A Forrester Total Economic Impact™ Study

Commissioned By Cisco

Project Director:
Anish Shah

May 2015

The Total Economic Impact™ Of Cisco Data Virtualization

Cost Savings And Business Benefits Enabled By Cisco's Data Virtualization Solution

FORRESTER®

Table Of Contents

Executive Summary 3

Disclosures 4

TEI Framework And Methodology 5

Analysis 6

Financial Summary 15

Cisco Data Virtualization: Overview 16

Appendix A: Representative Organization Description 18

Appendix B: Total Economic Impact™ Overview 20

Appendix C: Glossary 21

Appendix D: Endnotes 22

ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

© 2015, 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

Cisco commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying the Cisco Data Virtualization solution. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of investing in the Cisco Data Virtualization solution for their organizations.

To better understand the benefits, costs, and risks associated with Cisco Data Virtualization, Forrester gathered data through interviews with customers who had multiple years' experience using the solution. All organizations used Cisco Data Virtualization as a single data virtualization integration platform to query and access data across their network. This includes accessing data that resides in the cloud and on-premises across various sources and systems.

Cisco Data Virtualization can help companies make faster business decisions by giving them access to data in a much quicker and more reliable way. In addition, Cisco Data Virtualization results in IT project cost avoidance, increases end user productivity, and reduces IT operation costs for the interviewed companies.

The costs and benefits for a US-based representative organization of 20,000 employees with 1,000 active users of data and information based on customer interviews are:

- **Initial costs: $920,000.**
- **Ongoing costs: $120,000.**
- **Total three-year NPV: $4.2 million.**

Prior to Cisco Data Virtualization, customers were managing their data in central data warehouses and using extract, transform, and load (ETL) techniques to access their data across multiple systems. In addition, customers were moving large sets of data into the cloud, which further increased complexity to access data and make more informed business decisions quickly. Customers were looking for a solution to help manage their end-to-end data management needs, speed their time-to-solution, and provide agility within their IT organization to quickly change and adapt new technologies to meet their business needs. Cisco Data Virtualization met these objectives that the customers were looking for. Said one business integration director at a large multinational pharmaceutical company, "Our decision to go with Cisco was because it offered the best data virtualization solution to tap into multiple data sets and bring together a consistent, cohesive analytical capability in the organization to make better business decisions."

CISCO INCREASES PRODUCTIVITY AS WELL AS REDUCES IT PROJECT AND OPERATING COSTS

Forrester's customer interviews and input data for a financial analysis found that a representative organization experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1.[1] See Appendix A for a description of the representative organization.

The representative organization analysis points to three-year benefits of $5,437,697 verses three-year costs of $1,218,422, adding up to a three-year net present value (NPV) of $4,219,275.

FIGURE 1
Financial Summary Showing Three-Year Risk-Adjusted Results

ROI: 346%	Total three-year benefits (PV): $5.4 million	Payback: 8 to 9 months	Three-year NPV: $4.2 million

Source: Forrester Research, Inc.

- **Benefits.** The representative organization experienced the following risk-adjusted benefits after implementing the Cisco Data Virtualization solution. This represents those benefits experienced by the interviewed companies:
  - **IT project cost avoidances of $1,287,000 over three years.** This is based on an average 5% to 10% cost reduction across projects compared with data replication and ETL techniques used in the past.
  - **Increase in end user productivity of $3,834,000 over three years.** This is a result of empowering employees to both access and gain insights from data from one trusted location. In addition, there is an increase in value from faster speed-to-market of solutions that increase user productivity.
  - **IT operating cost savings of 50% over three years.** These costs are compared with prior methods of managing data management needs.
- **Costs.** The representative organization experienced the following risk-adjusted costs after implementing Cisco Data Virtualization:
  - **Initial software licensing fees of $600,000 and annual software license fees of $120,000.** These are initial, one-time fees paid to Cisco to implement the integrated software platform as well as the associated annual license and support costs of licensing the solution.
  - **Total initial deployment costs of $320,000.** These include third-party professional service fees and internal costs for planning, training, data migration, implementation, and transition costs.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Cisco and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.
- Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Cisco Data Virtualization.
- Cisco 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.
- Cisco provided the customer names for the interviews but did not participate in the interviews.

TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact (TEI) framework for those organizations considering implementing Cisco Data Virtualization. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the impact that Cisco Data Virtualization can have on an organization (see Figure 2). Specifically, Forrester:

- Interviewed Cisco marketing, sales, and/or consulting personnel, along with Forrester analysts, to gather data relative to Cisco Data Virtualization.
- Interviewed and collected information from four organizations that use Cisco Data Virtualization to obtain data with respect to costs, benefits, and risks.
- Designed a representative organization based on characteristics of the interviewed organizations (see Appendix A).
- Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews and surveys as applied to the representative organization.
- Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in interviews. Risk adjustment is a key part of the TEI methodology. While interviewed organizations provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling Cisco Data Virtualization: benefits, costs, flexibility, and risks.

Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix B for additional information on the TEI methodology.

FIGURE 2

TEI Approach

Source: Forrester Research, Inc.

Analysis

REPRESENTATIVE ORGANIZATION

For this study, Forrester conducted and collected data from a total of four interviews with representatives from the following companies:

- A large, global pharmaceutical organization headquartered in the US.
- A global nonprofit organization dedicated to eradicating childhood poverty around the world, with headquarters in the US.
- A US-based government agency.
- A large, global entertainment company.

Organizations of all types benefit from Cisco Data Virtualization services, including traditional businesses, government organizations, and nonprofits.

Based on customer interviews and data collected, Forrester constructed a representative *Organization* that highlights the financial benefits, costs, and the associated ROI experienced from implementing Cisco Data Virtualization. The representative *Organization* used for our analysis is described below.

It is a global enterprise headquartered in the US with 20,000 employees worldwide. Five percent of the employees, or 1,000 full-time equivalents (FTEs), are deemed as active users of data and information within the *Organization.* The *Organization* and the interviewed customers shared the following goals and objectives for an investment in Cisco Data Virtualization:

- Deploy a reliable platform to support the integration of any data from multiple sources in any format or technology.
- Improve agility by increasing productivity in the development and deployment of new technologies within the organization.
- Implement a comprehensive enterprise data warehousing solution that provides more real-time views of the organization's data.
- Treat information and data as an asset within the organization that can enhance business decisions and has the flexibility to adapt quickly to changes.
- Increase the capability and speed of IT to support business transformation goals and help the business react to the needs of a more rapidly changing marketplace.
- Quickly integrate data assets through mergers and acquisitions.

"Everything is pushing toward real time. There's more unstructured data, and yet you need more structure out of it. We need to compete in a changing marketplace and need to make quicker decisions. Cisco Data Virtualization allows us to take advantage of all our data in a much faster, secured, and trusted manner."

~ Technical lead, enterprise information management of global nonprofit organization

INTERVIEW HIGHLIGHTS

Situation

The representative organization started realizing that it was having increasingly more challenges with managing its data management needs. There were increasing systems, sources, and structures of data that were being introduced constantly. In addition, there were many new tools and techniques for storing, analyzing, and developing meaningful insights to drive business. The representative organization needed a flexible integrated platform that provided an end-to-end solution to the organization's data management needs that allows it to better integrate, consolidate, and unify data to deliver business value in a much more efficient and effective manner.

The representative organization was also experiencing pressure on IT resources to manage its data. The organization realized that end user productivity was not getting optimized, as reports and calculations could only be done on an infrequent basis while the needs were more for real-time reporting.

Solution

The representative organization selected Cisco Data Virtualization as a cost-effective data management solution that could meet the requirements for its end-to-end data management and warehouse needs.

Results

The interviews uncovered the following benefits for the representative organization after implementing Cisco Data Virtualization. The organization was able to:

- Gain faster and more insights from its data.
- Develop a unified and user-friendly platform for business users to access information and data in real time.
- Meet business needs by providing more agility to the IT team.
- Reduce the burden on IT resources to collate data and provide reporting to business users.
- Integrate data from multiple systems more easily than with ETL techniques. This includes big data, cloud, SAP, Oracle applications, and other sources.
- Gain a lot more value from abstraction of managing complex systems.
- Easily train its developers to use the solution.

> *"We were able to easily cross-train our developers to use Cisco's Data Virtualization solution. The GUI interface and the copy data virtualization (CDV) they provide is very, very intuitive."*
>
> ~ Business integration director, large pharmaceutical company

BENEFITS

The representative organization experienced a number of quantified benefits in this case study:

- Project cost avoidance.
- Increase in end user productivity.
- Reduction in IT operating costs.

Project Cost Avoidance

The representative organization indicated there were significant benefits resulting from IT project cost savings that are attributed to Cisco Data Virtualization. IT project implementations now benefit from increased agility, where data is available very early in the development cycle, allowing developers to test and solve any bugs more quickly. The ability to reuse data versus using ETL techniques accelerates the entire software development life cycle (SDLC) process. Additionally, the representative organization realized cost savings from the data abstraction layer, which simplifies data modeling and accelerates data federation.

As Table 1 shows, the representative organization's IT group, on average, conducts two large projects ($1 million in value), five medium projects ($500,000 in value), and eight small projects ($250,000 in value). The organization estimated that it was able to reduce costs by 5% in Year 1 and 10% in Year 3. This results in a total three-year cost savings of over $1.4 million. Risk adjustment was applied since different organizations have different numbers of IT projects a year.

TABLE 1
Project Cost Avoidance

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Total	Present Value
A1	Number of large projects / year			2	2	2		
A2	Average project cost: large projects			$1,000,000	$1,000,000	$1,000,000		
A3	Number of medium projects / year			5	5	5		
A4	Average project cost: medium projects			$500,000	$500,000	$500,000		
A5	Number of small projects / year			8	8	8		
A6	Average project cost: small projects			$250,000	$250,000	$250,000		
A7	Percent project cost avoidance due to data virtualization			5%	7%	10%		
At	Project cost avoidance	(A1*A2)+(A3*A4) +(A5*A6)*A7	$0	$325,000	$455,000	$650,000	$1,430,000	$1,159,842
	Risk adjustment		90%					
Atr	**Project cost avoidance (Risk-Adjusted)**		**$0**	**$292,500**	**$409,500**	**$585,000**	**$1,287,000**	**$1,043,858**

Source: Forrester Research, Inc.

Increase In End User Proudctivity

The representative organization indicated that Cisco Data Virtualization increased productivity for its active business users who depend on information and data to deliver results. Users can easily access data from a self-service trusted repository to obtain more current and reliable data. In the past, data would only be available on an infrequent basis and would stand in the way of users' ability to take the business forward armed with meaningful insights and learnings.

In addition, the representative organization was able to see a noticeable improvement in how fast it realized a business outcome as a result of data-driven insight. Faster implementation of a solution speeds up the time-to-value for organizations.

The representative organization has approximately 1,000 active employees at an average yearly cost of $100,000. These active users achieve 10% productivity gains in Year 1 and improve to 15% productivity gains by Year 3. Forrester estimates that between 5% and 10% of the overall productivity gain trickles down to an organization's bottom line. In addition, the value of driving faster business outcomes due to having more current and reliable data is measured at a 1.5 factor. As shown in Table 2, this results in three-year benefits of over $4 million.

TABLE 2
Increase In End User Productivity

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Total	Present Value
B1	Total number of active users			1,000	1,000	1,000		
B2	Average yearly cost per active user			$100,000	$100,000	$100,000		
B3	Percent efficiency gain			10%	12%	15%		
B4	Efficiency gain realized by organization			5%	7%	10%		
B5	Value realized by organization (cost avoidance & value increase factor)			1.5	1.5	1.5		
Bt	Increase in end user productivity (active users)	B1*B2*B3*B4*B5	$0	$750,000	$1,260,000	$2,250,000	$4,260,000	$3,413,599
	Risk adjustment		90%					
Btr	**Increase in end user productivity (active users) (Risk-Adjusted)**		**$0**	**$675,000**	**$1,134,000**	**$2,025,000**	**$3,834,000**	**$3,072,239**

Source: Forrester Research, Inc.

Reduction In IT Operating Costs

Another key benefit that the representative organization experienced after implementing Cisco's Data Virtualization is a significant reduction in its IT operating costs. The organization was facing the challenge of managing and getting value from the increasing number of systems and sources of data that were constantly being introduced into its environment. This resulted in the increased burden on IT resources to support the business with good data to perform analytics and derive meaningful insights. Additionally, IT operating costs were increasing due to additional data storage requirements, poor performance, and increased time with using ETL techniques across various systems.

The representative organization estimated that by Year 3, it was able to reduce its IT operating costs of data management by 50%. As shown in Table 3, this resulted in $1.8 million in cost savings over three years.

TABLE 3
Reduction in IT Operating Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Total	Present Value
C1	IT operating costs (EDW software and support Costs)			$1,500,000	$1,500,000	$1,500,000		
C2	Reduction in IT operating costs post implementation of Cisco Data Virtualization			30%	40%	50%		
Ct	Total reduction in IT operating costs	C1*C2	$0	$450,000	$600,000	$750,000	$1,800,000	$1,468,445
	Risk Adjustment		90%					
Ctr	**Total reduction in IT operating costs (Risk-Adjusted)**		**$0**	**$405,000**	**$540,000**	**$675,000**	**$1,620,000**	**$1,321,600**

Source: Forrester Research, Inc.

Total Benefits

Table 4 shows the total of all benefits across the categories listed above, as well as present values (PVs) discounted at 10%. Over three years, the representative organization expects risk-adjusted total benefits to be a PV of over $4.4 million.

TABLE 4
Total Benefits (Risk-Adjusted)

Ref.	Benefit Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Atr	Project cost avoidance	$0	$292,500	$409,500	$585,000	$1,287,000	$1,043,858
Btr	Increase in end user productivity (active users)	$0	$675,000	$1,134,000	$2,025,000	$3,834,000	$3,072,239
Ctr	Reduction in IT operating costs	$0	$405,000	$540,000	$675,000	$1,620,000	$1,321,600
	Total Benefits (Risk-Adjusted)	**$0**	**$1,372,500**	**$2,083,500**	**$3,285,000**	**$6,741,000**	**$5,437,697**

Source: Forrester Research, Inc.

COSTS

The representative organization experienced the following costs associated with purchasing, deploying, and managing the Cisco Data Virtualization solution:

- Initial software and annual maintenance costs.
- Professional service fees and internal costs for implementation.

These represent the mix of hardware, software, and resource costs experienced by the representative organization for initial planning, implementation, and ongoing maintenance associated with the solution.

Initial Software And Annual Maintanence Costs

The total cost of Cisco Data Virtualization includes initial software costs as well as an estimated 20% annual maintenance cost every year. Initial license costs are paid upfront and incurred during the initial implementation period; in subsequent years, annual maintenance fees, calculated as a percentage of the initial costs, are applied.

The representative organization's initial software costs were $600,000, and its annual maintenance costs were $120,000 per year. This resulted in a total three-year cost of $960,000 that, when discounted at 10%, represents a total three-year cost of about $900,000, as shown in Table 5.

TABLE 5
Initial Software And Annual Maintenance Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Total	Present Value
D1	Initial software costs		$600,000					
D2	Annual maintenance costs			$120,000	$120,000	$120,000		
Dt	Total software and maintenance costs	D1+D2	$600,000	$120,000	$120,000	$120,000	$960,000	$898,422
	Risk Adjustment		100%					
Dtr	**Total software and maintenance costs (Risk-Adjusted)**		**$600,000**	**$120,000**	**$120,000**	**$120,000**	**$960,000**	**$898,422**

Source: Forrester Research, Inc.

Professional Service Fees And Internal Implementation Costs

In addition to software costs, the representative organization also incurred third-party professional service fees as well as internal costs to implement the solution, train its people, and change its business processes. This implementation took four months to complete and resulted in $320,000 in total costs, as shown in Table 6.

TABLE 6
Professional Service Fees And Internal Implementation Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Total	Present Value
E1	Professional service fees		$200,000					
E2	Number of FTEs to support Implementation		3					
E3	Number of months		4					
E4	Monthly cost of FTE		$10,000					
Et	Professional service fees and internal implementation costs	E1+(E2*E3*E4)	$320,000	$0	$0	$0	$320,000	$320,000
	Risk Adjustment		100%					
Etr	**Professional service fees and internal implementation costs (Risk-Adjusted)**		**$320,000**	**$0**	**$0**	**$0**	**$320,000**	**$320,000**

Source: Forrester Research, Inc.

Total Costs

Table 7 shows the total of all costs as well as associated present values, discounted at 10%. Over three years, the representative organization expects total costs to total a net present value of a little more than $1.2 million.

TABLE 7
Total Costs (Risk-Adjusted)

Ref.	Cost Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Dtr	Initial aoftware and annual maintenance costs	($600,000)	($120,000)	($120,000)	($120,000)	($960,000)	($898,422)
Etr	Professional service fees and internal implementation costs	($320,000)	$0	$0	$0	($320,000)	($320,000)
	Total Costs (Risk-Adjusted)	**($920,000)**	**($120,000)**	**($120,000)**	**($120,000)**	**($1,280,000)**	**($1,218,422)**

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. 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 Cisco Data Virtualization and later realize additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix B). Some examples are described below:

Growth Through Mergers And Acquisitions

One of the companies in the study described how Cisco Data Virtualization makes integrating acquired companies' technology, data, and processes into its organization much quicker. For the representative organization, an acquisition that leads to integrating large amounts of data from various sources will take a fraction of the time and cost in its environment.

Increasing Business Intelligence (BI) Capabilities Through Virtualization Data Marts

Not all customers are positioned to take advantage of the latest advances in BI if they have built no such capabilities to date. For these customers, there are substantial costs associated with maintaining many physical data marts due to a lot of work and complexity to develop, maintain, and operate data marts. The representative organization can move toward virtual data marts that will further increase the development speed and add agility to enhance the value of its investment in Cisco Data Virtualization.

Utilize Connected Analytics Capabilities To Gain Competitive Advantage

Customers can introduce Connected Analytics software into their environment to collect more real-time data and provide their customers with a customized experience based on their behavior.

RISKS

Forrester defines two types of risk associated with this analysis: "implementation risk" and "impact risk." "Implementation risk" is the risk that a proposed investment in Cisco Data Virtualization may deviate from the original or expected requirements, resulting in higher costs than anticipated. "Impact risk" refers to the risk that the business or technology needs of the organization may not be met by the investment in Cisco Data Virtualization, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

Quantitatively capturing implementation risk and impact risk by directly adjusting the financial estimates results provides more meaningful and accurate estimates and a more rigorous projection of the ROI. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates. The risk-adjusted numbers should be taken as "realistic" expectations since they represent the expected values considering risk.

Table 8 shows the values used to adjust for risk and uncertainty in the benefit estimates. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

TABLE 8
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Project cost avoidance	↓ 10%
Increase in end user productivity	↓ 10%
Reduction in IT operating costs	↓ 10%

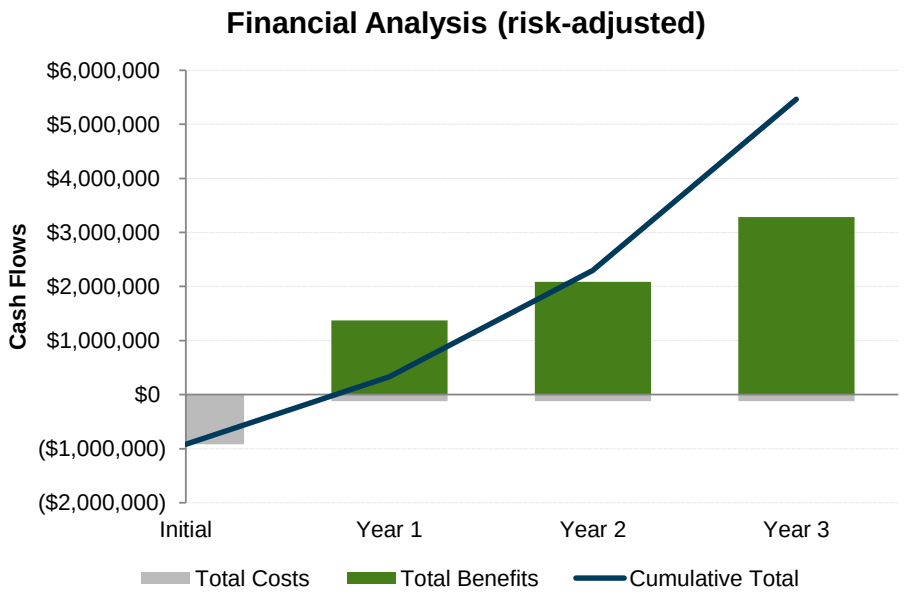
Source: Forrester Research, Inc.

Financial Summary

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the organization's investment in Cisco Data Virtualization.

Tables 9 and 10 below show the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 8 in the Risks section to the unadjusted results in each relevant cost and benefit section.

TABLE 9
Cash Flow Chart (Risk-Adjusted)



Source: Forrester Research, Inc.

TABLE 10
Cash Flow: Risk-Adjusted

Summary	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total Costs	($920,000)	($120,000)	($120,000)	($120,000)	($1,280,000)	($1,218,422)
Total Benefits	$0	$1,372,500	$2,083,500	$3,285,000	$6,741,000	$5,437,697
Total	**($920,000)**	**$1,252,500**	**$1,963,500**	**$3,165,000**	**$5,461,000**	**$4,219,275**
ROI						**346%**
Payback Period (months)						**8.8**

Source: Forrester Research, Inc.

Cisco Data Virtualization: Overview

Take Big Advantage of Your Data

Fast-changing business conditions require agility: a difficult challenge in your distributed on–premises, big data, and cloud environments. Businesses that successfully use their data will be the leaders; those that do not will fall behind. The need to use data with agility is the primary business driver for data virtualization. However, the proliferation of traditional and new data sources and the movement of data to the cloud make it difficult to access all data assets. This creates the need to complement traditional data warehousing with an agile business solution that provides a real–time, consolidated logical view of data.

Optimize Data Access and Storage with Data Virtualization

Cisco® Data Virtualization is agile data integration software that makes it easy for you to access data, no matter where it resides. By providing a unified view of business data, you can increase value from your network. Improved visibility of company data enables better decision making and agility in today's environment and enables you to adapt more quickly to business change.

Business Agility in a Complex Data Landscape

Cisco Data Virtualization software augments traditional data integration by combining traditional and new data sources to optimize query, compute, and network infrastructures. Customers can then access and query all types of data across the network as if it is in a single place. Customers get the benefits of greater business insight and the flexibility they need in IT, with significant cost savings.

Data Virtualization Solutions to Meet Your Data Needs Product

- Cisco Information Server (CIS) is the main software offering with options that include:
- Business directory: empowers business users to use search and categorization to find the data they need, and then use business intelligence (BI) tools to obtain it.
- Active cluster: allows you to substantially scale your deployments and maintain continuous availability of your data services.
- Adapters: simplify and accelerate high-performance access to a wide range of data sources including popular enterprise applications, relational and multidimensional data sources, i.e., "big data" stores.

Data Virtualization Plan and Build Services

- Cisco Plan and Build Services for Data Virtualization: an engagement to help customers systematically implements a data virtualization project based on the customer's requirements.
- The following training offers are optional components of Plan and Build Services:
    - Basic Training for Data Virtualization: learn the basics of CIS, the course is recommended prior to working with Cisco consultants to define data virtualization project objectives.
    - Admin Training for Data Virtualization: systems administrators will learn how to operate and maintain CIS.
    - Advanced Training for Data Virtualization: architects and developers will learn advanced techniques for scripting, Web services, data transformation, custom Java procedures, triggers and troubleshooting. Systems administrators will learn advanced techniques for caching and security

- Cisco Health Check Services for Data Virtualization: typically a two-week engagement during which a CIS architect provides a comprehensive health assessment of the existing CIS Data Virtualization environment.
- Cisco Migration Services for Data Virtualization: an assessment with recommendations for customers upgrading Data Virtualization environment to the latest version of CIS as well as deployment and validation assistance.

Data Virtualization Manage Services

- Cisco Software Application Support with Upgrades (SASU): a subscription service that delivers 24x7 support for the product from Cisco's Technical Assistance Center (TAC) along with timely, uninterrupted access to Cisco's latest software application updates including major upgrade releases that might include new features and functionality.

- Cisco Data Virtualization Optimization Service: a subscription service with activities that may include a Data Virtualization Architecture Review, Data Virtualization Site and Systems Administration, Data Virtualization Health Check, Data Virtualization Upgrade Assessment/Support, On Site Residency and Quarterly Business Review.

- Technical Account Manager (TAM): a dedicated technical manager to help you achieve operational excellence in your data virtualization environment. A TAM is an expert in data virtualization solutions, data center technologies, and other related IT areas. He or she works with you to develop a customized support plan, perform system-level technical assessments, and make other technical recommendations.

Grow, Innovate, and Lead with Data Virtualization

- Better business decisions: Gain more business insights by using all your data. Empower your people with instant access to all the data they want, the way they want it.

- Greater agility: Respond more quickly to your ever changing analytics and business intelligence data requirements. Data Virtualization can provide 5 to 10 times faster time to solution than traditional data integration.

- Reduced costs: Save 50 to 75 percent by eliminating data replication. Through data consolidation, Data Virtualization allows you to increase utilization of existing server and storage investments. Data Virtualization's simplified approach reduces complexity and saves money.

- Improved IT effectiveness: The Cisco Data Virtualization Suite has an easy to use interface so your IT staff can increase its productivity and efficiency and develop customized business views of data.

Why Cisco Services

Realize the full business value of your technology investments with smart, personalized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, Cisco Services enable you to successfully plan, build, and run your network as a powerful business platform. Whether you are looking to quickly seize new opportunities to meet rising customer expectations, improve operational efficiency to lower costs, mitigate risk, or accelerate growth, we have a service that can help you.

Appendix A: Representative Organization Description

For this TEI study, Forrester has created a representative organization to illustrate the quantifiable benefits and costs of implementing Cisco Data Virtualization. Organizations of all types benefit from Cisco Data Virtualization services, including traditional businesses, government organizations, and nonprofits.

Based on customer interviews and data collected, Forrester constructed a representative *Organization* that highlights the financial benefits, costs, and the associated ROI experienced from implementing Cisco Data Virtualization. The representative *Organization* used for our analysis is described below.

It is a global enterprise headquartered in the US with 20,000 employees worldwide. Five percent of the employees, or 1,000 FTEs, are deemed as active users of data and information within the *Organization.* The *Organization* and the interviewed customers shared the following goals and objectives for an investment in Cisco Data Virtualization:

- Deploy a reliable platform to support the integration of any data from multiple sources in any format or technology.
- Improve agility by increasing productivity in the development and deployment of new technologies within the organization.
- Implement a comprehensive enterprise data warehousing solution that provides a more real-time view of the organization's data.
- Treat information and data as an asset within the organization that can enhance business decisions and has the flexibility to adapt quickly to changes.
- Increase the capability and speed of IT to support business transformation goals and help the business react to the needs of a more rapidly changing marketplace.
- Quickly integrate data assets through mergers and acquisitions.

Based on the customer interviews and the data collected, the following quantifiable benefits were realized by the *Organization:*

- **Project cost avoidance.** On average, there was a 5% to 10% cost savings due to efficiencies gained across all technology projects within the organization per year.
- **Increase in end user productivity.** The organization saw 10% to 15% in end user productivity gains for active users of data and information due to faster and more reliable access to information.
- **Reduction in IT operating costs.** The organization saw 30% to 50% in IT savings from increased productivity in developing and deploying new solutions as well as having the ability reuse data.

FRAMEWORK ASSUMPTIONS

Table 11 provides the model assumptions that Forrester used in this analysis.

The discount rate used in the PV and NPV calculations is 10%, and the time horizon used for the financial modeling is three years. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their respective company's finance department to determine the most appropriate discount rate to use within their own organizations.

TABLE 11
Model Assumptions

Ref.	Metric	Calculation	Value
C1	Hours per week		40
C2	Weeks per year		52
C3	Hours per year (M-F, 9-5)		2,080
C4	Hours per year (24x7)		8,736
C5	Average cost per active user		$100,000 per year

Source: Forrester Research, Inc.

Appendix B: 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, flexibility, and risks.

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 form 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.

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. However, having the ability to capture that benefit has a PV that can be estimated. The flexibility component of TEI captures that value.

RISKS

Risks measure the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections and 2) the likelihood that the estimates will be measured and tracked over time. TEI risk factors are based on a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the risk factor around each cost and benefit.

Appendix C: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Companies set their own 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 respective organizations 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 NPV 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 the Framework Assumptions section) at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations are not calculated until the summary tables are the sum of the initial investment and the discounted cash flows in each year.

Sums and present value calculations the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

TABLE [EXAMPLE]
Example Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3

Source: Forrester Research, Inc.

Appendix D: Endnotes

[1] Forrester risk-adjusts the summary financial metrics to take into account the potential uncertainty of the cost and benefit estimates. For more information, see the section on Risks.