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The Total Economic Impact Of TANDBERG Videoconferencing Solutions

Single Company Analysis

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Executive Summary

In January 2007, TANDBERG commissioned Forrester Consulting to examine the total economic impact and potential return on investment (ROI) enterprises may realize by deploying TANDBERG videoconferencing solutions. TANDBERG is a provider of visual communications technology to its clients. This study illustrates the financial impact resulting from an investment in TANDBERG videoconferencing solutions by Exelon Corporation.

Exelon Corporation is one of the nation's largest electric utilities, with more than \$15 billion in annual revenues. It distributes electricity to approximately 5.2 million customers in Illinois and Pennsylvania and gas to 470,000 customers in the Philadelphia area.

In conducting in-depth interviews with Exelon, Forrester found that the company was able to achieve benefits in terms of a reduction and avoidance in travel costs, improvement in business process efficiency, and improved training effectiveness and efficiency.

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of TANDBERG videoconferencing solutions on their organizations. Forrester's aim is to clearly show all calculations and assumptions used in the analysis. Readers should use this study to better understand and communicate a business case for investing in TANDBERG videoconferencing solutions.

Methodology

TANDBERG selected Forrester for this project because of its industry expertise in visual communications and Forrester's Total Economic Impact™ (TEI) methodology. TEI not only measures costs and cost reduction or avoidance (areas that are typically accounted for within IT) but also weighs the enabling value of a technology in increasing the effectiveness of overall business processes.

For this study, Forrester employed four fundamental elements of TEI in modeling the financial impact of TANDBERG's technology at Exelon:

1. Costs and cost reduction or avoidance.
2. Benefits to the entire organization.
3. Risk.
4. Flexibility.

Given the increasing sophistication that enterprises have regarding cost analyses related to IT investments, Forrester's TEI methodology serves an extremely useful purpose by providing a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

Approach

Forrester used a five-step approach for this study:

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1. Forrester gathered data from existing Forrester research relative to videoconferencing solutions and the visual communications market, in general.
2. Forrester interviewed TANDBERG marketing and sales personnel to fully understand the potential (or intended) value proposition of TANDBERG videoconferencing solutions.
3. Forrester conducted a series of in-depth interviews with Exelon, an organization that is currently using TANDBERG videoconferencing solutions. Forrester interviewed a VP of Infrastructure and Operations as well as a Principal Network Architect.
4. Forrester constructed a financial model representative of the interviews. This model can be found in the TEI Framework section, below.
5. Forrester created a composite organization based on the interviews and populated the framework using data from the interviews as applied to the composite organization.

Key Findings

Forrester's study yielded three key findings:

- **ROI.** Based on the interviews with the Exelon stakeholders, Forrester constructed a TEI framework for the organization, and the associated ROI analysis illustrating the financial impact areas. As seen in Table 1, the five-year ROI for Exelon is estimated to be 37% with a breakeven point (payback period) of 2.22 years after initial deployment.
- **Benefits.** Benefits mentioned by Exelon included improving the effectiveness of distributed groups, improving the efficiency of specific business processes such as an external merger or acquisition, reducing the cost of communication through the use of visual communications through the use of existing IP backbone, as well as maintaining and keeping the best employees through effective training across distributed individuals.
- **Costs.** Investment cost included the purchase of the TANDBERG devices, planning and installation costs of the devices, ongoing support, and annual maintenance for the technology.

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Table 1 illustrates the risk-adjusted cash flow for the composite organization, based on data and characteristics obtained during the interview process. Forrester risk-adjusts these values to take into account the potential uncertainty that exists in estimating the costs and benefits of a technology investment. The risk-adjusted value is meant to provide a conservative estimation, incorporating any potential risk factors that may later impact the original cost and benefit estimates. For a more in-depth explanation of risk and risk adjustments used in this study, please see the Risk section.

Table 1: Composite Company ROI, Risk-Adjusted

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total	PV
Total Costs	\$420,000	\$158,533	\$162,100	\$165,667	\$575,667	\$265,667	\$1,747,633	\$1,493,946
Total Benefits		\$279,966	\$373,288	\$559,932	\$699,915	\$933,220	\$2,846,321	\$2,041,210
Net Impact	-\$420,000	\$121,433	\$211,188	\$394,265	\$124,248	\$667,553	\$1,098,688	\$547,264
Cumulative Impact	-\$420,000	-\$298,567	-\$87,379	\$306,886	\$431,134	\$1,098,688		
ROI	37%							
Payback (Years)	2.22							
IRR	48%							

Source: Forrester Research, Inc.

Forrester found that the key drivers impacting the final ROI estimate include the level of adoption across the organization, the types of usage for the technology, and the types of business process where videoconferencing is used. Readers are urged to estimate their own level of visual conferencing adoption and usage to determine their own ROI for their organizations.

Disclosures

The reader should be aware of the following:

- The study is commissioned by TANDBERG and delivered by the Forrester Consulting group.
- TANDBERG reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester’s findings or obscure the meaning of the study.
- The customer names for the interviews were provided by TANDBERG.
- Forrester makes no assumptions as to the potential return on investment that other organizations will receive. Forrester strongly advises that readers should use their own estimates within the framework provided in the report to determine the appropriateness of an investment in TANDBERG’s videoconferencing solution.
- This study is not meant to be used as a competitive product analysis.

TANDBERG Videoconferencing Solutions: Overview

According to TANDBERG, it 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.

Analysis

As stated in the Executive Summary, Forrester took a multistep approach to evaluate the impact that implementing TANDBERG videoconferencing can have on an organization:

- Interviews with TANDBERG marketing and sales personnel.
- In-depth interviews with an organization currently using TANDBERG videoconferencing.
- Construction of a common financial framework for the implementation of TANDBERG videoconferencing.
- Construction of a composite organization based on characteristics of the interviewed organizations.

Interview Highlights

The in-depth interviews with Exelon uncovered a number of this customer's characteristics, which help to see how to improve visual communications throughout the organization:

- Exelon Corporation is one of the nation's largest electric utilities, with more than \$15 billion in annual revenues. It distributes electricity to approximately 5.2 million customers in Illinois and Pennsylvania and gas to 470,000 customers in the Philadelphia area.
- Exelon currently employs roughly 18,000 employees in Illinois and Pennsylvania.
- Exelon began to see the need for TANDBERG videoconferencing in 2001. A key organizational factor in choosing TANDBERG was to establish tighter cohesion between geographically disparate groups across the organization. In addition, two enabling factors made Exelon consider investing in TANDBERG. First, the organization had undertaken a significant upgrade of its internal IP network. Second, the organization had faced repeated reliability and connectivity issues associated with existing legacy ISDN equipment. As a result, videoconferencing had become expensive and unreliable, which limited usage across the organization.
- TANDBERG devices were initially rolled out to senior executives within the organization in the Philadelphia and Chicago area. These initial rollouts included investing in personal desktop devices as well as larger conference room units for primarily internal communication.
- After the initial rollout to senior executives, the organization began a phased deployment to additional employees within the organization. Exelon currently estimates that roughly 20%

of employees have access to TANDBERG videoconferencing either through personal desktop devices or larger conference room units. It is expected that usage will grow organically as more groups demand the use of video conferencing.

- Based on the rollout schedule of these devices, Exelon believes that it has recovered its investment through a reduction in travel costs, improvement in business process and employee efficiency, and improvement in training effectiveness and efficiency. In addition, as the TANDBERG devices run over existing IP backbone, the transmission costs are significantly lower than the costs of a comparable ISDN environment. The organization noted the cost to build out a comparable ISDN environment would be roughly 30%-40% more expensive than with IP Telephony. Increasing IP telephony usage would further increase the operational savings compared with ISDN.

TEI Framework

Introduction

From the information provided in the in-depth interviews, Forrester has constructed a TEI framework for those organizations considering implementation of TANDBERG videoconferencing solutions. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

Framework Assumptions

Table 2 lists the discount rate used in the PV and NPV calculations and time horizon used for the financial modeling.

Table 2: General Assumptions

Ref.	General assumptions	Value
	Discount rate	10%
	Length of analysis	Five years

Source: Forrester Research, Inc.

Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their finance departments to determine the most appropriate discount rate to use within their own organizations.

In addition to the financial assumptions used to construct the cash flow analysis, Table 3 provides salary assumptions used within this analysis.

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Table 3: Salary Assumptions

Ref.	Metric	Calculation	Value
A1	Hours per week		40
A2	Weeks per year		50
A3	Hours per year (M-F, 9-5)		2,000
A4	Hours per year (24x7)		8,736
A5	Fully burdened salary		\$100,000
A6	Hourly	(A5/A3)	\$50

Source: Forrester Research, Inc.

Costs

Costs for the TANDBERG videoconferencing solution for the interviewed organization include costs of hardware and maintenance, the annual cost of support, as well as the costs of implementation. The actual cost of the solution will vary depending on the size of the implementation as well as the level of adoption undertaken by the organization.

Equipment Cost

Investment in TANDBERG equipment represents a significant component of the overall investment in videoconferencing. Exelon's investment in TANDBERG units occurred in three key phases: the initial investment in units for senior executives, ongoing annual investments in units for employees who had not had prior exposure to TANDBERG videoconferencing, and more recent refresh costs of TANDBERG bridges and HD video units to replace existing videoconferencing equipment. Table 4 illustrates the breakout of purchased units over a five-year time period.

Table 4: Products Purchased — Breakout By Year

Product type	Initial year	Year 1	Year 2	Year 3	Year 4	Year 5	Total
T1000	10	1	1	1			13
2500	12	2	1				15
770 mxp	20				6		26
3000 mxp	10				2		12
1700 mxp	4				1		5
mps	2				2		4
1000 mxp	6	3	2	2	1		14

Source: Forrester Research, Inc.

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Over a five-year period, the organization estimates that it has spent roughly \$1.275 million on TANDBERG equipment. This includes an initial cost of \$400,000, a yearly investment of \$75,000 on new equipment, and \$500,000 in Years 4 and 5 to replace existing bridges and refresh units purchased in 2001. Table 5 illustrates the breakout of total equipment cost over the five-year period.

Table 5: Equipment Cost Breakdown

Ref.	Metric	Calculation	Value
B1	Initial equipment cost		\$400,000
B2	Ongoing equipment cost	\$75,000*5	\$375,000
B3	Refresh equipment cost		\$500,000
Bt	Total equipment cost	B1+B2+B3	\$1,275,000

Source: Forrester Research, Inc.

Planning And Installation Cost

Planning and installation cost includes primarily internal and external labor resources required to install the TANDBERG equipment. Exelon noted the cost of planning and installation was small because the organization primarily used existing support staff. Cost of planning and installation included an upfront cost of \$20,000 to prepare for the transition to TANDBERG, as well as a more recent cost of \$10,000 in Year 4 to implement the hardware refresh. Table 6 illustrates the different cost components.

Table 6: Planning And Installation Cost

Ref.	Metric	Calculation	Value
C1	Initial planning and installation		\$20,000
C2	Refresh planning and installation		\$10,000
Ct	Total planning and installation cost	C1+C2	\$30,000

Source: Forrester Research, Inc.

Annual Maintenance

The cost of maintenance over the past three years equates to roughly \$107,000 for Exelon. For the purpose of this analysis, Forrester broke out the cost of maintenance into \$35,667 (\$107,000/3) for Years 3 through 5. For Year 1 and Year 2, we assume that the cost of maintenance is slightly lower as a result of fewer devices in the environment. The cost of maintenance in Year 1 is estimated at \$28,533 and in Year 2 at \$32,100. Table 7 illustrates the annual maintenance costs.

Table 7: Annual Maintenance Cost

Ref.	Metric	Calculation	Value
D1	Annual maintenance — Year 1		\$28,533
D2	Annual maintenance — Year 2		\$32,100
D3	Annual maintenance — Year 3-Year 5		\$35,667
Dt	Total planning and installation cost	$D1+D2+(D3*3)$	\$167,633

Source: Forrester Research, Inc.

Internal Support Cost

The final cost was the incremental internal cost to support the growth in videoconferencing adoption across the organization. Prior to 2001, the use of videoconferencing was limited, and support was focused predominantly within the IT department. With the growth in TANDBERG, responsibility of rollout of the videoconferencing devices was shifted to the facilities organization. Exelon noted that the added cost of support equated to roughly .05 of an FTE within the facilities organization and .5 of an FTE increase within the IT organization. In addition, Exelon mentioned a key ongoing value proposition of their TANDBERG investment was the durability and longevity of the technology. The ability of individual users to directly set up calls between multiple groups was a key factor in keeping support costs low coupled with low breakage rates of the devices.

Assuming that a fully burdened annual salary is \$100,000, the increase in support cost for IT equates to \$50,000 (.5*\$100,000) and \$5,000 for the facilities organization (.05*\$100,000). Table 8 illustrates the total increase in support costs.

Table 8: Internal Support Cost

Ref.	Metric	Calculation	Value
E1	Internal support — IT		\$50,000
E2	Internal support — facilities		\$5,000
Et	Total planning and installation cost	$E1+E2$	\$55,000

Source: Forrester Research, Inc.

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Total Costs

Table 9 illustrates the total estimated cost for TANDBERG videoconferencing for the interviewed organization over a five-year time period.

Table 9: Total Cost

	Initial cost	Year 1	Year 2	Year 3	Year 4	Year 5	Total	PV
Equipment	\$400,000				\$400,000	\$100,000	\$900,000	\$846,281
Planning and installation	\$20,000				\$10,000		\$30,000	\$29,091
Equipment (ongoing)		\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$375,000	\$284,309
Annual maintenance		\$28,533	\$32,100	\$35,667	\$35,667	\$35,667	\$167,633	\$125,772
Internal support		\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$275,000	\$208,493
Total estimated cost	\$420,000	\$158,533	\$162,100	\$165,667	\$575,667	\$265,667	\$1,747,633	\$1,493,946

Source: Forrester Research, Inc.

Benefits

The second component of this analysis looks at the potential benefits associated with an investment in TANDBERG videoconferencing. As a result of the interview process, Exelon indicated that it noted a reduction in travel costs, an improvement in employee productivity, and improvement in the efficiency and effectiveness within the training process.

Travel Cost Avoidance

The adoption to more ubiquitous video communications allowed Exelon to reduce the overall level of travel, particularly for managers and senior executives within the organization. Exelon currently has two primary locations, one in Philadelphia and the other in Chicago, and a total of 16 other operations locations. Management at each of these locations needs to be directly connected to each other as well as to remote locations. The organization estimates that video-enabled managers can be effective through visual communication while at same time avoiding the direct and indirect cost of travel.

To calculate this benefit, we assume that 1,080 employees currently have access to video within Exelon. This is calculated by multiplying the total number of management non-union employees (18,000*30%) by the number of those employees who have access to video (20%*5,400). We assume that within a given year, roughly 40%, or 432, of the 1,080 employees will actually see a measurable reduction in the cost of travel. Assuming that a senior manager takes four scheduled trips per year on average, he or she may be able to reduce the cost of travel by 30%. Assuming that the average cost of the business trip is \$1,000 including the cost of travel, lodging, and meals, the total cost avoidance per employee equates to \$1,200 per year (4*\$1,000*30%). In order to conservatively measure this impact, this cost does not include any lost productivity associated with travel equating to up to 6 hours per trip. Table 10 illustrates the calculation used.

Table 10: Travel Cost Reduction

Ref.	Metric	Calculation	Value
F1	Video-accessible personnel		1,080
F2	Affected employees		40%
F3	Average number of trips per year		4
F4	Cost per trip		\$1,000
F5	% reduction		30%
F6	Cost avoidance per employee	$F3 * F4 * F5$	\$1,200
Ft	Total savings	$F1 * F2 * F6$	\$518,400

Source: Forrester Research, Inc.

Improving Business Process Efficiency

In addition to reducing the cost of travel, another area of benefit is the ability to improve the productivity of Exelon’s management staff. Visual communications are an important part of interaction with senior managers, allowing groups within the organization to share presentations and visuals and collaborate more effectively as compared with meetings through audioconferencing. In particular, the organization noted that the use of visual communications played an important role during earlier merger activities between multiple groups within the organization, speeding decision-making and making communications more effective. Exelon noted a case in particular where senior executives in Philadelphia and Chicago needed to meet in anticipation of an upcoming merger. Several executives could not attend in person and having direct access to videoconferencing allowed the organization to set up effective meetings quickly without having to wait for remote executives to travel to either location.

To calculate this benefit, Exelon noted that on average the organization schedules roughly 1,200 meetings using visual communications over the course of a year. For each of the meetings, we assume that roughly 25 employees attend, with an average length of 2 hours per meeting. Based on the customer interviews, we assume that Exelon is able to shorten the length of these meetings by on average 30% through the use of visual communications. To be conservative, we estimate that only 40% of the time regained translates to productive time. Using an average hourly salary of \$60, we can calculate the total annual savings of \$432,000. Table 11 illustrates the calculation used.

Table 11: Business Process Efficiency

Ref.	Metric	Calculation	Value
G1	Total cross-functional meetings per year		1,200
G2	Average number of participants		25
G3	Length of meeting (hours)		2
G4	Estimated time improvement		30%
G5	Blended salary		\$60
G6	Productivity regained		40%
Gt	Total savings	$G1 * G2 * G3 * G4 * G5 * G6$	\$432,000

Source: Forrester Research, Inc.

Training Savings

The final area of benefit for Exelon is in additional uses of visual communication within the organization. One case that the organization expects to leverage and grow is the use of visual communications for training across the organization. While Exelon noted that the current level of training using visual communications has been limited, the organization expects to increase the use of video into the future. In addition, Exelon noted many of their employees view Exelon as a long term career opportunity in their local community and would be more adverse to relocation. As a result, the use of video improved the ability to train multiple teams across the organization and build greater cohesion by hiring and training employees regardless of location.

To calculate this benefit, we assume that over the course of the year, 500 employees will be trained using visual communications. As part of the training, Exelon can replay the training presentation for later video playback and can consolidate training sessions across multiple groups. Assuming that the average training time is 3 hours per employee and that the impact of video conservatively reduces the training time and cost by 20%, we can calculate the value of improved training efficiency. Table 12 illustrates the calculation used.

Table 12: Training Savings

Ref.	Metric	Calculation	Value
H1	Employees trained		500
H2	Total training time		3
H3	Hourly training cost per employee		\$50
H4	Reduction in training cost		20%
Ht	Total savings	$H2 * H3 * H4 * H1$	\$15,000

Source: Forrester Research, Inc.

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Total Benefits

Table 13 illustrates the total five-year benefits as a result of the investment in the TANDBERG videoconferencing solution. Due to the current growth and adoption of the investment within Exelon, Forrester assumes benefits ramp up by 30% in Year 1, 40% in Year 2, 60% in Year 3, and 75% in Year 4. As a result, the total present value of benefits equates to \$2,111,596 over five years.

Table 13: Total Benefits — Non-Risk-Adjusted

	Year 1	Year 2	Year 3	Year 4	Year 5	Total	PV
Reduced travel cost	\$155,520	\$207,360	\$311,040	\$388,800	\$518,400	\$1,581,120	\$1,133,884
Improved meeting productivity	\$129,600	\$172,800	\$259,200	\$324,000	\$432,000	\$1,317,600	\$944,903
Improved training cost	\$4,500	\$6,000	\$9,000	\$11,250	\$15,000	\$45,750	\$32,809
Total benefits	\$289,620	\$386,160	\$579,240	\$724,050	\$965,400	\$2,944,470	\$2,111,596

Source: Forrester Research, Inc.

Risk

Risk is the third component within the TEI model; it is used as a filter to capture the uncertainty surrounding different cost and benefit estimates. If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as “realistic” expectations, since they represent the expected values considering risk. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates.

Risk-adjusted and non-risk-adjusted ROI are both discussed in this study. Since the future cannot be accurately predicted, there is risk inherent in any project. Risk assessments provide a range of possible outcomes based on the risks associated with IT projects in general and specific risks relative to moving toward a new technology solution. The following general risks were considered in this study:

- The risk that the estimated cost savings varied from the actual savings realized by the organization due to the difficulty associated with measuring cost savings post-implementation.
- The risk that the cost savings realized by the organization were to some degree a function of the complex technical environment in which the organization operated. Therefore, cost savings may vary depending on the complexity of organization’s environment when migrating to TANDBERG.

Risk factors are used in TEI to widen the possible outcomes of the costs and benefits (and resulting savings) associated with a project. TEI applies a probability density function known as triangular distribution to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit estimate. The expected value — the mean of the distribution — is used as the risk-adjusted cost or benefit number. The risk-adjusted costs and benefits are then summed to yield a complete risk-adjusted summary and ROI. In this study, Forrester discovered that engaging with TANDBERG was a relatively low-risk endeavor, as

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expressed by the interviewed organization, and applied a risk factor of 100% to the costs and 97% of the benefits to arrive at a risk-adjusted number. Table 14 provides a risk-adjusted breakdown of the benefits received. Table 15 provides the summary risk-adjusted financial results for the interviewed organization.

Table 14: Risk-Adjusted Benefit Estimates — Interviewed Organization

	Year 1	Year 2	Year 3	Year 4	Year 5	Total	PV
Reduced travel cost	\$150,336	\$200,448	\$300,672	\$375,840	\$501,120	\$1,528,416	\$1,096,088
Improved meeting productivity	\$125,280	\$167,040	\$250,560	\$313,200	\$417,600	\$1,273,680	\$913,406
Improved training cost	\$4,350	\$5,800	\$8,700	\$10,875	\$14,500	\$44,225	\$31,716
Total benefits	\$279,966	\$373,288	\$559,932	\$699,915	\$933,220	\$2,846,321	\$2,041,210

Source: Forrester Research, Inc.

Table 15: Summary Financial Risk-Adjusted Results — Interviewed Organization

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total	PV
Total Costs	\$420,000	\$158,533	\$162,100	\$165,667	\$575,667	\$265,667	\$1,747,633	\$1,493,946
Total Benefits		\$279,966	\$373,288	\$559,932	\$699,915	\$933,220	\$2,846,321	\$2,041,210
Net Impact	-\$420,000	\$121,433	\$211,188	\$394,265	\$124,248	\$667,553	\$1,098,688	\$547,264
Cumulative Impact	-\$420,000	-\$298,567	-\$87,379	\$306,886	\$431,134	\$1,098,688		

Source: Forrester Research, Inc.

Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

While the organization was not specifically able to quantify the impact of future flexibility savings, it did discuss several specific areas where it could leverage TANDBERG technology into its environment. TANDBERG provided the organization with a highly scalable technology reducing the marginal cost of deployment to additional teams within the organization. One option was to increase adoption to different roles within the organization, including non-management personnel, as well as to increase the use of videoconferencing outside the organization.

TEI Framework: Summary

Considering the financial framework constructed above, the results of the costs, benefits, risk, and flexibility sections using the representative numbers can be used to determine a return on investment, net present value, and payback period. Table 16 shows the consolidation of the numbers for the organization.

Table 16: Cash Flow Summary

Summary financial results	Original estimate	Risk-adjusted
ROI	41%	37%
Payback period (years)	2.16	2.22
Total costs (present value)	\$1,493,946	\$1,493,946
Total benefits (PV)	\$2,111,596	\$2,041,210
Total (net present value)	\$617,650	\$547,264
Internal rate of return (IRR)	51%	48%

Source: Forrester Research, Inc.

It is important to note that values used throughout the TEI Framework are based on in-depth interviews with an organization which has implemented TANDBERG videoconferencing. Forrester makes no assumptions as to the potential return that other organizations will receive within their own environment. Forrester strongly advises that readers use their own estimates within the framework provided in this study to determine the expected financial impact of investing in TANDBERG videoconferencing.

Appendix A: Total Economic Impact™ Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, risks, and flexibility. For the purpose of this analysis, the impact of flexibility was not quantified.

Benefits

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

Costs

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the forms of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

Risk

Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: the likelihood that the cost and benefit estimates will meet the original projections and the likelihood that the estimates will be measured and tracked over time. TEI applies a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Flexibility

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point in time. However, having the ability to capture that benefit has a present value that can be estimated. The flexibility component of TEI captures that value.

Appendix B: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Although the Federal Reserve Bank sets a discount rate, companies often set a discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their organization to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given an interest rate (the discount rate). The PV of costs and benefits feed into the total net present value of cash flows.

Payback period: The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A Note On Cash Flow Tables

The following is a note on the cash flow tables used in this study (see the Example Table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in Years 1 through 3 are discounted using the discount rate shown in Table 2 at the end of the year. Present value (PV) calculations are calculated for each total cost and benefit estimate. Net present value (NPV) calculations are not calculated until the summary tables and are the sum of the initial investment and the discounted cash flows in each year.

Example Table

Ref.	Category	Calculation	Initial cost	Year 1	Year 2	Year 3	Total

Source: Forrester Research, Inc.