

Forrester Consulting

HELPING BUSINESS THRIVE ON TECHNOLOGY CHANGE

Prepared for Citrix Systems, Inc.

May 19, 2009

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

Single Company Analysis

Project Director: Bob Cormier, Forrester Consulting

FORRESTER®

FORRESTER®

Headquarters

Forrester Research, Inc., 400 Technology Square, Cambridge, MA 02139 USA
Tel: +1 617/613-6000 • Fax: +1 617/613-5000 • www.forrester.com

Table Of Contents

Executive Summary	3
About The Application Streaming Feature Of XenApp	5
The <i>Organization's</i> Story.....	6
Costs, Benefits, Flexibility, And Risks.....	7
Financial Analysis Summary: The <i>Organization</i>	11
Conclusions	12
Appendix A: Total Economic Impact Overview	14
Appendix B: About The Project Manager	15

© 2009, Forrester Research, Inc. All rights reserved. Unauthorized reproduction is strictly prohibited. Information is based on best available resources. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, RoleView, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. For additional information, go to www.forrester.com.

Executive Summary

In late 2008, Citrix Systems, Inc. commissioned Forrester Research to examine the financial impact and potential benefits of implementing the Application streaming feature of Citrix Presentation Server™ 4.5, which has since been renamed to Citrix XenApp™. To evaluate the impact, Forrester examined the specific costs and risk elements incurred, and benefits and flexibility realized by a public school district in the Northeastern United States, a Citrix customer that has been using the Application streaming feature of XenApp (Enterprise Edition) since September 2006.

This school district *Organization* is comprised of more than 15,000 students attending 11 elementary and seven secondary schools. Additionally, there are almost 3,000 individuals employed in teaching and support services. Teachers and students share in the use of 5,000 PCs across an eight building wide-area network (WAN). The *Organization* asked to remain anonymous in this case study.

Purpose

The purpose of this study is to provide readers with a framework for evaluating the potential financial impact of implementing the Application streaming feature of XenApp. Forrester's aim is to clearly show all calculations and assumptions that go into the analysis as a way to further readers' understanding of, and help them to evaluate, the Application streaming feature of XenApp.

Methodology

Citrix selected Forrester for this project because of its expertise in application delivery infrastructure and its Total Economic Impact (TEI) analysis methodology. TEI measures not only costs and benefits (areas typically accounted for within IT) but also the enabling value of increasing the overall effectiveness of business processes. Forrester's TEI methodology serves an extremely useful purpose by providing a complete picture of the total economic impact of purchase decisions (Appendix A provides additional information about the TEI methodology).

Approach

Forrester employed a four-step approach in this study.

1. Forrester interviewed key Citrix marketing, product management, and sales employees in an attempt to more fully understand the value proposition of the Application streaming feature of XenApp.
2. Using knowledge of the product, as well as input from existing Forrester research and Citrix, a Forrester representative interviewed the *Organization's* chief information technology coordinator and the senior network administrator about the costs, benefits, risks, and flexibility options of using the Application streaming feature of XenApp.
3. Forrester constructed a financial value model representative of the data collected in the interview.
4. Forrester created this study, which examines and represents the estimated value of the findings derived from the customer interview and analysis process as well as from Forrester's independent research.

Key Findings

Table 1 summarizes the costs the *Organization* will incur and the savings it will realize over a three-year period from deploying the Application streaming feature of XenApp.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

Table 1: Three-Year Summary Financial Results — The *Organization*

Summary of financial results	Risk-adjusted
Total costs (present value) *	(\$557,332)
Total cost savings and benefits (PV)	\$1,776,154
Total flexibility options	\$54,145
Total net present value (NPV)	\$1,272,967
Payback period	Within six months

Source: Forrester Research, Inc.

The three-year, risk-adjusted total net present value (NPV) of **\$1,272,967** represents the incremental net cost savings and benefits attributed to the *Organization* using the Application streaming feature of XenApp to stream 30 applications to 5,000 PCs as compared with the *Organization's* prior use of desk-side visits to install applications on PCs. (Details are provided in the Costs, Benefits, Flexibility, and Risk sections.) The *Organization* also achieved a favorable payback period within **six months**. Forrester Research and the *Organization* also identified several unquantified business benefits attributable to the Application streaming feature of XenApp (see page 9).

* Note: Forrester did not include license or support costs associated with XenApp because the Application streaming feature of XenApp is “included” in the Enterprise Edition license fee; no licensing costs are specifically associated with this feature. Therefore, this study focuses on the *incremental* costs and benefits associated with implementing the Application streaming feature of a product (XenApp) that the *Organization* has already purchased.

A risk-adjusted NPV that demonstrates a compelling business case 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, because they represent the expected value considering risk, should thus be taken as “realistic” expectations. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

The objective of this study is to illustrate the savings and benefits the *Organization* realized from using the Application streaming feature of XenApp and not savings and benefits that other organizations might obtain by doing so. The results can nevertheless guide other organizations' expectations with respect to the savings and benefits that might be realized in their particular business environments.

Disclosures

The reader should be aware of the following disclosures associated with this study:

- The study was commissioned by Citrix and delivered by the Forrester Consulting group.
- Citrix and the *Organization* reviewed and provided feedback to Forrester, but Forrester maintained editorial control over the study, its findings, and financial data. Forrester did not accept any changes to the study that contradicted its findings, obscured the meaning of the study, or changed any of the data collected.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

- The customer name for the study was provided by Citrix.
- Forrester makes no assumptions as to potential savings other enterprises might realize within their business environments. Forrester strongly advises readers to use their own estimates within the framework provided in the study to determine the appropriateness of implementing the Application streaming feature of XenApp.
- This study is not an endorsement by Forrester of Citrix or its offerings.
- The study is not a competitive product analysis.

About The Application Streaming Feature Of XenApp

According to Citrix, Application streaming is a feature of each edition (Advanced, Enterprise and Platinum) of the XenApp product that enables applications to be delivered to client devices or servers via a streaming technology and run in a protected environment. Single instances of applications are managed in a centralized application hub but are streamed to the client device or server and will execute in an isolation environment. Caching technology makes the applications available to users even when the client device is not connected to the network.

Customer Challenges

Many organizations experience complexity when trying to manage their ever-growing number of desktop applications, file servers, and diverse access scenarios. This complexity translates into a significant amount of time and money spent providing what amounts to patchwork solutions. The Application streaming feature of XenApp offers a solution for centrally delivering all Windows®-based applications to both XenApp server farms and desktops.

Simplify Management, Cut Costs

According to Citrix, the Application streaming feature of XenApp reduces the cost of testing, installing, and supporting applications. Single instances of applications are managed in a centralized application hub and are streamed to a protected isolation environment (either on the client device or the XenApp server), greatly simplifying application management.

The Application streaming feature of XenApp enables IT to do the following:

- Deliver Microsoft Windows applications, including 2007 Microsoft Office system and Microsoft Vista applications, to desktops and laptops. Application streaming can also deliver Microsoft Windows Server 2003, Windows Server 2003 x64, and Microsoft Windows 2000 Server applications across XenApp farms.
- Eliminate application conflicts and operating system instability resulting from standard application installations.
- Reduce the costs associated with regression testing, deployment, maintenance, updates, and deprovisioning for applications being run locally on users' machines.
- Enable IT to offer applications as an on-demand service.
- Lower application support costs by automatically updating and repairing applications every time they are used.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

- Speed regulatory and security compliance by eliminating the need for extensive testing to certify applications.
- Enhance security by giving IT administrators complete control over applications delivered to desktops — even those of unmanaged partners and users.

The *Organization's* Story

The *Organization* is comprised of more than 15,000 students attending 11 elementary and seven secondary schools. Additionally, there are almost 3,000 individuals employed by the *Organization* in teaching and support services. Teachers and students share in the use of 5,000 PCs across an eight building wide-area network (WAN).

The *Organization* began using the Application streaming feature of Presentation Server 4.5 (now known as XenApp) in September 2006 to deliver software to computers. This technology enabled them to replace their standard manual software installations. There are currently 15,000 desktop users using 30 applications on 5,000 PCs across an 18 building wide-area network (WAN).

The *Organization* had three high-level business objectives it wanted to satisfy with the Application streaming feature of XenApp:

- Cost reduction for support staff and hardware.
- Improved application performance for end users.
- More efficient application management.

With Application streaming, XenApp extends the *Organization's* ability to centrally manage and deliver Windows-based applications to more than 15,000 users. Applications are cached locally in an isolation environment rather than installed on the devices, eliminating application conflicts, and the need for extensive compatibility and regression testing.

Prior to implementing the Application streaming feature of XenApp, the *Organization* would package applications using Citrix MetaFrame™ (a previous version of XenApp) and run them remotely off their servers.

Tactical problems and issues that the *Organization* was trying to remedy or resolve by implementing the application streaming feature of XenApp include:

- Its inability to deploy mission-critical applications quickly because IT staff had to visit each school and install the application on each individual PC.
- Poor historical performance of server-based applications (according to remote end users).
- It wanted a way to keep all PC applications up-to-date with the latest patches and updates.
- Reducing application installation costs and change management costs.
- Reducing the costs of PC refresh cycles.

Costs, Benefits, Flexibility, And Risks

To calculate the NPV for the *Organization's* investment in the Application streaming feature of XenApp, Forrester analyzed the costs, benefits, flexibility, and risks associated with deploying the solution.

Costs

The *Organization's* incremental costs associated with implementing and maintaining the Application streaming feature of XenApp will total **\$600,400** for the three-year period of this analysis and include the following expenses:

- **Preplanning, deployment, and configuration labor: \$41,400.** Labor associated with planning the implementation of the Application streaming feature of XenApp was \$41,400 for 115 man-days of time and effort (using a fully loaded cost per person of \$90,000 annually, or \$360 per day). Tasks associated with this effort included: server capacity estimation, user count assessment by application, application profiling, and making the determination as to whether each of the 30 applications could be streamed down to the PCs.
- **Citrix Systems' XenApp license and annual support costs: \$0.00 (zero).** The *Organization* has 1,727 concurrent licenses for publishing applications as part of XenApp licenses. Forrester did not include license or support costs associated with XenApp because the Application streaming feature is "included" in the Enterprise Edition license fee. Since there are no licensing costs specifically associated with this feature, this study focuses instead on the *incremental* costs and benefits associated with implementing a feature (Application streaming) of a product (XenApp) that the *Organization* had already purchased.
- **Consulting support from Citrix partner: \$70,000.** The *Organization* used a Citrix vendor partner to help with planning, server build, application builds, testing, and documentation of the Citrix application.
- **Ongoing support labor: \$216,000.** The senior network administrator spends 80% of her time dedicated to managing the Application streaming feature of XenApp. The labor cost is calculated to be 80% of her \$90,000 fully loaded cost, which is \$72,000 annually or \$216,000 over the three years of this analysis.
- **Blade servers: \$273,000.** New blade server hardware (seven 8-blade setups at \$39,000 each) including associated hardware maintenance and software licenses/maintenance, was purchased to support the Application streaming feature of XenApp.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

Table 2: The *Organization* — Incremental Costs Associated With The Application Streaming Feature Of XenApp

Costs	Year 0	Year 1	Year 2	Year 3	Total	PV
Pre-planning, deployment, and configuration labor	\$41,400	\$0	\$0	\$0	\$41,400	\$41,400
CPS license costs	\$0	\$0	\$0	\$0	\$0	\$0
Consulting support (Citrix partner)	\$70,000	\$0	\$0	\$0	\$70,000	\$70,000
Operations staff: ongoing support labor	\$0	\$72,000	\$72,000	\$72,000	\$216,000	\$172,932
Blade servers and associated licenses and maintenance	\$273,000	\$0	\$0	\$0	\$273,000	\$273,000
Total costs	\$384,400	\$72,000	\$72,000	\$72,000	\$600,400	\$557,332

Source: Forrester Research, Inc.

Benefits: Quantified

The *Organization* indicates that implementing the Application streaming feature of XenApp will yield significant and quantifiable benefits totaling **\$2,655,000** (non-risk-adjusted).

Forrester also discusses additional benefits the *Organization* was not able to quantify at this time on page 9.

Savings from desktop administration: \$1,890,000. The *Organization's* chief information technology coordinator states that Application streaming has allowed the *Organization* to avoid adding seven desktop administrative headcount. Prior to implementing the Application streaming feature the PC-to-administrator ratio was 600 to 700 PCs per administrator. Since implementing the Application streaming feature, the *Organization* has been able to improve that ratio to 1,500 PCs per administrator. The result is a cost reduction/avoidance of seven additional administrators at 90,000 per year (fully loaded) or a total of \$630,000 annually and **\$1,890,000** over three years (before any state or federal aid is applied to the *Organization*). Tasks that have been significantly *reduced* include:

- Help desk calls related to PC application issues.
- Remote installation of new applications and upgrades.
- A reduction in time spent on managing application conflicts.
- Standardization of applications across the server farm. The *Organization* no longer has some servers running version 'x' while another set of servers is running version 'y'.

Savings from extending the PC life cycle: \$765,000. The *Organization* did not have a formal refresh cycle for its PCs. When there was a fatal problem with a PC, it was replaced. Most of the *Organization's* PCs have a life span of five to seven years. The chief information technology

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

coordinator estimates that 50% of the PCs (2,500 of the 5,000 PCs) have or will benefit from an approximate one-year life extension as a result of implementing the Application streaming feature of XenApp. Therefore with an average life cycle of six years, 17% of the 2,500 PCs would gain 12 months of useful life over each year of the three years in our analysis. The *Organization* would save \$255,000 (2,500 * 0.17 = 425 PCs * \$600 per PC) for each of the three years of our analysis, totaling **\$765,000** saved as a direct result of implementing the Application streaming feature of XenApp.

Table 3: Non-Risk-Adjusted Benefits — The *Organization* - Incremental Benefits Associated With The Application Streaming Feature Of XenApp

Projected benefits	Year 0	Year 1	Year 2	Year 3	Total	PV
Savings from desktop administration	\$0	\$630,000	\$630,000	\$630,000	\$1,890,000	\$1,694,732
Savings from extending the PC life cycle	\$0	\$255,000	\$255,000	\$255,000	\$765,000	\$612,467
Total benefits	\$0	\$885,000	\$885,000	\$885,000	\$2,655,000	\$2,307,199

Source: Forrester Research, Inc.

Benefits: Unquantified

The *Organization* identified the following benefits of using the Application streaming feature of XenApp, but it was *not* able to quantify the following benefits at this time:

- It was able to deploy applications more quickly, making applications and upgrades highly available.
- These applications could be deployed and managed without a change to the end user experience.
- There have been significant end user performance improvements as a result of streaming and isolating applications on the desktop.
- Multimedia applications were easier to install, and there was no reported performance degradation for these high-bandwidth applications.
- The rollout of the Application streaming feature of XenApp is being seen as very successful. The *Organization* has received positive feedback from users, and the transition has been seamless. Future requests for added applications will be easier to deploy.

Flexibility Options

Flexibility, as defined by Forrester's TEI methodology, involves investing in additional capacity or agility today that can be turned into business benefits in the future, at some additional cost. The *Organization* indicated that the Application streaming feature of XenApp can be used to reduce costs for future disaster recovery plans.

Future savings in deploying disaster recovery: \$54,145 (risk-adjusted). The *Organization* has the option to start building the infrastructure for disaster recovery and to use the Application streaming feature to deploy applications for disaster recovery. This would allow the *Organization* to

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

seamlessly copy all applications to a disaster recovery location instead of trying to maintain a separate disaster recovery environment and installation process for each application. If the *Organization* exercises this option, it anticipates Year 2 expenses associated with this flexibility option to be \$20,000 for a file server and associated storage. The maintenance costs of managing this redundant environment would have been reduced with savings of \$90,000 in Year 3 for 1.0 FTE (at a fully loaded cost of \$90,000 per person). The value of the option to use the Application streaming feature of XenApp to deploy applications for disaster recovery is valued at **\$54,145** (risk-adjusted) using the Black-Scholes options pricing model.

Some readers of this study might believe that their organizations are ready to take advantage of the flexibility options afforded by the Application streaming feature of XenApp; in such instances, the option will have a present value that can be estimated. The flexibility component of TEI captures that value. The value of flexibility is clearly unique to each organization, and the willingness to measure its value varies depending on the organization. (see Appendix A for additional information regarding flexibility).

Risks And Risk Mitigation Strategies

Two aspects of risk and risk mitigation are considered in this study: project risks and risks associated with the estimates of costs and benefits in a business case. Each is summarized below.

Project Risk And Mitigation

The *Organization* identified the following minor risk associated with the Application streaming feature of XenApp:

- The *Organization* anticipated correctly that moving to a new method of application packaging and delivery would not support all applications. It found that three applications that included specialized drivers and complicated activation processes did not run in isolation and therefore could not be supported by the Application streaming feature. Since only three of the 33 overall applications fit this category, this risk had minimal impact.

The *Organization* believes that the Application streaming feature of XenApp will never be risk-free (as is the case with all IT projects), but IT staff were able to mitigate some risks by taking a deliberate and planned approach to implementation.

Risks Associated With Estimates Of Costs And Benefits

For this study, the cost and benefit estimates are based on two years of actual experience plus a third forecasted year of using the Application streaming feature of XenApp. Because these costs and benefits are estimates, and the future cannot be accurately predicted, there is risk inherent in citing and calculating these costs and benefits. Risk assessments provide a range of possible outcomes that reflect the risks associated with the cost and benefit estimates of IT projects, in general, and specific risks related to moving toward a particular technology solution.

Forrester and the *Organization* agree that benefit estimates based on two years of production experience and one forecasted year require some minor downward risk adjustments as follows (and summarized in Table 4 below).

Risk Adjustments Reflected In This Study

Savings from desktop administration: \$1,606,500. During Forrester's interview with the *Organization* it indicated that their PC administrative staff are subcontractors who come from a third-party organization that provides shared services and staff to local *Organizations*. Although the *Organization* still pays for these labor services, it is able to right-size the staff quicker than if it used

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

permanent employees. Afforded with this flexibility, however, the interviewees at the *Organization* expressed some mild uncertainty about their estimates of before and after PC-to-administrator ratios. To reflect this, Forrester **risk-adjusted the savings downward by 15%** in each of the three years, resulting in a risk-adjusted savings of \$535,500 annually, or **\$1,606,500 over this three-year analysis** (before any state or federal aid is applied to the *Organization*). This lower benefit is reflected in the risk-adjusted NPV in Table 1 in the Executive Summary and Financial Analysis Summary sections of this study, as well as Table 4.

Savings from extending the PC life cycle: \$612,000. Due to budget constraints, the *Organization* does not follow consistent refresh cycles for its PCs. When there is a fatal problem with a PC, it is replaced. In this study, we have estimated that 50% of the PCs (2,500 of the 5,000 PCs) will benefit from an approximate one-year life extension as a result of implementing the Application streaming feature of XenApp. There are risks associated with these benefit estimates; for example, if the *Organization* received adequate funding in the third year, it would refresh PCs faster, thereby reducing the extended useful life of some PCs. For this reason and the fact that the *Organization* does not follow a consistent refresh cycle, Forrester has **risk-adjusted this benefit downward by 20%** to \$204,000 per year for a total of **\$612,000 (risk-adjusted) over this three-year analysis**. This lower benefit is reflected in the risk-adjusted NPV in Table 1 in the Executive Summary and Financial Analysis Summary sections of this study, as well as Table 4.

Table 4: Risk-Adjusted Benefits — The *Organization* - Incremental Benefits Associated With The Application Streaming Feature Of XenApp

Projected benefits	Year 0	Year 1	Year 2	Year 3	Total	PV
Savings from desktop administration	\$0	\$535,500	\$535,500	\$535,500	\$1,606,500	\$1,286,181
Savings from extending the PC life cycle	\$0	\$204,000	\$204,000	\$204,000	\$612,000	\$489,974
Total benefits	\$0	\$739,500	\$739,500	\$739,500	\$2,218,500	\$1,776,154

Source: Forrester Research, Inc.

Financial Analysis Summary: The *Organization*

Key Findings

Table 1 (repeated from the Executive Summary) summarizes the costs and risk-adjusted savings the *Organization* will realize over a three-year period from deploying the Application streaming feature of Citrix XenApp Enterprise Edition.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

Table 1: Three-Year Summary Financial Results — The *Organization*

Summary of financial results	Risk-adjusted
Total costs (present value) *	(\$557,332)
Total cost savings and benefits (PV)	\$1,776,154
Total flexibility options	\$54,145
Total net present value (NPV)	\$1,272,967
Payback period	Within six months

Source: Forrester Research, Inc.

The three-year, risk-adjusted total net present value (NPV) of **\$1,272,967** represents the incremental net cost savings and benefits attributed to the *Organization* using the Application streaming feature of XenApp to stream 30 applications to 5,000 PCs, compared with the *Organization's* prior use of desk-side visits to install applications on PCs. (Details are provided in the Costs, Benefits, Flexibility, and Risk sections.) The *Organization* also achieved a favorable payback period within **six months**. Forrester Research and the *Organization* also identified several unquantified business benefits attributable to the Application streaming feature of XenApp (see page 9).

A risk-adjusted NPV that demonstrates a compelling business case 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, because they represent the expected value considering risk, should thus be taken as “realistic” expectations. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

Conclusions

This study is meant to provide the reader with a framework for examining the costs and benefits of deploying the Application streaming feature of XenApp (Enterprise Edition). Based on our in-depth discussions with the *Organization*, Forrester projects a three-year risk-adjusted NPV of **\$1,272,967**. The *Organization* also achieved a favorable payback period **within six months**.

For the *Organization*, a well-planned implementation has resulted in desktop administration savings, savings from extending the PC life cycle, and help desk cost reduction. The *Organization* also believes that its investment in the Application streaming feature of XenApp provides it with the flexibility option benefit of **\$54,145 (risk-adjusted)** in the deployment of applications for disaster recovery.

Other organizations likely to see beneficial results from using the Application streaming feature of XenApp will have the following characteristics or attributes:

- Installing and maintaining numerous applications on hundreds or thousands of PCs.
- Need to reduce the cost of testing, installing, and supporting applications for their PC users.
- Small, midsize or large organizations with 100 to 100,000+ employees.

The Total Economic Impact™ Of The Application Streaming Feature Of Citrix XenApp

- Not yet invested in software distribution tools or unhappy with existing tools.
- Frustrated with desktop application conflicts.

Forrester makes no assumptions regarding the effects of the Application streaming feature of XenApp at other organizations. This study examines the financial impact on the *Organization* of effects attributable to the implementation of the Application streaming feature of XenApp. The underlying objective of this document is to provide guidance for technology decision-makers seeking to identify areas in which value can potentially be created by using the Application streaming feature of Citrix XenApp Enterprise Edition.

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 and justify to both senior management and other key business stakeholders the tangible value to be realized from IT initiatives.

The TEI methodology consists of four components with which to evaluate investment value: costs, benefits, flexibility, and risk.

Costs

Costs represent the investment necessary to capture the value or benefits of the proposed project. These costs might be incurred by IT or by the business units. They might be in the form of fully burdened labor, subcontractors, or materials. Costs include all the investment and expenses needed to deliver the projected value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing expenses associated with the solution. All costs must be tied to the benefits that are created.

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 for analysis of the impact of the technology on the entire organization. The TEI methodology and resulting financial model place equal weight on the measure of benefits to that of costs, supporting a full examination of the impact of the technology on the entire Organization. Calculation of benefit estimates requires a clear dialogue with the user organization to understand the specific value that is being created. In addition, Forrester requires that a clear line of accountability be 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.

Flexibility

Within the TEI methodology, direct benefits represent one part of the investment value. Although direct benefits are typically 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 that builds on the initial investment already made. For instance, an initial investment in an enterprisewide upgrade of an office productivity suite can increase standardization (to increase efficiency) and reduce licensing costs. Later, the implementing Organization might decide to take advantage of an embedded collaboration feature that might translate into greater worker productivity if activated. But this collaboration feature can only be used with an additional investment in user training. The ability to capture the benefit associated with this collaboration feature has a present value that can be estimated. The flexibility component of TEI captures that value using the Black-Scholes option pricing model.

Risk

Risk, the fourth component of the TEI methodology, is a measurement of the uncertainty of benefit and cost estimates obtained for the investment. Uncertainty is measured in two ways: 1) as the likelihood that the cost and benefit estimates will meet the original projections, and 2) as 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 minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Appendix B: About The Project Manager



Bob Cormier
Principal Consultant

Bob is a principal consultant for Forrester's Total Economic Impact™ (TEI) service. He is a leading expert on deriving business value from technology investments specializing in advising clients on the TEI framework — services that help organizations understand the overall financial value of IT strategies and investments. He serves the following client roles:

- Bob serves CIO's and their staffs as a trusted advisor to create consistent, repeatable and best practice processes to justify and add credibility to technology investments business cases, using Forrester's TEI methodology.
- Bob serves Technology Product Management and Marketing professionals in their efforts to clearly articulate the unique value proposition of their solutions to prospects and customers using Forrester's TEI methodology.

Bob has authored numerous TEI case studies for Forrester's vendor clients. Bob has also delivered his acclaimed Justifying Technology Investments workshop to over 800 participants representing 400 organizations.

Bob has more than 25 years experience in the IT and consulting industries. Prior to joining Forrester, he held senior-level positions at two leading eBusiness consulting firms, ZEFER and Cambridge Technology Partners. Bob has successfully led company efforts to optimize financial, operational, and resource planning activities, incorporating leading-edge, professional service automation (PSA) applications and enterprise resource planning (ERP) systems. He has also held senior financial management positions at Digital Equipment and Anixter International.

During his career Bob has consulted with global users and vendors of IT and has been a frequent speaker at conferences, events and seminars.

Education

Bob earned an M.B.A. from Bentley University and a B.S. in business from the University of New Hampshire. As an adjunct professor, he has taught finance and economics courses for more than 10 years at Southern New Hampshire University and Daniel Webster College.