

The Total Economic Impact™ Of vRealize Intelligent Operations

Cost Savings And Business Benefits
Enabled By VMware's Cloud
Management Platform

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Executive Summary

VMware 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 tools within its vRealize Intelligent Operations solution. The solution comprises three modules — vRealize Operations, vRealize Log Insight, and vRealize Business for Cloud — and is designed to automate and simplify the performance, troubleshooting, capacity, and configuration management of physical, virtualized, and cloud IT infrastructure. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of those capabilities for their organizations.

“vRealize Operations is a really good fit for helping us manage the capacity and monitor infrastructure in the cloud.”

— Product manager, software

To better understand the benefits, costs, and risks associated with an Intelligent Operations implementation, Forrester interviewed four customers with multiple years of experience using vRealize Operations, vRealize Log Insight, and/or vRealize Business. Prior to launching Intelligent Operations from VMware, interviewees managed their infrastructure in various ways — some leveraged other operations management platforms to manage their virtual infrastructure, while others used ad hoc methods and homegrown spreadsheets. With Intelligent Operations, these IT leaders gained visibility across their infrastructure in a single console, which allowed them to balance workloads, troubleshoot issues more efficiently, and improve performance and availability. By upgrading their deployment to include the application monitoring add-on feature to vRealize Operations, Intelligent Operations customers can gain comprehensive visibility across applications and infrastructure via a single unified management tool for their whole environment.

VMWARE INTELLIGENT OPERATIONS DELIVERS VISIBILITY, EFFICIENCY, AND PERFORMANCE

Our interviews with four existing customers and subsequent financial analysis found that a composite organization based on these interviewed organizations experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1.

FIGURE 1

Financial Summary Showing Three-Year Risk-Adjusted Results

ROI: 119%	Payback: 3 months	Benefits (PV): \$2,689,917	Costs (PV): \$1,230,964	NPV: \$1,458,954
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Source: Forrester Research, Inc.

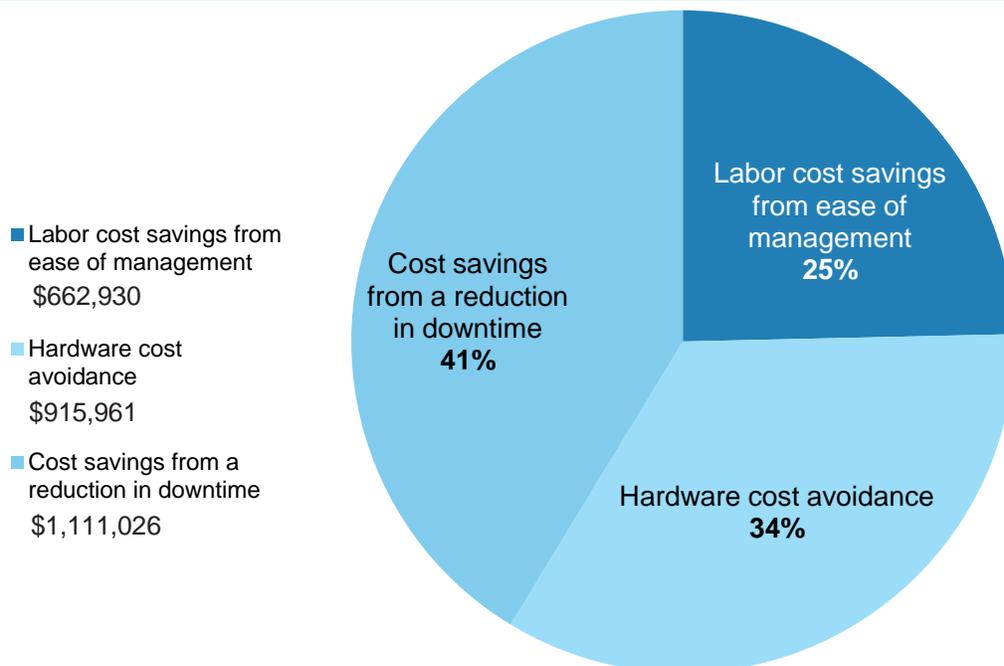
› **Benefits.** The composite organization experienced the following risk-adjusted benefits:

- **A 20% improvement in operational efficiency.** vRealize Operations and Log Insight deliver real-time performance metrics, log analytics, and proactive capacity management, which allows for faster incident resolution and compliance monitoring activities. These functionalities ease the workload of the infrastructure operations team, allowing it to complete the same amount of work in less time. The productivity gain amounts to \$810,000 over three years.
- **Over 10% savings in hardware costs.** vRealize Operations proactively balances workloads across clusters, provides capacity scenario planning capabilities, and both rightsizes and reclaims capacity. This functionality maximizes existing server utilization, reducing not only overall capacity requirements but also annual growth rates, equating to a savings of \$1.13 million over three years.
- **A 75% reduction in unplanned downtime.** vRealize Operations alerts operations teams to potential issues, so they can then automate an action, such as rebalancing workloads. Log Insight also provides log analytics data that helps pinpoint the root causes of problems, allowing teams to solve them before they become critical errors. Together, vRealize Operations and Log Insight reduce system shutdowns and the ensuing unplanned downtime. The composite organization moved its unplanned downtime from 0.4% to 0.1%, saving \$1.3 million over three years.
- **Insight into costs (not quantified).** vRealize Business for Cloud tracks private and public cloud costs, allowing teams to justify their investment, make informed decisions about where to invest, and track costs back to specific departments.

Figure 2 below shows the breakdown of each benefit as a percent of the total risk-adjusted benefits, adjusted for present value.

FIGURE 2

Three Year Risk-Adjusted Benefits



Source: Forrester Research, Inc.

- › **Costs.** The composite organization experienced the following risk-adjusted costs:
- **Due diligence, planning, and implementation.** Planning and implementation required a combined three weeks of effort from several different resources, for a total of just over \$7,000.
 - **Hardware.** A vRealize Intelligent Operations implementation requires two servers for hosting, for a total of \$42,000.
 - **Licensing and maintenance fees.** The composite organization paid VMware roughly \$1,000,000 over three years for licensing and maintenance.
 - **Ongoing management.** The composite organization has one full-time employee managing the tool, for a total of approximately \$400,000 over three years.

Disclosures

The reader should be aware of the following:

- › The study is commissioned by VMware 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 VMware vRealize Intelligent Operations.
- › VMware 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.
- › VMware 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 VMware vRealize Intelligent Operations. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision, to help organizations understand how to take advantage of specific benefits and reduce costs.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the impact the modules within VMware vRealize Intelligent Operations can have on an organization (see Figure 3). Specifically, we:

- › Interviewed VMware marketing and sales personnel, along with Forrester analysts, to gather data relative to VMware and the marketplace for VMware.
- › Interviewed four organizations currently using VMware Intelligent Operations solution to obtain data with respect to costs, benefits, and risks.
- › Designed a composite organization based on characteristics of the interviewed organizations.
- › 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 as applied to the composite organization.
- › Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in the discussions. 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 VMware vRealize Intelligent Operations: 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 3

TEI Approach



Source: Forrester Research, Inc.

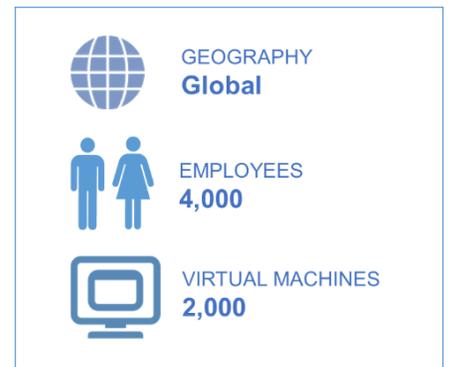
Analysis

COMPOSITE ORGANIZATION

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

Industry	Footprint	Size	Modules In Use	Infrastructure
Software	Global	2,000 employees	vRealize Operations	600 hosts and 20,000 virtual machines
Software	Global	300 employees	vRealize Business	1,000 virtual machines
IT service provider	Global	6,000 employees	vRealize Operations	300,000 customers
Utility	National	1,000+ employees	vRealize Operations, vRealize Log Insight	5,000 virtual machines

Based on the interviews, Forrester constructed a TEI framework, composite organization, and an associated ROI analysis that illustrates the financial impact of the technology. The composite organization, which Forrester synthesized from these results, represents a global organization with 4,000 employees and 2,000 virtual machines (VMs). Prior to implementing VMware, the organization was managing its complex virtual infrastructure and supporting business-critical applications with a variety of disjointed tools from VMware and third-party vendors and ad hoc spreadsheets. It was a laborious task that involved a significant number of time-consuming and error-prone manual steps and entailed significant labor costs, external product licenses, and the overhead of learning and managing multiple tools.



After an extensive RFP and business case process, the composite organization chose VMware. It deployed vRealize Operations and Log Insight immediately, and began using vRealize Business partway through Year 2.

“We’re able to sleep at night knowing that our tools are monitoring our environment and sending us critical alerts in a timely manner, so that we’re able to proactively fix problems before they hit production.”

~ Data center manager, utility

INTERVIEW HIGHLIGHTS

Challenge

Prior to the deployment of the Intelligent Operations tools, the IT operations team struggled to manage its growing infrastructure. One interviewee described it as requiring “constant care and feeding.” Team members could never break out of firefighting mode, relentlessly battling a growing ticker of service incidents while searching for underlying root causes. As a result, capacity ebbed and flowed, with virtual machines redlining during peak periods. The team needed to reduce its number of tickets and improve availability, ideally with a management solution that was more user friendly.

Solution

Team members identified several key drivers for implementing a cloud management solution. They hoped to:

- › Optimize capacity.
- › Reduce incidents.
- › Improve availability.
- › Troubleshoot more quickly and effectively.

The composite organization researched several different solutions, and ultimately chose vRealize based on its ability to meet those objectives and its own long-standing relationship with VMware.

“It’s our primary bread and butter right now. That’s all we use for monitoring the whole infrastructure.”

~ Data center manager, utility

Results

The adoption of a cloud management solution with VMware delivered:

- › **Visibility across the infrastructure.** vRealize Operations, Log Insight, and vRealize Business provided the IT team with a comprehensive picture of the physical and virtual infrastructure, including workload distribution, log analytics, and costs. It also provided real-time performance and health metrics. These insights empowered the team to solve incidents more quickly and work more efficiently. Said one interviewee: “We now have a better view into our environment: how the storage is implemented, how the network is behaving, and much more. Before, we were just blindly monitoring, but now we know how everything talks to each other. We are better able to troubleshoot and communicate with our other teams.”
- › **Improved performance and capacity optimization.** vRealize Operations’ ‘Rebalance Action automatically balances workloads and resolves contention. By optimizing existing capacity, the composite organization reduces the number of physical servers required to operate its virtual machines and improves performance of the existing infrastructure. This improved performance reduces the number of service incidents, driving further efficiencies for the system administrators.

COSTS



The composite organization experienced a number of costs associated with the VMware solution. These represent the mix of internal and external costs experienced by the composite organization for initial planning, implementation, and ongoing maintenance associated with the solution.

Due Diligence And Implementation Costs

Cost calculations began when the composite organization made the conscious decision to explore new solutions for managing its cloud infrastructure. Due diligence in the vendor selection process required 40 hours, followed by 80 hours for planning and implementation. Interviewees agreed that both processes were smooth and efficient. Said one interviewee: “The most time-consuming part was coordinating with our own security team. After that, magic happened.”

Specific due diligence and implementation tasks included:

- › Spending time with VMware to understand how the solution could replace its existing cloud management tool.
- › Working with VMware on requirements, software setup, network and environment integration, configuration, and testing.
- › Leveraging the self-training tools.

The average annual fully loaded cost of a system administrator is \$120,000. There was some variation from interviewees’ reported labor costs, and Forrester expects resource requirements to vary based on organizations’ complexity and maturity; therefore, this cost has been risk-adjusted up by 10%, for a total of \$7,615.

Hardware Costs

The composite organization required two servers to host the vRealize Intelligent Operations software. The requirements for other organizations will depend on the size and scope of the implementation, so this cost has been risk-adjusted up by 10%, for a total of \$42,000.

Licensing And Maintenance Fees

Software licensing fees for the entire Intelligent Operations suite, including vRealize Operations, Log Insight, and vRealize Business, begin in Year 1, totaling \$290,000. VMware leverages a perpetual licensing model; therefore, in years 2 and 3, it only pays incremental fees for new virtual machines. With an anticipated 10% growth rate in the number of VMs, the composite organization expects an additional \$15,000 each year.

Maintenance fees are 25% annually on the cumulative licensing fees at list prices, or approximately \$190,000 each year.

Licensing and maintenance costs will vary based on the number of virtual machines and existing relationships with VMware. VMware fees vary by organization; therefore, the costs have been risk-adjusted up by 10%, for a total of \$1,001,901 over three years.

Ongoing Management

One data center manager described VMware as “easy to use and manage.” The composite organization has one full-time employee dedicated to managing the tool, completing tasks such as:

- › Reading support material and completing upgrades.
- › Reviewing dashboard reports and acting on insights
- › Ensuring the data is accurate and that costs are kept up to date.

At an average fully loaded salary of \$120,000, and a risk-adjustment of 10%, this totals \$396,000 over three years.

Total Costs

Table 5 shows the total of all costs as well as associated present values, discounted at 10%. Over three years, the composite organization expects costs to total a net present value of a little more than \$1.2 million.

TABLE 5
Total Costs (Risk-Adjusted)

Ref.	Cost Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Dtr	Due diligence and implementation costs	\$7,615	\$0	\$0	\$0	\$7,615	\$7,615
Etr	Hardware	\$42,000	\$0	\$0	\$0	\$42,000	\$42,000
Ftr	Licensing and maintenance fees	\$0	\$525,250	\$232,513	\$244,138	\$1,001,901	\$853,084
Gtr	Ongoing management	\$0	\$132,000	\$132,000	\$132,000	\$396,000	\$328,264
	Total costs (risk-adjusted)	\$49,615	\$657,250	\$364,513	\$376,138	\$1,447,516	\$1,230,964

Source: Forrester Research, Inc.

BENEFITS

The composite organization experienced the following quantified benefits:

- › Labor cost savings from improved operational efficiency.
- › Hardware cost avoidance.
- › Cost savings from a reduction in unplanned downtime.
- › Insight into costs.



Cost Savings From A 20% Improvement In Operational Efficiency

Prior to its adoption of Intelligent Operations, the composite organization required approximately 10 resources to manage its infrastructure and operations, with additional headcount needed each year to support growth. Today, with Intelligence Operations, it has reduced its headcount to eight and requires only half an additional resource to meet its growing workload.

Several elements contribute to this overall efficiency gain:

- › **Improved incident management.** vRealize Operations alerts operators to potential issues, and analytics from Log Insight pinpoints the root cause, allowing teams to resolve issues before they become actual problems. When incidents are avoided, operators have fewer problems to respond to, reducing the time dedicated to resolving tickets. One interviewee estimated that his team went from “hundreds of tickets a day down to 10.” Then, when incidents do occur, the system pinpoints the root cause of issues, preventing teams from having to run time-consuming, in-depth diagnostic tests.
- › **Visibility into the infrastructure.** The visibility into the performance, capacity, and configuration of the infrastructure makes ramping new employees more straightforward as well as improves the productivity of existing staff. The composite organization hires one to two people each year from growth and attrition. Prior to its implementation of vRealize Intelligent Operations, it would take these new employees months to learn the nuances of the infrastructure. With the insights from vRealize Intelligent Operations and Log Insight, new employees ramp in under a week.
- › **Compliance requests.** With the built-in policy compliance features, the composite organizations reduced the amount of time dedicated to the several audit requests it fields each month. It used to spend a half hour gathering the necessary inputs to respond to the audit requests, and it can now complete the same task in just minutes.

This operational efficiency leads to a cost savings of two headcounts in Year 1 and three full headcounts in Year 3. With an average fully loaded salary of \$120,000, the composite organization saves \$900,000 over three years. This savings will vary based on an organization’s size, complexity, and employee skillset. To accommodate for these variances, the benefit has been risk-adjusted down by 10%, for a total cost savings of \$810,000.

TABLE 1
Labor Cost Savings From Improved Operational Efficiency

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Total
A1	Number of FTEs expected without vRealize Intelligent Operations		10	11	12	
A2	Number of FTEs required with vRealize Intelligent Operations		8	8.5	9	
A3	Average fully loaded salary		\$120,000	\$120,000	\$120,000	
At	Labor cost savings from improved operational efficiency	$(A1-A2)*A3$	\$240,000	\$300,000	\$360,000	\$900,000
	Risk adjustment	↓10%				
Atr	Labor cost savings from improved operational efficiency (risk-adjusted)		\$216,000	\$270,000	\$324,000	\$810,000

Source: Forrester Research, Inc.



Hardware Cost Avoidance Of Over 10%

Analytics and optimization capabilities from vRealize Operations enabled the composite organization to identify and rightsize overprovisioned resources, balance workloads, and consolidate VMs. This ultimately optimized the use of the VMs and improved the efficiency of its data center. Prior to implementing vRealize Intelligent Operations, the composite organization required 133 servers to host its 2,000 virtual machines. With these capacity management insights, the composite organization is able to:

- › Run an equivalent number of VMs on 10% fewer physical servers.
- › Reduce the amount of excess server capacity it purchases each year from 10% to 5%.

With its capacity optimized, the composite organization is able to reclaim 13 servers in Year 1 and avoid purchasing 21 servers in Year 2 and 29 servers in Year 3, at \$20,000 per server.

An organization's ability to reduce its capacity will vary based on how efficiently it manages its capacity today. Therefore, this benefit has been risk-adjusted down by 10%, for a total of \$1,131,764 over three years.

TABLE 2
Hardware Cost Avoidance

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Total
B1	Number of servers needed prior to Intelligent Operations	10% growth rate	133	146	161	
B2	Number of servers needed with Intelligent Operations	5% growth rate	120	126	132	
B3	Server purchases avoided		13	21	29	
B4	Cost per server		\$20,000	\$20,000	\$20,000	
Bt	Hardware cost avoidance	B3*B4	\$266,000.00	\$412,300.00	\$579,215.00	\$1,257,515
	Risk adjustment	↓10%				
Btr	Hardware cost avoidance (risk-adjusted)		\$239,400	\$371,070	\$521,294	\$1,131,764

Source: Forrester Research, Inc.



Cost Savings From A 75% Reduction In Unplanned Downtime

Prior to implementing Intelligent Operations, the composite organization experienced 99.6% uptime in its production environment. It was not able to identify issues before they became critical, and would therefore have to shut down the environment to administer patches. Then, the system would be forced to remain off while the team ran time-consuming diagnostic tests. vRealize Operations optimizes resource usage, detects capacity shortfalls, and proactively resolves issues, and Log Insight provides critical log analytics to identify root causes. As one interviewed data center manager said, “Now we are able to catch issues well before they hit production.” With this functionality, the composite organization improved its performance to 99.9% reliability.

Like most organizations, interviewees were not able to calculate the specific cost of downtime. Therefore, the model leverages a conservative estimate of \$20,000 per hour; this value is driven by estimates of lost productivity and revenue opportunities for the composite organization. With the 0.3% decrease in unplanned downtime, the composite organization saves \$1,340,280 over three years. This benefit has been risk-adjusted down by 15% to accommodate for the variations in the cost of downtime.

TABLE 3
Cost Savings From A Reduction In Unplanned Downtime

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Total
C1	Previous downtime		0.4%	0.4%	0.4%	
C2	Current downtime		0.1%	0.1%	0.1%	
C3	Cost of downtime (per hour)		\$20,000	\$20,000	\$20,000	
Ct	Cost savings from a reduction in unplanned downtime	$365 \times 24 \times (C1 - C2) \times C3$	\$525,600	\$525,600	\$525,600	\$1,576,800
	Risk adjustment	↓15%				
Ctr	Cost savings from a reduction in unplanned downtime (risk-adjusted)		\$446,760	\$446,760	\$446,760	\$1,340,280

Source: Forrester Research, Inc.



Insight Into Actual Costs (Not Quantified)

vRealize Business for Cloud tracks private and public cloud costs, allowing teams to justify their investment, make informed decisions about where to invest, and track costs back to specific departments. One interviewee, a VP of IT, discussed the challenge he faced defending his investment to executives prior to implementing vRealize Business. Now, he says, “I have reports touting how much cheaper our solution is.”

Interviewees leverage vRealize Business to understand where exactly they are spending and what future environments would cost in a public versus private cloud so they can make the best possible decision for their organization.

While none of the interviewees could quantify the impact these insights provided to their organizations, they described them as delivering value in reporting and decision-making.

Total Benefits

Table 4 shows the total of all benefits across the three areas listed above, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of almost \$2.7 million.

TABLE 4
Total Benefits (Risk-Adjusted)

Ref.	Benefit Category	Year 1	Year 2	Year 3	Total	Present Value
Atr	Labor cost savings from ease of management	\$216,000	\$270,000	\$324,000	\$810,000	\$662,930
Btr	Hardware cost avoidance	\$239,400	\$371,070	\$521,294	\$1,131,764	\$915,961
Ctr	Cost savings from a reduction in downtime	\$446,760	\$446,760	\$446,760	\$1,340,280	\$1,111,026
	Total benefits (risk-adjusted)	\$902,160	\$1,087,830	\$1,292,054	\$3,282,044	\$2,689,917

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 (or option) to engage in future initiatives and benefits but not the obligation to do so.

Forrester asked each interviewed customer the following question: “Now that you have invested in vRealize Intelligent Operations, what other features or functionality can your organization take advantage of?” The following represents the future options available to the composite organization, or any VMware Intelligent Operations customer:

- › With improved operational efficiency, interviewees expect to leverage their team’s recuperated time to explore new ways to support their business partners.
- › With improved capacity management and visibility into their infrastructure, interviewees anticipate an improved ability to forecast the business’ needs and growth, which can accelerate procurement processes and reduce delays.
- › By selecting to use the Blue Medora application monitoring add-on feature to vRealize Operations, Intelligent Operations customers can create a single pane of glass for their operating environment, delivering additional visibility.

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. For the purpose of this analysis, we have assumed that the composite organization sees future value in being able to take future advantage of the above Intelligent Operations features and functionality.

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 VMware 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 VMware, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

TABLE 6

Benefit And Cost Risk Adjustments

Benefits	Adjustment
Labor cost savings from ease of management	↓ 10%
Hardware cost avoidance	↓ 10%
Cost savings from a reduction in downtime	↓ 15%
Costs	Adjustment
Due diligence and implementation costs	↑ 10%
Licensing and maintenance fees	↑ 10%
Ongoing management costs	↑ 10%
Hardware costs	↑ 5%

Source: Forrester Research, Inc.

Quantitatively capturing implementation risk and impact risk by directly adjusting the financial estimates results provides more meaningful and accurate estimates and a more accurate 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.

The following impact risks that affect benefits are identified as part of the analysis:

- › **System availability.** Interviewees discussed the possibility that if the vRealize tools go offline, they will not have access to their KPIs.
- › **Data accuracy.** Interviewees acknowledged that the system produces insights that are only as accurate as the data being inputted. Readers are encouraged to ensure they continually monitor and update system inputs to ensure they are maximizing the accuracy of the insights.

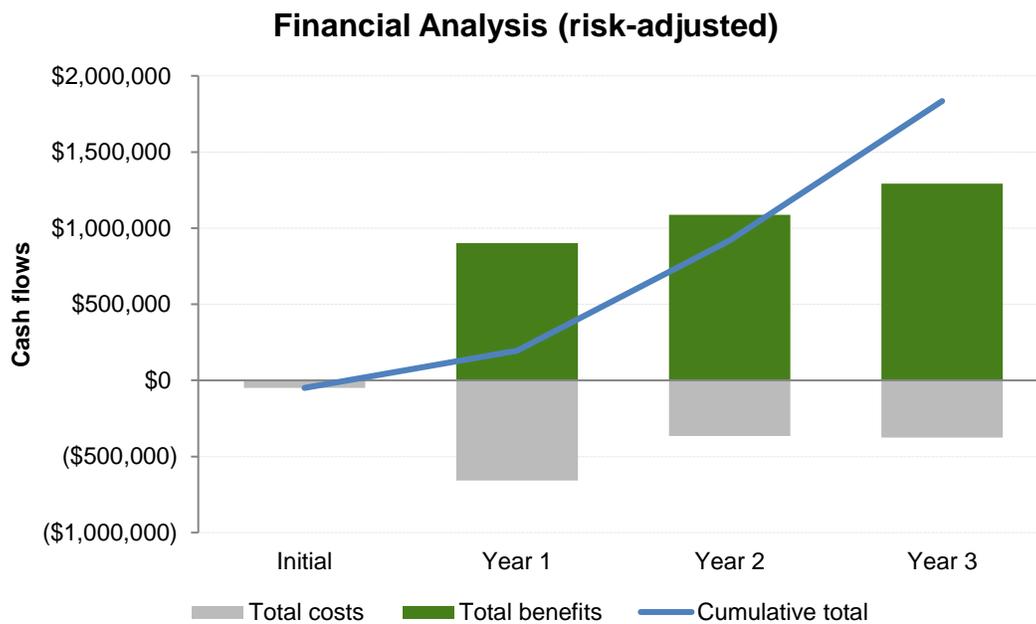
Table 6 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates for the composite organization. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

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 composite organization's investment in VMware.

Table 7 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 6 in the Risks section to the unadjusted results in each relevant cost and benefit section.

FIGURE 4
Cash Flow Chart (Risk-Adjusted)



Source: Forrester Research, Inc.

TABLE 7
Cash Flow (Risk-Adjusted)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Costs	(\$49,615)	(\$657,250)	(\$364,513)	(\$376,138)	(\$1,447,516)	(\$1,230,964)
Benefits	\$0	\$902,160	\$1,087,830	\$1,292,054	\$3,282,044	\$2,689,917
Total	(\$49,615)	\$244,910	\$723,318	\$915,915	\$1,834,527	\$1,458,954
ROI						119%
Payback period						3 months

Source: Forrester Research, Inc.

VMware Business Intelligence Platform: Overview

Traditional operations management systems do not meet the requirements of today's virtual and cloud infrastructure. They make IT too reactive because they lack the intelligence to aggregate, correlate, and analyze metrics across applications and infrastructure stacks. vRealize Operations is built on a scale-out, resilient platform. It is designed to deliver intelligent operational insights to simplify and automate management of applications and infrastructure across virtual, physical, and cloud environments, such as vSphere, Hyper-V, and Amazon Web Services (AWS). With vRealize Operations, IT organizations of all sizes can improve performance, avoid business disruption, and become more efficient with comprehensive visibility across applications and infrastructure in one place.

vRealize Operations allows users to:

- › **Optimize Utilization.** Become more efficient by optimizing resource utilization and improving planning and forecasting
- › **Ensure performance and availability across Software-Defined Data Center (SDDC).** Improve performance, avoid disruption and proactively manage SDDC with integrated performance and health monitoring across compute, network, storage and applications.
- › **Unify visibility across heterogeneous data centers and multi-cloud environments.** Gain comprehensive visibility in a single console across physical, virtual, and public cloud environments with an open and extensible operations management platform.

Appendix A: Framework Assumptions

Table 8 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 8

Model Assumptions

Ref.	Metric	Calculation	Value
X1	Average annual fully loaded salary for system administrator		\$120,000
X2	Hours per year	52*40	2080

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. TEI assists technology vendors in winning, serving, and retaining customers.

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 enterprise wide 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

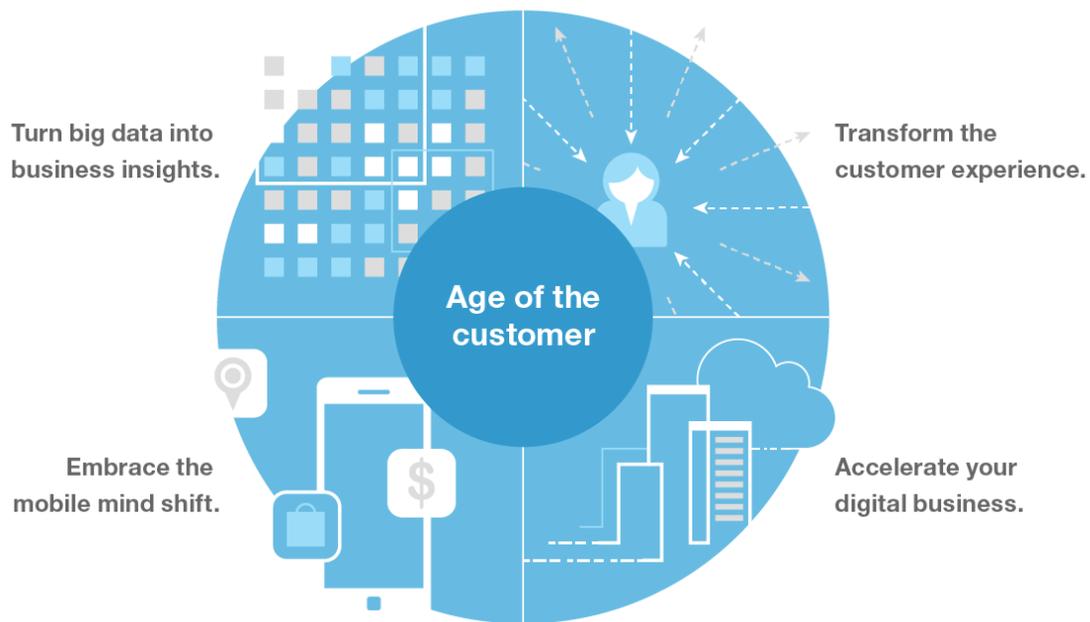
Risks measure the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections and 2) the likelihood that the estimates will be measured and tracked over time. TEI 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: Forrester And The Age Of The Customer

Your technology-empowered customers now know more than you do about your products and services, pricing, and reputation. Your competitors can copy or undermine the moves you take to compete. The only way to win, serve, and retain customers is to become customer-obsessed.

A customer-obsessed enterprise focuses its strategy, energy, and budget on processes that enhance knowledge of and engagement with customers and prioritizes these over maintaining traditional competitive barriers.

CMOs and CIOs must work together to create this companywide transformation.



Forrester has a four-part blueprint for strategy in the age of the customer, including the following imperatives to help establish new competitive advantages:



Transform the customer experience to gain sustainable competitive advantage.



Accelerate your digital business with new technology strategies that fuel business growth.



Embrace the mobile mind shift by giving customers what they want, when they want it.



Turn big data into business insights through innovative analytics.

Appendix D: 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 of 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
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Source: Forrester Research, Inc.