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The Total Economic Impact Of Siemens OpenScape Voice

Single Company Case Study

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TABLE OF CONTENTS

Executive Summary

In April 2009, Siemens Enterprise Communications commissioned Forrester Consulting to examine the Total Economic Impact (TEI) and potential return on investment (ROI) enterprises may realize by deploying Siemens OpenScape Voice Application. This solution provides a voice over IP (VoIP) application and supports enterprise telephony applications on a native SIP standards-based platform. This study illustrates the financial impact of deploying the Siemens OpenScape Voice Solution at one organization that has asked to remain anonymous: a large Western European organization that has chosen Siemens OpenScape Voice application as a replacement for its entire voice communication system.

The major goals for the reference organization were to select a solution that provides a single homogeneous telephone platform for its employees to better manage operational expenses and to prepare the organization to migrate to unified communications. Unified communications integrates voice, data, and video communications with collaboration technology, such as calendars, email, and Web conferencing to reduce communication delays and improve business processes with real-time collaboration. As a major first step in this direction, the reference organization selected a converged voice and data communications system that would centralize its communication systems and consolidate the management of these systems to improve operational efficiency. At the time of the interviews, the organization was preparing the second phase of the deployment, which consists in migrating one of the largest sites.

In conducting interviews with this reference organization, Forrester found that it achieved several benefits by migrating to Siemens OpenScape Voice Application. Key findings indicate an expected positive **ROI of 149%** including cost savings from:

- **Reduced administration costs.** By consolidating the management of its voice communication infrastructure, a remote administration can make changes to the system reducing the need to employ system administrators for each location.

- **Fewer telephone operators.** Sharing operators across multiple locations support greater efficiencies in handling telephone calls, reducing the need to deploy operators at each location.

- **Lower cabling costs.** A converged voice and data network eliminates the need for separate cable for voice and data communications. This is especially beneficial when moving to a new location where new cable is required.

- **Reduced PSTN and lease lines costs.** On a fully converged network, voice is carried over the internal data network for all interoffice calls reducing carrier costs for local calls and lease lines for voice communications between sites.

- **Decreased management expenses.** With a consolidated homogeneous system, management of the system can be done from a central data center for all locations. This requires fewer system engineers in the organization to maintain telecom equipments.

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of OpenScape Voice 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 Siemens Enterprise Communications/OpenScape Voice.

Methodology

Siemens Enterprise Communications selected Forrester for this project because of its industry expertise in telecommunications and Forrester's Total Economic Impact™ (TEI) methodology. TEI not only measures costs and cost reduction (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 OpenScape Voice:

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

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:

1. Forrester gathered data from existing Forrester research relative to Siemens Enterprise Communications' OpenScape Voice and the telecommunications market in general.
2. Forrester interviewed Siemens Enterprise Communications marketing and sales personnel to fully understand the potential (or intended) value proposition of the OpenScape Voice solutions.
3. Forrester conducted a series of in-depth interviews with one organization currently integrating the OpenScape Voice solution.
4. Forrester constructed a financial model representative of the interviews. This model can be found in the TEI Framework section below.
5. Forrester populated the framework using data from the interviews.

Key Findings

Forrester's study yielded a number of key findings:

- **ROI.** Based on the interviews with the reference organization, Forrester constructed a TEI framework (see Appendix A), and the associated ROI analysis illustrating the financial impact areas. As seen in Table 1, the expected 7-year risk-adjusted ROI for the reference organization is 149%.

- **Benefits.** Principal benefits that have accrued or are expected to accrue to this Siemens OpenScape voice customer are: 1) benefits from centralized management and staff consolidation; 2) lower PSTN and leased line costs; 3) lower maintenance contracts costs; 4) lower fixed line telephone call charges; and 5) lower cabling costs.

- **Costs.** The main cost categories for adoption of the Siemens OpenScape voice system are 1) the investment in the central softswitch, infrastructure elements at other locations, and user terminals; 2) network upgrade costs; 3) labor costs involved in the migration; and 4) costs for the maintenance of the new infrastructure.

Table 1 illustrates the risk-adjusted cash flow for the reference 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 over the years. The risk-adjusted value is meant to provide a conservative estimation, incorporating any potential risk factors that may later affect 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: Reference Organization ROI, Risk-Adjusted

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
R1	Total costs		2 847 000 €	1 240 000 €	5 085 000 €	9 172 000 €	7 815 000 €
R2	Total benefits		735 000 €	1 916 000 €	23 628 000 €	26 279 000 €	19 495 000 €
R3	Total	R2-R1	-2 112 000 €	676 000 €	18 543 000 €	17 107 000 €	11 680 000 €
R4	Return on investment	R3/R1					149%

Source: Forrester Research, Inc.

Although this project produces a good return on investment, there are other categories of benefits that this reference organization did not specifically account for but that might be interesting to explore for other organizations. This includes, for example, business benefits from unified communication features, reduced travel costs due to better audio- and videoconferencing capabilities or the support of teleworkers. Organizations with a wider geographical scope than this reference organization might also be able to save more money on telephone charges regarding internal phone calls between locations.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Siemens Enterprise Communications and delivered by the Forrester Consulting group.

- Siemens Enterprise Communications 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 Siemens Enterprise Communications.

- 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 Siemens Enterprise Communications/OpenScape Voice.

- This study is not meant to be used as a competitive product analysis.

Siemens Enterprise Communications OpenScape Voice: Overview

Siemens Enterprise Communications OpenScape Voice is a major component of Siemens Unified Communications Portfolio. It provides organizations with a carrier-grade voice communications system that delivers high resiliency and advanced features on its platform. The media event server delivers a dual software image and signal redundancy to deliver the high level of uptime that is expected from carriers. As a native SIP-based softswitch, OpenScape Voice is independent from the underlying hardware. This provides high reliability for voice communications and a scalable architecture, which supports up to 100,000 users per cluster.

The OpenScape Voice server can be housed in a data center to allow users to manage and administer the system from a centralized location. Its standard IT tools make it easier for customers to manage applications and integrate with existing applications. This also results in lower support costs. The base system runs on a Linux server, which is a non-proprietary operating system that reduces support costs and increases flexibility. When combined with cluster control software, all parts of the system can run as a redundant unit.

The Enterprise OpenScape Voice application supports multiple locations and mobile workers who can access the same features as employees working from office locations. This includes an integrated interface between the mobile device and the desktop and access to unified communication features from multiple mobile devices. It also supports secure access and single number reach to others within the organization. This is especially important for organizations that have a high number of mobile employees or teleworkers.

Its open application interface makes it possible for organizations to add new applications with ease, it solidly supports SIP and SIP Q, which makes it compatible with other commonly used protocols and supports the integration of numerous applications on its platform. Its Web service architecture integrates with Web-based user interfaces and enables remote access for self-management. It also delivers consistent management with Web-based applications and management systems.

Several applications are supported on the Enterprise Communications OpenScape Voice platform. These applications include HiPath Xpressions, HiPath ComAssistant, HiPath ProCenter, OpenScape Video, HiPath MetaManagement HiPath Serviceability Platform for Applications (HISPA), and OpenScape UC Applications. This rich set of applications allows organizations to meet all their voice needs and improves the manageability and servicing of their applications.

Security is another important feature for the Enterprise Communications OpenScape Voice platform. As such, it offers many security features to meet the needs of an organization's individual security requirements. It provides comprehensive security features that include account and password management, event logging, file transfer security, media streaming security and defense against denial of service attacks. It also offers greater flexibility for administrators in defining password rules, password aging and password reuse policies to ensure that end users' passwords are kept up to date and secure.

Analysis

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

- Interviews with Siemens Enterprise Communications marketing and sales personnel.
- In-depth interviews of one organization currently using OpenScape Voice.
- Construction of a common financial framework for the implementation of OpenScape Voice.

At the time of the interviews, the reference organization was still in the early stages of the OpenScape Project. The numbers that are indicated in the cost and benefit tables below are thus expected values indicated by the reference organization. They are based on the organization's best knowledge and checked for consistency by Forrester. Forrester modeled the benefits and costs over time according to the organization's migration plan. Going forward, the reference organization said that it will track costs and cost savings including the predictions regarding its operational staff.

Interview Highlights

The organization that was interviewed for this study is a large organization in Western Europe. Among other responsibilities, its organization and information service takes care of the communication needs of more than 20,000 end users spread across nearly 1,000 locations. The different locations have very heterogeneous telecommunications needs.

The 15 largest sites already used large networked telephone systems — with a majority of Siemens products. Other large and medium sites were supported by telephone switches from various vendors. Services were provided by either local dedicated teams or by numerous external service providers.

The customer interviews uncovered the context of the organization's environment and a number of insights, including:

- In 2007, the organization decided to transform its extremely heterogeneous voice environment into a single homogeneous telephone platform to better manage operational expenses and to prepare the organization to migrate to unified communications.
- Following a thorough and extensive selection process, the organization chose the Siemens OpenScape Voice platform that was contracted via one of Siemens' channel partners. The main driving factors for this decision were:
    - The high scalability of the system from 300 to 100,000 users to be able to integrate the new system into the existing legacy and multivendor infrastructure step by step.
    - The availability of survivable gateways meeting the requirements for branch office resilience.
    - The provision of a flexible platform for building a companywide unified communications strategy.

  - The use of industry standard servers and operating systems in order to simplify data center operations.

- The whole deployment was subdivided into three major phases.

  - The first phase consisted of installing the central infrastructure. To fulfill the high requirements of securing availability, the system was installed in two separate data centers and uses the survivability function of the gateways.

  - At the time of the interviews, the organization was preparing the second phase, which consists in migrating one of the largest sites.

  - The third phase involves the complete rollout. Several thousand end users will thus be migrated in each of the consequent years.

- In the future, the organization is planning to take advantage of advanced unified communications capabilities and to support the mobile users by activating the Mobile Connect feature.

TEI Framework

Introduction

From the information provided in the in-depth interviews, Forrester has constructed a TEI framework for those organizations considering implementation of OpenScape Voice. 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, time horizon used for the financial modeling, and the assumed annual salary inflation rate. [1]

Table 2: General Assumptions

Ref.	General assumptions	Value
A1	Yearly discount rate	8%
A2	Length of analysis	7 years
A3	Annual salary inflation rate	2%

Source: Forrester Research, Inc.

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

Costs

This paragraph summarizes the costs related to the deployment of the Siemens OpenScape Voice solution. The costs related to phases two and three of the project (see "Interview Highlights" section) are *estimates* from the reference organization.

Central Infrastructure And First Site Equipment

The principal cost to the customer associated with the implementation of the Siemens OpenScape Voice system is the investment in the central infrastructure, consisting of the servers and associated equipment in the two data center locations, together with the software license fees. At the same time the customer purchased other equipment for the different sites, consisting of terminals and survivable gateways, which are connected to the PSTN and are capable of making outgoing calls in the unlikely event of total failure of either the central equipment or the site's resilient network connections.

Network Upgrade Costs

In addition to the central infrastructure, there are ancillary costs for upgrading the organization's wide area network (for example, to connect sites to central data centers if no link exists already), air conditioning, etc.

Initial Labor Costs And Subsequent Site Costs

This is the cost estimation of internal staff and external contract labor for the installation of the central infrastructure and for the migration of the different sites.

Maintenance Charges

This cost category includes the supplier maintenances fees for the central infrastructure, user terminals, and a separate line item associated with the cost of providing power-over-Ethernet (PoE) to each user terminal.

Total Approximate Costs[2]

Table 3 summarizes the costs and cost estimates for the deployment of the OpenScape Voice solution within the reference organization over a seven-year period.

Table 3: Total Costs (in €)

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
B1	Investment in HW/SW		2 204 000 €	739 000 €	2 892 000 €	5 835 000 €	5 068 000 €
B2	Investment in network upgrades		189 000 €	211 000 €	826 000 €	1 226 000 €	1 007 000 €
B3	Labor costs		315 000 €	106 000 €	413 000 €	834 000 €	724 000 €
B4	Maintenance fees		79 000 €	157 000 €	787 000 €	1 023 000 €	806 000 €
B5	Additional network		0 €	3 000 €	69 000 €	72 000 €	53 000 €

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
	maintenance fees ("PoE")						
B6	Total costs	B1+B2+B3+B4+B5	2 787 000 €	1 216 000 €	4 987 000 €	8 990 000 €	7 658 000 €

Source: Forrester Research, Inc.

Benefits

The benefits included in the reference organization's forecasts are principally cost savings resulting from the deployment of a data center-located softswitch. The reference organization expects to:

- Consolidate its teams of system administrators, support engineers, MAC technicians, and telephone operators.
- Reduce cabling costs.
- Reduce PSTN access and leased line costs.
- Reduce the total amount spent in maintenance contracts.
- Lower telephone charges.

For the user, however, the project is not only about savings but also lays the foundation for a common unified communications infrastructure from which all employees will benefit. The UC implementation will be completely integrated with Microsoft Outlook and other business applications. The reference organization is also highly interested in using the Siemens Mobile Connect feature to reduce mobile phone charges and enhance the functionality available to mobile users. However, at the time of publication of this study, the reference organization had not yet elaborated concrete plans for these capabilities. They were therefore not included in this business case.

Benefits From Centralized Management And Staff Consolidation

Due to the centralized management and advanced features like the centralized call answering function, the reference organization expects to consolidate its staff of administrators, support engineers, MAC technicians, and telephone operators to the extend described below.

Approximate Administration Cost Savings

System administrators support the technical team for assigning extensions and maintaining inventory and phone lists. Currently, most sites have their own PBX with local administrators; the reference organization forecasts that the total number of administrators required will fall by approximately 63% at the end of the project when the majority of sites have been migrated.

Table 4: Approximate Administration Cost Savings[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
C1	Reduced admin headcount		5%	18%	(increasing from 28% in year 3 to 63% in year 7)	
C2	Average annual fully loaded salary for this category		50 000 €	51 000 €	(increasing from 52000€ in year 3 to 57000€ in year 7)	
C3	Total administration cost savings (rounded)		100 000 €	358 000 €	5 037 000 €	5 495 000 €

Source: Forrester Research, Inc

Approximate Systems Support Cost Savings

Today each PBX requires technical system support. System support technical engineers identify system requirements, determine telephone features, and assign dial plans and class of service, and support desktop and voice applications (such as contact centers and voice messaging). Currently, many of the associated tasks are carried out by external resources resulting from the disparate nature of the installed base of PBXs. In the future, more will be done using internal staff trained on a common platform. The number of internal resources will thus grow but the overall costs are expected to be significantly reduced, equivalent to reducing current headcount by approximately 75%.

Table 5: Approximate System Support Cost Savings[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
D1	Reduced system support engineer headcount		8%	20%	(increasing from 33% in year 3 to 75% in year 7)	
D2	Average annual fully loaded salary for this category		54 000 €	55 000 €	(increasing from 56000€ in year 3 to 61000€ in year 7)	
D3	Total system support cost savings (rounded)		162 000 €	440 000 €	6 533 000 €	7 135 000 €

Source: Forrester Research, Inc.

Approximate Moves, Adds, And Changes To Cost Savings

Moves, adds, and changes (MAC) technicians support technical services and help desk services. They are responsible for changing telephone locations, configuring features, defining class of

service and implementing existing application changes. Today, many of the MACs are carried out by external providers on each site. As a result of the facilities of the central softswitch, the labor required will be reduced and standardized. It is also planned to bring the work in-house.

Table 6: Move, Add, And Changes Benefits[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
E1	Reduced MAC engineer headcount		0%	0%	(increasing from 17% in year 3 to 50% in year 7)	
E2	Average annual fully loaded salary for this category		54 000 €	55 000 €	(increasing from 56000€ in year 3 to 61000€ in year 7)	
E3	Total MAC cost savings (rounded)		0 €	0 €	532 000 €	532 000 €

Source: Forrester Research, Inc.

Telephone Operator Cost Savings

The reference organization expects the number of telephone operators to drop by approximately 63% at the end of the project.

Table 7: Telephone Operators Cost Savings[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
F1	Reduced telephone operator headcount		5%	18%	(increasing from 28% in year 3 to 63% in year 7)	
F2	Average annual fully loaded salary for this category		43 000 €	43 000 €	(increasing from 44000€ in year 3 to 48000€ in year 7)	
F3	Total telephone operator cost savings (rounded)		85 000 €	304 000 €	4 279 000 €	4 668 000 €

Source: Forrester Research, Inc.

Reduced Cabling Costs

For each user installation in new or refurbished buildings, the reference organization will run only three cables instead of four today. For each user position this is forecast to save about €190.

Table 8: Approximate Cabling Cost Savings[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7 year total
G1	Average cabling cost avoided per user		190 €	190 €	190 €	
G2	Number of migrated users in new or refurbished buildings		1 200	1 995	7 810	
G3	Total approximate cabling costs savings (rounded)	G1*G2	228 000 €	379 000 €	1 484 000 €	2 091 000 €

Source: Forrester Research, Inc.

Reduced PSTN Access Line And Leased Line Costs

Today every site has its own PSTN access circuits, configured to cope with the peak traffic into and out of that site. A lower total number of circuits will be required at the central sites, and voice tie lines between sites will not be required. Today contiguous blocks of telephone numbers are required for direct inward dialing. The reference organization estimates cost savings in three categories:

- Reduced primary PSTN access line costs.
- Reduced leased line costs.
- Reduced reservation costs for contiguous blocks of telephone numbers.

Table 9: PSTN Access And Approximate Leased Line Cost Savings[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
H1	Savings regarding PSTN access line costs		51 000 €	137 000 €	1 777 000 €	
H2	Savings regarding leased line costs		17 000 €	46 000 €	592 000 €	
H3	Reduced costs for the reservation of a continuous block of numbers		7 000 €	18 000 €	237 000 €	
H4	Total PSTN and leased lines cost savings	H1+H2+H3	75 000 €	201 000 €	2 606 000 €	2 882 000 €

Source: Forrester Research, Inc.

Reduced Maintenance Contract Costs

Today there are a large number of maintenance contracts for the PBXs and ancillary equipment on each site. For all migrated sites, this will be reduced to a single maintenance contract for the OpenScape voice system and its peripherals, at a much lower overall cost. A few minor sites will not be migrated and will keep their own voice system with their respective maintenance contracts.

Table 10: Approximate Benefits Due To Reduced Number Of Maintenance Contracts[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year Total
I1	Total cost savings from canceled maintenance contracts		62 000 €	165 000 €	2 133 000 €	2 360 000 €

Source: Forrester Research, Inc.

Approximate Telephone Charge Cost Savings

The new system will have the benefit that all internal calls between sites will be free. As the majority of outgoing calls are local and most of the internal calls were already optimized, the reference organization is forecasting only a modest additional savings per user in annual telephone charges.

Table 11: Cost Savings Due To Reduced Telephone Charges[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total
J1	Number of users migrated to central VoIP infrastructure		2 400	6 390	(increasing from 10,240 in year 3 to 22,010 in year 7)	
J2	Average annual costs savings per user		20,0 €	20,0 €	20,0 €	
J3	Total telephone cost savings (rounded)	J1*J2	48 000 €	128 000 €	1 621 000 €	1 797 000 €

Source: Forrester Research, Inc.

Total Benefits

Table 12 summarizes the total benefit estimates that were quantifiable for this study and explained above.

Table 12: Total Benefits (in €)[2]

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
K1	Total administration	C3	100 000 €	358 000 €	5 037 000 €	5 495 000 €	4 037 000 €

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
	cost savings						
K2	Total system support cost savings	D3	162 000 €	440 000 €	6 533 000 €	7 135 000 €	5 250 000 €
K3	Total MAC cost savings	E3	0 €	0 €	532 000 €	532 000 €	375 000 €
K4	Total telephone operator cost savings	F3	85 000 €	304 000 €	4 279 000 €	4 668 000 €	3 429 000 €
K5	Total cabling costs savings	G3	228 000 €	379 000 €	1 484 000 €	2 091 000 €	1 688 000 €
K6	Total PSTN and leased lines cost savings	H4	75 000 €	201 000 €	2 606 000 €	2 882 000 €	2 137 000 €
K7	Total cost savings from canceled maintenance contracts	I1	62 000 €	165 000 €	2 133 000 €	2 360 000 €	1 748 000 €
K8	Total telephone cost savings	J3	48 000 €	128 000 €	1 621 000 €	1 797 000 €	1 329 000 €
K9	Total benefits	sum(K1:K8)	760 000 €	1 975 000 €	24 225 000 €	26 960 000 €	19 993 000 €

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.

For the purpose of this analysis, Forrester risk-adjusts cost and benefit estimates to better reflect the level of uncertainty that exists for each estimate. The TEI model uses a triangular distribution method to calculate risk-adjusted values. To construct the distribution, it is necessary to first estimate the low, most likely, and high values that could occur within the current environment. The risk-adjusted value is the mean of the distribution of those points.

For example, take the case of the labor costs (see B3 in table 3). The total €834,000 value used in this analysis can be considered the “most likely” or expected value. However, this value might vary over the years based on the complexity of the changing environment. This variability represents a risk that must be captured as part of this study. Forrester here uses a risk factor of 110% on the

high end, 108% as the medium, and 100% on the low end. This has the effect of increasing the cost estimate to take into account the fact that original cost estimates are more likely to be revised upward than downward. Forrester then creates a triangular distribution to reflect the range of expected costs, with 106% as the mean (106% is equal to the sum of 110%, 108%, and 100% divided by three). Forrester applies this mean to the most likely estimate, €834,000, to arrive at a risk-adjusted value of €884,040. The risk-adjusted values in this report are then rounded.

The following tables show the values used to adjust for uncertainty in cost and benefit estimates. Different cost and benefit estimates have different levels of risk adjustments. For example, Forrester applied a higher risk weighting to the labor costs as compared with the contractual maintenance fees.

Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Table 13: Cost Category Risk Adjustments

Ref	Risk to cost	Low	Medium	High	Risk adjusted
L1	HW/SW investment	100%	102%	103%	102%
L2	Investment in network upgrades	100%	102%	104%	102%
L3	Internal and external labor costs	100%	108%	110%	106%
L4	Annual Siemens maintenance fees	100%	101%	102%	101%
L5	Additional maintenance fee for network equipment	100%	101%	102%	101%

Source: Forrester Research, Inc.

Risk adjustments for benefits reduce the original benefits estimates. For example, Forrester applies a risk range of 90% on the low end of the estimate, 95% on the medium, and 100% on the high end for cost savings from cabling. This has the effect of reducing the benefit estimate by 5%, equal to 95% of the original value.

Table 14: Benefit Category Risk Adjustments

Ref	Risk to benefit	Low	Medium	High	Risk adjusted
M1	Reduction in the number of administrators	95%	98%	100%	98%
M2	Reduction in the number of system support technical engineers	95%	98%	100%	98%
M3	Reduced costs for moves, adds, and changes	95%	98%	100%	98%
M4	Reduced number of telephone operators	95%	98%	100%	98%
M5	Cabling	90%	95%	100%	95%
M6	Reduced costs regarding access and leased lines	95%	98%	100%	98%
M7	Reduced costs for maintenance contracts	95%	98%	100%	98%
M8	Reduced telephone charges	96%	100%	100%	99%

Source: Forrester Research, Inc.

Flexibility

Flexibility, as defined by Forrester's TEI methodology (described in more detail in Appendix A), represents an investment in additional capacity or capability that can be turned into future business benefits at some additional cost.

This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement Siemens OpenScape Voice Applications for general communication purposes and later realize additional uses and opportunities with the OpenScape Unified Communication Portfolio to enable real-time communication capabilities in business processes and on the desktop.

The reference organization that was interviewed for this study finds that the Siemens OpenScape Voice Application provides an opportunity for the organization to attain its many benefits to improve local business processes and facilitate employee communications today and to gain additional advantages in the future. The reference organization finds that the OpenScape Voice Application presents potential added future benefits in the following areas:

- **Serving as a platform for UC future adoption.** By making a strategic vendor choice for UC, the reference organization has the platform to add additional UC solutions in the future that fully interoperate with the OpenScape Voice Application,
- **Managing the mobile work force.** The Mobile Connect feature integrates with mobile devices to allow remote employees to have full access to business telephone features from their mobile devices. It also support smart phones for mobile employees and eliminates the expense of a desktop telephone for those workers who spend much time away from their desks.
- **Using industry standard servers.** This simplifies the data center requirements to more easily maintain and acquire hardware components of their choice.
- **Supporting SOA and Web-based services.** This provides the ability to more easily integrate UC into business processes to extend UC capabilities across multiple applications.
- **Providing network carrier grade redundancy.** High reliability and redundancy offer security to support a wide range of communications across multiple sites.
- **Offering open standards architecture.** The use of native SIP open standards architecture allows the reference organization to choose from best-of-breed components and applications without being locked into a single vendor.

However, at the time of publication of this study, the reference organization had not yet elaborated concrete plans in these areas. While Forrester believes organizations can take advantage of these flexibility options, estimating a specific option value is too variable. As a result, quantification of any value associated with these options is not included in the analysis.

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 15 shows the consolidation of the numbers for the reference organization.

Table 15: Reference Organization ROI, Non-Risk-Adjusted

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
N1	Total costs	B6	2 787 000 €	1 216 000 €	4 987 000 €	8 990 000 €	7 658 000 €
N2	Total benefits	K9	760 000 €	1 975 000 €	24 225 000 €	26 960 000 €	19 993 000 €
N3	Total	N2-N1	-2 027 000 €	759 000 €	19 238 000 €	17 970 000 €	12 335 000 €
N4	Return on investment	N3/N1					161%

Source: Forrester Research, Inc.

Table 16 below shows the risk-adjusted values, applying the risk-adjustment method indicated in the "Risks" section and the values from Tables 13 and 14 to the numbers in Tables 3 and 12. Values have been rounded.

Table 16: Reference Organization ROI, Risk-Adjusted

Ref	Total benefits	Calculation	Year 1	Year 2	Year 3-7	7-year total	PV
N1	Total costs	B6 (risk adj)	2 847 000 €	1 240 000 €	5 085 000 €	9 172 000 €	7 815 000 €
N2	Total benefits	K9 (risk adj)	735 000 €	1 916 000 €	23 628 000 €	26 279 000 €	19 495 000 €
N3	Total	O2-O1	-2 112 000 €	676 000 €	18 543 000 €	17 107 000 €	11 680 000 €
N4	Return on investment	O3/O1					149%

Source: Forrester Research, Inc.

It is important to note that values used throughout the TEI Framework are based on in-depth interviews with one organization. Forrester makes no assumptions as to the potential return that other organizations will receive within their own environments. Forrester strongly advises that readers use their own estimates within the framework provided in this study to determine the expected financial impact of implementing OpenScape Voice.

Study Conclusions

Forrester's in-depth interviews with this OpenScape Voice's customer yielded several important observations. Based on information collected in interviews, Forrester found that organizations can realize benefits in the form of:

- Lower labor costs for user administration; technical systems support; moves, adds, and changes; and telephone operators.
- Lower maintenance contract charges.

- Lower internal cabling costs for new or refurbished sites.
- Lower PSTN access and tie-line circuit costs.
- Lower fixed-line telephone call charges.

Although the reference organization plans to implement UC, many of the cost benefits of UC are "softer" than the very concrete cost savings listed above. In particular, in this study, no estimate has been made for productivity gains from advanced UC capabilities or cost savings resulting from using audio- or videoconferencing or from reduced travel costs.

The financial analysis provided in this study illustrates the potential way an organization can evaluate the hard cost savings resulting from the value proposition of the OpenScape Voice solution. Based on information collected in in-depth customer interviews, Forrester calculated an expected seven-year risk-adjusted ROI of 149% for the reference organization. All final estimates are risk-adjusted to incorporate potential uncertainty in the calculation of costs and benefits.

Based on these findings, companies looking to implement OpenScape Voice can see both cost savings and productivity benefits. In today's uncertain economic times, it makes sense to start with a business case based on real, demonstrable, and certain costs savings as this customer has done, even though the softer productivity and other benefits will be just as important to the organization over the life of the project. Using the TEI framework, many companies may find the potential for a compelling business case to make such an investment.

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 at 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; 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.

Appendix C: About The Project Manager

Sebastian Selhorst

Consultant, Forrester Consulting

Sebastian is a consultant for Forrester's Total Economic Impact (TEI) products and services. The TEI methodology focuses on measuring and communicating the value of IT and business decisions and solutions and providing an ROI business case based on the costs, benefits, flexibility, and risk of investments.

Sebastian has more than eight years of professional experience in the telecommunications and IT outsourcing industry. Prior to joining Forrester, Sebastian worked as a project manager and consultant for EDS, where he engaged in large IT infrastructure and telecommunications onshore and offshore outsourcing projects. His work included general project, account, and financial management tasks, management of third-party relationships, and sales support. Sebastian began his career at Alcatel, where he was responsible for analyzing needs for new mobile network features and translating them into high-level technical requirements.

Sebastian holds a French and German Master of Science degree from Ecole Centrale Paris and RWTH Aachen with a specialization in computer science and telecommunications. He is fluent in English, German, and French.

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[1] All totals and PV (present value) numbers have been rounded in this report.

[2] At the time of the interviews, the reference organization was still in the early stages of the OpenScape Project. The numbers that are indicated in the cost and benefit tables below are thus expected values indicated by the reference organization. They are based on the organization's best knowledge and checked for consistency by Forrester. Forrester modeled the benefits and costs over time according to the organization's migration plan. Going forward, the reference organization said that it will track costs and costs savings including the predictions regarding its operational staff.