Codec, monitors	This is usually the majority of the initial costs.
Multipoint units	Not all organizations own their own MCU; you may opt to use bridging services instead.
Document Stands	Most organizations have these for at least some of their room systems.
External or Laptop Computers	For other than VTEL Systems, If they are to be used in conjunction with the room systems for collaboration purposes, they should be included in your costs.
White Boards	These products can be very convenient during conferences. About 25% of organizations use them.
Extra Monitors, Broadcast/VGA/BARCO	About 20% of organizations use such monitors; they are very worthwhile when holding conferences between large groups of people.
Audio	Some customers opt for extra audio equipment, to enhance audio quality (for example, additional speakers).
Cabling	This item includes cabling into the meeting rooms for ISDN, power, extra microphones, and so on.
Lighting	Some organizations replace existing lighting in their meeting rooms.
Furnishings	This should include any cabinets, tables, chairs, stadium seating and so on.
WAN equipment	This most often includes inverse multiplexers, but may be the cost of additional modules for an existing router or multiplexer. It may also include the costs for DSUs/CSUs.



LAN equipment	Those organizations using videoconferencing in a LAN environment need to consider the cost of NIC cards and LAN hub or switch ports.
Software	This should include any additional software purchased specifically for the room systems. For example, any special scheduling or administration software.
Installation Fees	
WAN	For example, the installation fees from your carrier for new ISDN or leased lines.
LAN	If you are using the systems with LAN connectivity, there may be costs due to installing the NICs or hub/switch ports.
Equipment, Software	Some customers report that installation of the systems themselves was included in their purchase. Others report there were separate fees, or that a consultant was hired to install the room systems.
Damage, Repair	There may be costs related to the repair or replacement of damaged equipment, including staff time costs.

Work Hours Expressed as Costs: Internal, Vendor

Project/Network Management	This might include making a survey of the organization's needs, issuing the RFP, and evaluating responses.
Supervision/Installation	Supervision of the equipment installation may be performed either by a staff person or a consultant—in either case, these are costs that should be captured.

Training (at time of installation)

End Users	End users may receive formal training (in which case there are costs for materials and the instructor). But even informal training may result in quantifiable costs (printed materials, "how to" displays).
IS Staff Maintenance	Training on maintenance, management and administration may either be provided by the vendor or an alternate source.

Monthly Ongoing Costs

WAN Connectivity	Both fixed and usage based fees may apply.
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Bridging services	Organizations that don't own their own MCUs typically buy bridging services from third parties.
Personnel hours specific to videoconferencing	This includes estimating the number of IS hours spent on the room systems and any associated LAN or WAN issues.
Training	Ongoing training may be a cost. For example, IS staff may receive refresher courses, or new employees may be given a class on how to use the systems.
Service Contract, Software Upgrades	Most organizations have a monthly cost for maintenance of the room systems. This may include automatic software upgrades, or the upgrades may have a separate fee.
Fees, costs associated with failed conferences	There may be costs incurred when conferences fail. If a meeting is canceled, can it be handled by speakerphone? Or will travel be required?

Travel Savings

Certain aspects of travel related savings are easier to quantify than others. While savings from airline tickets are usually easy for most organizations to calculate (based on past travel patterns), other items are more elusive. For example, hotel expenditures vary greatly, often depending on the job function the person who would be traveling (senior executives often averaging \$250 or more per night, while mid-level managers average closer to \$150 per night).

Those organizations that have calculated travel savings typically do so by gathering the following information:

1. Review the travel expenses of the persons who are most often using the room systems. How many trips per month have they been able to eliminate? What was their average per trip cost before the room systems were installed?
2. Estimate how many of the conferences in a month were travel substitutes, and how many were telephone call substitutes. While the purchase of videoconferencing is most often justified on reduced time and expense from travel, once the systems are in, many organizations use them as an alternative to teleconferences.
3. Calculate the value of the time saved as a result of reduced travel. For example, if an employee whose total costs to the organization is \$100,000 per year saves 30 hours per month (from time otherwise spent traveling to and from airports and on planes), that's over \$17,000 in annual savings for that one employee.

However, in reality, few organizations track this last travel savings. Most of the organizations in our study that have achieved payback based on travel savings did so solely on reduced airline ticket costs.

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Tips for Improving Payback

As with any technology, the goal is to minimize the ongoing cost of ownership. This is certainly true for videoconferencing—where Figure 2 had showed us the operating costs account for 74% of TCO. Thus, to minimize the cost of ownership, videoconferencing customers must focus on ongoing operating expenses more than initial equipment costs.

While depreciation and WAN costs are difficult to reduce, personnel costs due to administration and management are another matter. To improve payback, potential adopters need to think carefully about how to reduce the time necessary for management and administration—whether the network has five systems or five hundred. To do this, we recommend the following:

- Seek out room systems that have adequate management tools available. These tools should allow a central administrator to set-up and monitor conferences, even if they are taking place at other sites. This will eliminate the need to have people at every site involved in trouble-shooting (and will also minimize the number of people who need to be trained).
- Look for management systems built on standards, such as SNMP (Simple Network Management Protocol), the industry standard for remote device management that many IS professionals are already familiar with for their LAN management. Also, using SNMP will allow you to use your existing data network infrastructure, instead of relying on modems. Use of the existing data network means having a full-time management connection to each system—rather than having to dial into it after a problem has occurred.
- Ask potential vendors about management tools that will grow with your needs. Even if your initial installation is a three-site network, consider the potential for expansion. The larger the network, the more likely remote diagnostic features will be a necessity.

To improve payback, potential adopters need to think carefully about how to reduce the time necessary for management and administration.

Financial Analysis

Many types of financial analysis can be conducted to quantify the real bottom-line benefit of videoconferencing. In this section, three types of analysis are presented: payback, cumulative cash flow, and ROI.

Payback

The average organization achieves payback on their videoconferencing investment in nine months. As in the earlier examples, this is based on two steps. First, calculating the difference between monthly savings (from travel and time) and total monthly costs (including depreciation). Second, dividing that amount into the total initial investment.⁴

⁴ Effects of taxes (advalorem, income, franchise, etc.) are not considered in this analysis. Organizations other than those in government and education, should add an extra month to the payback period to take the effect of taxes into consideration (i.e., assume an average ten month payback instead of a nine month payback).



Cumulative Cash Flow

In addition to looking at payback, this data can also be used to calculate the cumulative cash flow (the long term outcome of the costs and benefits).

Specifically, if we consider the average initial costs of \$1.6 million per organization, and the average travel and time savings, we can calculate the actual resulting cash flow. As the following table shows, by the fifth year of operation, the average organization achieves a total cumulative benefit of over \$16 million.⁵

Initial	Cumulative Cash Flow
0	(\$1,648,399)
1	\$306,712
2	\$3,398,392
3	\$7,626,641
4	\$11,854,891
5	\$16,083,140

Return on Investment

Return on investment is another way of analyzing the relationship between the benefits realized and the capital invested. The return on investment of the average videoconferencing customer is 123% in the first year alone, based on the following calculation:

- Net Income: The total annual benefit from travel and time savings less the operating expenses is \$1.63 million.
- Capital Investment: The total average capital investment is \$1.65 million.
- The first year's depreciation is \$329,680.

$$\frac{\$1,625,432}{\$1,648,399 - \$329,680} = 1.23$$

Over time, the ROI increases drastically, due to the cumulative effect of the depreciation (i.e., the fact that the equipment has been written off over time). In the second year, the average ROI increases to 279%, and in the third it soars to 591%.

The return on investment of the average videoconferencing customer is 123% in the first year alone...

⁵ This analysis uses very conservative assumptions. For example, the actual travel and times savings were reduced in the first two years due to the assumption that there is a "ramp up" period before the average organization starts to fully benefit.



Conclusions

The detailed data gathered from fifty organizations provides objective insight about videoconferencing costs and benefits:

*...most customers
have video-
conferencing group
systems that pay for
themselves in well
under one year.*

1. The benefits outweigh the costs for most organizations. In fact, most customers have videoconferencing group systems that pay for themselves in well under one year. These calculations are based on travel savings alone, which for many organizations is a conservative measure. After all, additional benefits are realized that are not as easy to quantify.

2. Unquantifiable benefits exist. Many additional benefits exist, but are harder to measure. Consider the following examples of additional benefits you may realize:

- Will use of videoconferencing allow you to reach larger, or more geographically dispersed accounts?
- Will you be able to reduce product development cycles?
- Will you be able to respond more effectively to time-sensitive problems, such as events occurring on the factory floor?
- Will you be able to negotiate more effectively with clients and suppliers?
- Will you be perceived as more competitive than your competitors?

3. Payback can be further improved. Operating costs are the majority of the cost of ownership, and account for 74% of the average organization's total costs over five years. Thus, any efforts that can be made to reduce such expenses will help to shorten the payback period even further. One way to do this is to make careful decisions about what systems to buy, and what administrative and management tools you need for those systems. Such efforts can minimize the IS time required for system administration and management, and thus reduce the costs of personnel required to support the videoconferencing network.

Addendum
Achieving Payback with
Videoconferencing:
Total Cost of Ownership Analysis Cost
Justification Worksheet

VTEL Corporation has compiled worksheets and analysis that should make it easier for your company/organization to justify the purchase of Digital Visual Communications equipment.

The actual Excel spreadsheet can be downloaded from the VTEL website at www.vtel.com.

All instructions herein assume you are using the downloaded software file.



VTEL (TCO) Cost Justification Worksheet Instructions

Explanation of Categories and Formulas

Use the VTEL Total Cost of Ownership (TCO) worksheet and worksheet instructions to aid in putting together your own business case.

Conventional Meeting

Conventional Meeting refers to a meeting held in one location in which participants attend from various locations. The analysis will include travel costs and productivity costs per attendee.

Conventional Meeting Specifics

1. Enter the total number of meetings held during the course of a year.
2. Enter the percentage of meetings that could be held by Digital Visual Communications. Meeting must have participants attend from a remote site.
3. The worksheet will automatically calculate the target meetings. Target meetings are calculated by line 1 (total number of meetings held during the course of a year) multiplied by line 2 (percentage of meetings that can be held via Digital Visual Communications).
4. Enter the average number of attendees. This is the average number of people that travel to one meeting.

The worksheet will automatically calculate the total trips per year.

Conventional Meeting Analysis

Travel Costs for one person/one trip

- A. Enter the number of days for average length of trip (# of nights staying overnight).
- B. Enter the average cost for round trip airfare.
- C. Enter the average cost for hotel per one night. (Worksheet will multiply line A by line C – # of nights X hotel cost per one night.)
- D. Enter average cost for car rental per day. (Worksheet will multiply line A by line D – # of nights X car rental cost per day.)
- E. Enter daily meal per diem. (Worksheet will multiply line A by line E – # of nights X \$ for meal per diem.)
- F. Enter miscellaneous expenses (gas, phone calls, etc.).

Travel costs for one person will automatically be calculated based on the number of nights staying overnight.

Lost Productivity Costs

- G. Enter the average length of time (hours) it takes a traveler to travel to and from the remote site.

H. Enter the percentage of non-productive time for the average traveler. If a traveler works 50% of the time, the traveler is non-productive 50% of the time.

I. Enter attendee's average wage per hour. Hourly wage can be calculated from overall salary plus benefits divided by the number of hours worked per year.

Total non-productivity costs for one person will automatically be calculated based on average length of travel time, percentage of non-productive time, and attendees hourly wage.

Annual Costs for Conventional Meetings

Total costs for one year will automatically be calculated by total number of trips/travelers per year multiplied by total expenses for one person (traveler) per meeting.

Digital Visual Communications Meeting

Any meeting in which participants will need to travel to attend will be considered for the Digital Visual Communications Analysis.

Digital Visual Communications Initial Outlay

Initial Equipment Cost (Projected)

A. Enter the number of systems under purchase consideration (first line column 1).

B. Enter the name and SRP's of each system (second line column 1 and column 2).

Additional Equipment Items

C. Enter the quantity (column 1) and SRP's (column 2) of any additional equipment items.

(Remember to take into consideration the number of systems or sites for which additional items will be purchased.)

The worksheet will automatically calculate the total initial equipment costs.

Installation Fees

D. Enter the estimated number of hours to install and configure the WAN equipment specific to this project. **Note:** This number is the sum of the # of hours it takes to install the WAN **multiplied** by the # of



installation sites. (Ex: Installation might take 4 hours at 4 different sites which would be a sum of 16 hours. Enter the sum of 16.) Enter the installation cost per hour.

E. Enter the estimated number of hours to install and configure the LAN equipment specific to this project. **Note:** Same as example D above. This number is the sum of the # of hours it takes to install the LAN at each site **multiplied** by the number of sites.

F. Enter the number of sites in which any optional third-party equipment software will be purchased. Enter the cost for each equipment software package.

The worksheet will automatically calculate the total installation fees and software costs.

Staff-hour Costs

Costs at installation time for project management includes staff-hours spent on planning for the network and associated network requirements. This item includes various tasks such as needs assessment, RFP's, vendor selection, coordination and supervision.

G. Enter the estimated number of staff-hours for project/network management. **Note:** This number is the sum of the # of people involved **multiplied** by number of hours each person works. Example: You have 4 people (4 different sites) **multiplied** by 4 hours worked by each person. You would enter the sum of 16. Enter the employee hourly wage.

H. Enter the number of staff-hours for installation supervision (or consulting). **Note:** Same as example G above. This number is the sum of the # of people involved **multiplied** by the number of hours each person works. Enter the employee hourly wage.

The worksheet will automatically calculate the total staff-hour costs.

Training Costs

This includes training for both end-users and IS/technical staff.

I. Enter the number of training costs for end-users. **Note:** This number is the sum of the # of end-users that will receive training **multiplied** by the number of hours they will receive training. Ex: If you have 4 end-users training for 8 hours each you will enter 32 in the first box. Enter the employee hourly wage.

J. Enter the number of training costs for IS/Technical Staff. **Note:** This number is the sum of the # of IS/Technical Staff that will receive training **multiplied** by the number of hours they will receive training. Enter the employee hourly wage.

The worksheet will automatically calculate the total training costs.

Total Initial Outlay

The total initial outlay consists of total initial equipment costs, installation fees, staff-hour costs, and training (initial) costs. Once information is entered the worksheet will automatically calculate the total initial outlay.

Digital Visual Communications Specifics

DVC specifics are similar to Conventional Meeting specifics. **Numbers 1-4 will automatically be entered into the worksheet based on conventional meeting entries.** The length of meeting is important in DVC analysis due to the network charges associated with videoconferencing.

1. The total number of meetings held during the course of one year.
2. Percentage of meetings that could be held via Digital Visual Communications.
3. Target meetings are calculated by line 1 (total number of meetings held during the course of a year) multiplied by line 2 (percentage of meetings that can be held by Digital Visual Communications).
4. Average number of attendees that travel to one meeting.
5. Enter the length of the average meeting (in hours). The total hours per month will be calculated based on target meetings per month (line 3) multiplied by average length of meetings.
6. Enter the number of sites that will be using DVC in lieu of attending the meeting. To create an accurate analysis, line 4 would assume all attendees are coming from different locations. The total transmission hours per month is calculated by multiplying the number of target meetings (line 3), by number of sites attending the meeting (line 4), by transmission cost per hour.

Digital Visual Communications Analysis

DVC Ongoing Expenses

Network Expense

LAN, WAN Transmission costs (recurring fees and usage) include bridging, dial-up fees and usage charges.

- A. Enter the LAN, WAN transmission cost per hour.

The cost per month and year will automatically be calculated based on DVC specifics (line 6 – total hours per month for all sites) multiplied by transmission cost per hour.

Depreciation Expense

Included in the ongoing expenses is depreciation. This is calculated by the sum of all equipment and room modification (total initial outlay costs on first DVC worksheet) divided by the expected life of the equipment.



B. Enter the number of years to depreciate equipment.

The worksheet will automatically calculate the depreciation expense per month and per year.

Personnel Expense

Personnel specific to videoconferencing would include employees that participate in administration, maintenance, call set-up and so on.

C. Enter number of personnel specific for videoconferencing.

D. Enter the percentage of time spent by personnel specific to supporting DVC.

E. Enter the average annual salary of DVC support personnel.

The worksheet will automatically calculate the monthly & yearly personnel expense.

Training Expense

This includes training for end-users and IS/technical staff. An estimate for training is between \$5,000 - \$10,000 per year per person/site.

F. Enter the number of sites or people that will receive training.

G. Enter the annual cost for training per site or person.

The worksheet will automatically calculate the training expense per month and per year.

Service and Warranty Expense

Contract to support VTEL systems includes enhanced or on-site response support. The contracts expand on initial warranty or are purchased after expiration of initial warranty.

H. Enter the number of years for the contract.

I. Enter the total cost for the contract /warranty.

The worksheet will automatically calculate the service & warranty per month and per year based on the number of years of the contract.

Total Ongoing Expenses

The worksheet will automatically calculate the total ongoing expenses.

Digital Visual Communications Savings/ROI

Return on Investment- Is a measure of the earning power of a particular investment. ROI is broadly defined as net income/ savings generated by implementing videoconferencing divided by the initial capitalized investment in equipment, installation and training less depreciation. A high ROI on an investment is desirable.

Simple Payback on Initial Investment - Computes the number of months until the amount paid for an investment is returned by the net income/savings generated by it. A low number of months is desirable.

Cash Flow Analysis - Shows the amount of cash required to fund the conventional meetings and DVC scenarios each year, as well as a five-year total. This analysis also shows the amount of cash savings generated by implementing DVC. A higher amount of cash savings is desirable.

Conclusion

You have successfully completed one of the most important steps in implementing Digital Visual Communications products such as VTEL's: determining TCO and ROI. We encourage you to continually track your expenses and the benefits you gain from your VTEL network – to best maximize your return on investment.



Conventional Meeting Specifics	Enter Information
1. Enter estimate of Total Meetings Per Year	
2. Enter % possible by videoconferencing	%
3. Target Meetings per year will be calculated	
4. Enter average # of attendees traveling to each meeting	
Total trips per year for meetings that could be held by DVC	
Conventional Meeting Analysis	
Travel Costs for One Person/One Trip	Enter Information
A. Enter average length of trip (# of nights)	
B. Enter average roundtrip airfare	
C. Enter average cost per hotel for one night	
D. Enter average cost of car rental per day	
E. Enter average meal per diem per day	
F. Enter misc. expenses (gas, phone calls, etc.)	
Travel Costs for One Person/One Trip	\$
Lost Productivity Cost	Enter Information
G. Enter average travel time (hours)	
H. Enter % non-productive time	%
I. Enter average attendees wage per hour	
Total Non-productivity Costs for One Person	\$
Total Expenses for One Person/One Meeting	\$
Annual Costs for Conventional Meetings based on Total Expenses for One Attendee (Traveler) Calculated by Total # of Travelers Per Year:	\$

Digital Visual Communications Initial Outlay

Initial Equipment Cost (Projected)	Enter Information	Enter Information	Automatically Calculated
<i>Reference section A & B of worksheet instructions.</i>	(Column 1) System Info.	(Column 2) \$/Unit	Totals
Enter # of group systems to purchase			
Enter name of system & SRP			
Enter # of desktop systems to purchase			
Enter name of system & SRP			
Enter # of set-top systems to purchase			
Enter name of system & SRP			
Enter # of workgroup systems to purchase			
Enter name of system & SRP			
Enter # of MCU's to purchase			
Enter name of system & SRP			
Enter # of other systems to purchase			
Enter name of system & SRP			
Enter # of other systems to purchase			
Enter name of system & SRP			
Enter # of other systems to purchase			
Enter name of system & SRP			
*Subtotal Estimated Equipment Cost		\$	
Additional Equipment Items			
<i>Reference section C of worksheet instructions.</i>	(Column 1) # of units	(Column 2) \$/Unit	Totals
Whiteboards			
Monitors, Broadcast/VGA/BARCO			
Audio			
Cabling			
Lighting			
Furnishings			
LAN/WAN Equipment per site/system			
Furnishings per site/system			
Software per site/system			
Initial Equipment Costs			\$



Digital Visual Communications Initial Outlay

Installation Fees	Enter Information	Enter Information	Automatically Calculated
	# of hours	\$/Hour	Totals
D. Enter # of hours to install WAN. (See notes on explanations.) Enter installation cost per hour.			
E. Enter # of hours to install LAN. (See notes on explanations.) Enter installation cost per hour			
	Enter # of Sites	\$/Software Pkg.	Automatically Calculated
F. Enter # of sites to purchase equipment software. Enter cost per software package.			
Total Installation Fees			\$
Staff-hour	Enter Information	Enter Information	Automatically Calculated
	Sum of Staff x Hours	\$/Hour	Totals
G. Enter the # of staff & hours for project/network mgmt. (See note on explanations). Enter the hourly wage.			
H. Enter the #of staff & hours for installation supervision (consulting). (See note on explanations). Enter the hourly wage.			
Total Staff-hours			\$
Training (Initial)	Enter Information	Enter Information	Automatically Calculated
	Sum of Staff x Hours	\$/Hour	Totals
I. Enter # of end users & hours (See note on explanations) for training. Enter the employee hourly wage.			
J. Enter # of IS/Staff & hours (See note on explanations) for training. Enter the employee hourly wage.			
Total Initial Training			\$
Total Initial Outlay			\$

Digital Visual Communications Specifics

1. Estimate of Total Meetings Per Year		
2. % possible by videoconferencing		%
3. Target Meetings		
4. Average # of attendees traveling to each meeting		
	<i>Enter Information</i>	<i>Total hrs. @ Mo.</i>
5. Enter average length of meeting (hours)		
6. Enter average # of sites @ meeting		

Digital Visual Communications Analysis

DVC Ongoing Expenses			
Network Expense	Enter Information	Expense @ mo. (Auto. Calc.)	Expense @ yr. (Auto. Calc.)
A. Enter LAN, WAN Transmission Cost per hour			
Depreciation Expense	Enter # of Years	Expense @ mo. (Auto. Calc.)	Expense @ yr. (Auto. Calc.)
B. Estimate of Depreciation Costs (Based on estimated life in years)			
Personnel Expense	Enter Information		
C. Enter # of personnel specific for videoconferencing			
D. Enter % of time spent by personnel specific to supporting DVC			
	Enter Information	Expense @ mo. (Auto. Calc.)	Expense @ yr. (Auto. Calc.)
E. Enter annual salary of DVC support personnel			
Training Expense	Enter Information	Expense @ mo. (Auto. Calc.)	Expense @ yr. (Auto. Calc.)
F. Enter number of training sites/people			
G. Enter annual cost for training per site/person			
Service and Warranty Expense	Enter Information	Expense @ mo. (Auto. Calc.)	Expense @ yr. (Auto. Calc.)
H. Enter number of years for contract			
I. Enter cost for Contract/Warranty			
Total Ongoing Expenses			\$

Digital Visual Communications Savings/ROI

		Total Annual Expenses	
Total Annual Expenses for Conventional Meeting			
Total Annual Expenses for DVC Meeting			
Savings to (Company Name)		\$	
Return On Investment:			
Return on Investment for Year 1 of DVC Ownership		Note A	
Average ROI for Years 2 Through 5 of DVC Ownership			
Simple Payback on Initial Investment:			
Number of Months to Achieve Payback		Note A	
Cash Flow Analysis:			
	Conventional	DVC (Note B)	DVC Savings
Year 0 - Initial Investments	\$	\$	\$
Year 1	\$		\$
Year 2	\$		\$
Year 3	\$		\$
Year 4	\$		\$
Year 5	\$		\$
Cumulative Cash Flow			\$
Note A:			
For purposes of computing ROI & Simple Payback the annual savings achieved by adopting DVC has been reduced by one-half in order to allow for corporate learning or "ramp-up" of the equipment.			
Note B:			
For purposes of computing annual cash flow, depreciation (a non-cash item), is not included.			