A Forrester Total Economic Impact™
Study Commissioned By SUSE
October 2017

The Total Economic Impact™ Of SUSE OpenStack Cloud

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Benefits And Costs

Reduced costs for the central IT organization:
$992,254

Impact on productivity and increased adoption:
$994,314

Total cost of SUSE OpenStack Cloud over three years:
$414,216

Executive Summary

SUSE OpenStack Cloud enables companies to create and manage private cloud environments. To measure the financial impact realized by customers, SUSE commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying SUSE OpenStack Cloud.

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact on their organizations. To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed customers with experience using do-it-yourself (DIY) OpenStack and who migrated to SUSE OpenStack Cloud.

Prior to using SUSE, the customers struggled with deploying private cloud environments because of disjointed technology offerings, the complexity of integrating open source code, and the dramatic change that cloud imposed on their development community. These organizations adopted SUSE OpenStack Cloud because the standardized OpenStack environment provided a stable foundation for building a private cloud.

After implementing SUSE OpenStack Cloud, the companies found that the technology itself presented few challenges at the technical level. The focus of the executives shifted to training developers, packaging services, and increasing adoption across the organization. The result was a significant increase in adoption that boosted the revenue of service providers and helped eradicate shadow IT within large, complex corporations.

One executive told Forrester: “Our main issue at the moment is that we are growing too fast even without advertising internally. We are at 3,000 CPUs with our current demand, but we are projecting to require 25,000 CPUs within nine to 12 months.”

Key Findings

Quantified benefits. The following risk-adjusted present value (PV) benefits are representative of those experienced by the companies interviewed and for a company running 15,000 workloads:

- **Reduced cost of hardware infrastructure of $567,002.** The interviewed organizations all reported that they reduced the cost of hardware infrastructure by an average of 20%. The reduction was realized by using commodity hardware, increasing utilization, and reducing the response-time service levels for replacing failed devices.
- **Reduced cost of staff to manage OpenStack of $425,252.** Using an OpenStack Distribution (Distro) from SUSE reduced the number of staff required to implement and manage the environment by an average of two full-time equivalents (FTEs).
- **Improved productivity of development teams by $531,565.** The private cloud environment created using SUSE OpenStack Cloud affected the productivity of development teams. The exact experience varied based on the size and complexity of each company, but each realized a positive impact on developer productivity, which allowed the organization to avoided hiring additional developers.

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ROI
380%

Benefits PV
$2.0 million

NPV
$1.6 million

Payback
<6 months

› **Increased demand from business units and developers of $462,750.** The demand from internal IT organizations was significant, but service providers also measured a specific boost in revenue for service providers. To reflect these differences, Forrester showed increased "revenue" but used a high-risk adjustment to account for organizations that don't earn revenue, per se.

Unquantified benefits. The interviewed organizations experienced the following benefits, which are not quantified for this study:

› **Simplifying the solutions offered.** Both service providers and internal IT groups found that they could create and simplify product catalogs.

› **Engaging as a solid, reliable partner.** The executives stressed the importance of a solid OpenStack partner and that SUSE provided such service in their relationships.

› **Examining established policies for validity.** As a part of the change to OpenStack, organizations reexamined existing processes and eliminated those that no longer provided value.

Costs. The interviewed organizations experienced the following risk-adjusted PV costs:

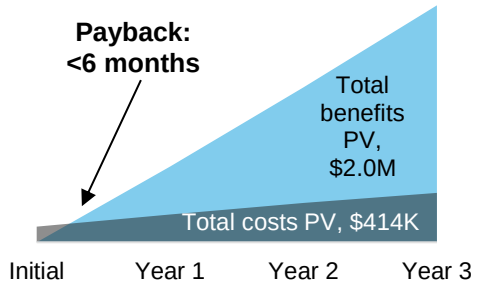
› **Cost of SUSE OpenStack Cloud of $283,544.** The organization paid fees to SUSE for a 15,000-workload environment.

› **Cost to implement and configure environment of $124,688.** The organization dedicated five employees who spent 50% of their time for six months to implement and configure the OpenStack environment.

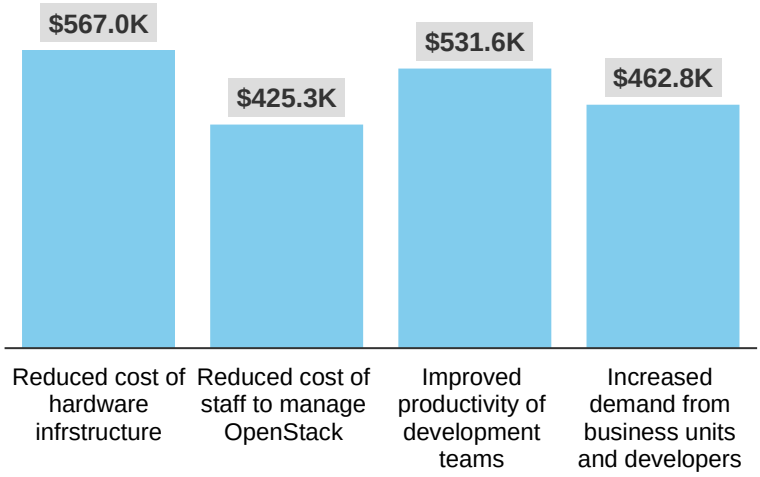
› **Cost of training of $5,985.** Although nominal, the organization sent three employees to training for one week to become OpenStack operators.

Forrester's interviews with four existing customers found that an organization based on these interviewed organizations experienced PV benefits of nearly $2 million over three years versus PV costs of $414,216, adding up to a net present value (NPV) of $1.6 million and an ROI of 380%.

Financial Summary



Benefits (Three-Year)



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TEI Framework And Methodology

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing SUSE OpenStack Cloud.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that SUSE OpenStack Cloud can have on an organization:

The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

DUE DILIGENCE
Interviewed SUSE stakeholders and Forrester analysts to gather data relative to SUSE OpenStack Cloud.

CUSTOMER INTERVIEWS
Interviewed four organizations using SUSE to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed organizations.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.

CASE STUDY
Employed four fundamental elements of TEI in modeling SUSE's impact: 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 A for additional information on the TEI methodology.

The SUSE Customer Journey

BEFORE AND AFTER THE SUSE INVESTMENT

Interviewed Organizations

For this study, Forrester conducted four interviews with SUSE OpenStack Cloud customers. Interviewed customers include the following:

INDUSTRY	INTERVIEWEE	USE CASE
Automotive company	Senior solutions architect	Attempted to build a private cloud framework, which required too much effort to improve and maintain. The organization chose SUSE OpenStack Cloud to avoid the resource consuming integration and maintenance. SUSE OpenStack Cloud is delivering a service for appropriate workloads like dynamic continuous integration systems, big data, and analytics workloads.
Regional bank	Director of operations	Established goal to build internal private cloud along with standardization and consolidation of infrastructure internally.
Regional services provider	Head of delivery	Hosts instances of SAP applications on mainland Europe as a service provider. This organization found that SUSE OpenStack Cloud provided a more stable environment that reduced costs and boosted revenue.
Country-specific services provider	Founder and CEO	Uses SUSE OpenStack Cloud as a cloud provider for customers within a specific country. The stability of the environment reduced the need for administrative management of the cloud by 80%, allowing individuals in this smaller organization to focus on other areas of business.

Key Challenges

After conducting interviews with four companies, Forrester identified the following challenges that they experienced prior to adopting SUSE OpenStack Cloud. The challenges included:

- **Building a private cloud.** The director of operations at a bank told Forrester: **"**We defined a goal, with quite a bit of naivety, to build a private cloud. At the time, we wanted an all-singing, all-dancing, all-automated, does-this-for-you, does-that-for-you, you-standby-and-just-do-service-reporting private cloud."
- **Managing a cloud environment using OpenStack source code.** The senior solutions architect reported: "In the past, we tried to develop the environment on our own, but it was not maintainable and it was inoperable. It's quite a lot of effort to do all the integration, especially for quickly developing software like OpenStack. With releases coming every six months, as soon as you implement one version, the next version is arriving."
- **Overcoming false starts with other technologies.** One executive said: "It didn't take us too long to realize that [another technology] was not suited to our needs. The vendor unbundled what was previously one product into several products, and they wouldn't work properly without their endpoint solution. Eventually, we would have had to buy all the peripheral products to get the solution."

> "We defined a goal, with quite a bit of naivety, to build a private cloud. At the time, we wanted an all-singing, all-dancing, all-automated, does-this-for-you, does-that-for-you, you-standby-and-just-do-service-reporting private cloud."
>
> *Director of operations, regional bank*

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- **Integrating with the existing SUSE environment.** The executive in the automotive industry relayed: “A key reason for us to choose the SUSE OpenStack Cloud Distro is that we were already using the SUSE operating system platform. Our team is already familiar with SUSE, and it reduced the learning curve for our transition.”
- **Building a self-service environment for development teams.** The regional bank director said: “The DevOps teams wanted self-service. They wanted to be masters of their own destiny. They wanted IT enablement versus IT delivery. To support that vision, we had to do lots of things differently, and this next-generation infrastructure held promise. We embarked on the journey of simplification, consolidation, and standardization leading to the ability of our DevOps users to enable themselves.”

Key Results

The interviews revealed that key results from the SUSE investment include:

- **Teaching developers how to leverage new technology.** The regional bank director told Forrester: “It was quite interesting to see those developers that were shouting from the rooftops: ‘Enable me. Enable me. Enable me.’ When we brought them self-service, they had to learn how to use it. The same developers that shouted to be enabled were not the first developers to begin using the services.”
- **Reducing the amount of shadow IT.** The senior solutions architect described: “We are a large, diverse company with lots of technology activities going on. As we rolled out the SUSE OpenStack Cloud environment, development teams and business units saw that it was better than what they were currently using. Shadow IT is coming in. We don’t pull them in. We don’t advertise. Just by talking to each other they realize what we can offer, and they are coming back to central IT. They see that we are a good partner for them.”
- **Improving the speed of provisioning.** The head of delivery at a services provider said: “Our provisioning time dropped significantly as we are under pressure to deliver faster and faster. With OpenStack, we can create an instance for an enterprise resource planning (ERP) environment much more quickly. Customers are impressed when within 1 to 2 hours, you can show them a ready installation so that they can do their job.”
- **Transitioning one step at a time.** The bank director said: “One piece of advice that I’d offer companies is to reduce their bold, audacious goals into a step-by-step transition. You can’t understand and build the outcome in one day. There is too much change, and you have to learn and iterate along the journey. If I were to do this again, I would say to myself: ‘I will restrain myself and iterate my delivery so that its functionality adds value for the business one step at a time.’”
- **Creating an OpenStack “tryout” program.** The automotive company told Forrester: “We have a program to let developers try out the OpenStack environment. The tryout space is deleted every night, but it’s sufficient for someone who already understands OpenStack, to start an instance, create the operating system, deploy something, and test whether it will work.”

“We are a large, diverse company with lots of technology activities going on. As we rolled out the SUSE OpenStack environment, development teams and business units saw that it was better than what they were currently using. Shadow IT is coming in. We don’t pull them in. We don’t advertise. Just by talking to each other they realize what we can offer, and they are coming back to central IT. They see that we are a good partner for them.”

Senior solutions architect, automotive company

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Composite Organization

Based on the interviews, Forrester constructed a composite entity that illustrates the areas financially affected. The composite organization is representative of the companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has 15,000 workloads and supports dozens of development teams internally.

Key assumptions

- 15,000 workloads
- Internal IT organization
- Experiences shadow IT

Financial Analysis

QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Reduced cost of hardware infrastructure	$228,000	$228,000	$228,000	$684,000	$567,002
Btr	Reduced cost of staff to manage OpenStack	$171,000	$171,000	$171,000	$513,000	$425,252
Ctr	Improved productivity of development teams	$213,750	$213,750	$213,750	$641,250	$531,565
Dtr	Increased demand from business units and developers	$86,400	$187,488	$305,139	$579,027	$462,750
	Total benefits (risk-adjusted)	$699,150	$800,238	$917,889	$2,417,277	$1,986,568

Benefit 1: Reduced Cost Of Hardware Infrastructure

The composite organization reduced the annual cost of hardware infrastructure by 20%. The savings came from:

- Using commodity servers and storage with lower average reliability, but with components that could be easily swapped out during failures.
- Sparing policies that were downgraded from an average of 24x7, four-hour response time to a “next-day” service level, which significantly lowered the cost of maintaining hardware.

Forrester applied a 5% risk to the benefit as most of the interviewed companies realized a similar impact. With an original annual cost for hardware of $1.2 million per year, the savings resulted in a PV savings over three years of $567,002.

The table above shows the total of all benefits across the areas listed below, 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 nearly $2.0 million.

Reduced Cost Of Hardware Infrastructure: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Original hardware cost		$1,200,000	$1,200,000	$1,200,000
A2	Savings by using commodity hardware in OpenStack environment		20%	20%	20%
At	Reduced cost of hardware infrastructure	A1*A2	$240,000	$240,000	$240,000
	Risk adjustment	↓5%			
Atr	Reduced cost of hardware infrastructure (risk-adjusted)		$228,000	$228,000	$228,000

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Benefit 2: Reduced Cost Of Staff To Manage OpenStack

Some of the interviewed organizations attempted to deploy an OpenStack environment using the source code without the added capabilities of a Distro, such as SUSE OpenStack Cloud. The organizations found that:

- The complexity of integrating the source code required additional staff to implement, configure, and maintain the environment.
- The frequent updates of code from the OpenStack Foundation compounded the challenge, with new code releases coming on average every six months.

One organization struggled for more than two years to launch and stabilize an OpenStack environment before giving up and adopting the SUSE Distro offering.

The financial impact of dedicating two fewer employees to manage the OpenStack environment at an average burdened annual salary of $95,000 resulted in a three-year savings of $570,000. Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of $425,252.

Impact risk is the risk that the business or technology needs of the organization may not be met by the investment, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for benefit estimates.

Reduced Cost Of Staff To Manage OpenStack: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Avoided FTEs required to manage OpenStack environment		2	2	2
B2	Average burdened salary		$95,000	$95,000	$95,000
Bt	Reduced cost of staff to manage OpenStack	B1*B2	$190,000	$190,000	$190,000
	Risk adjustment	↓10%			
Btr	Reduced cost of staff to manage OpenStack (risk-adjusted)		$171,000	$171,000	$171,000

Benefit 3: Improved Productivity Of Development Teams

By using a stable, functioning OpenStack environment, the development teams told Forrester that they saved time conducting a number of tasks such as setting up test environments and improved debugging efficiency. One organization reported that the savings for some of its tasks was 30 to 45 days. In the financial model:

- Forrester used a more conservative time savings of three days.
- Forrester also assumed that each development team had four such instances per year.
- Across 50 development teams, the result was a savings of 0.05 FTEs per year.

Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of $531,565.

Improved Productivity Of Development Teams: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Number of development teams affected		50	50	50
C2	Average time saved by reducing three days of work, four times per year per development team (FTE years)	3/240*4	0.05	0.05	0.05
C3	Average burdened salary		$95,000	$95,000	$95,000
Ct	Improved productivity of development teams	C1*C2*C3	$237,500	$237,500	$237,500
	Risk adjustment	↓10%			
Ctr	Improved productivity of development teams (risk-adjusted)		$213,750	$213,750	$213,750

Benefit 4: Increased Demand From Business Units And Developers

All of the interviewed companies experienced an increase in demand for the cloud services enabled by the SUSE OpenStack Cloud solution. Specifically:

- Service providers observed a measurable boost in revenue from clients migrating to cloud services. Because the providers offered a stable application environment, they realized an increase in revenue.
- IT organizations experienced an increase in demand from business units and their internal development communities. One internal organization indicated that demand from internal development teams averaged an increase of 50% per year.

To financially represent the growth in demand that was fueled by using SUSE OpenStack Cloud, Forrester assumed a 1% boost in growth to a revenue stream of $120 million. At a 12% profit margin, the three-year PV total was $771,249. Because some organizations are internal IT shops that will be unable to measure a revenue impact, but still experience high growth, Forrester adjusted this benefit downward by 40%, yielding a three-year risk-adjusted total PV of $462,750.

Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

Increased Demand From Business Units And Developers: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	Baseline revenue	$120 million growing at 8%	$129,600,000	$139,968,000	$151,165,440
D2	Revenue from 1% boost in demand from improved cloud capabilities	$120 million growing at 9%	$130,800,000	$142,572,000	$155,403,480
D3	Average profit margin		12%	12%	12%
Dt	Increased demand from business units and developers	(D2-D1)*D3	$144,000	$312,480	$508,565
	Risk adjustment	↓40%			
Dtr	Increased demand from business units and developers (risk-adjusted)		$86,400	$187,488	$305,139

Unquantified Benefits

In addition to the benefits outlined above, the organizations shared other benefits that did not have specific financial implications. Specifically, SUSE help them by:

- **Engaging as a solid, reliable partner.** The senior solutions architect at the automotive company said: “The technology partner is an important part of the purchase decision. Technology is just a small part of any OpenStack Distro. It’s such a dynamic environment, and you will need a lot of interaction with the vendor just to help you understand how to do things. You need a good contact who will help you. In my opinion, that’s more important than the technology itself.”
- **Examining established policies for validity.** The senior architect also added: “We had so many established processes within our organization, but OpenStack changed the environment dramatically. We had to evaluate each process and ask ‘Is it still valid? Do you have the same proposition as before? What is that process for?’ Whenever a process didn’t benefit us in the new environment, we dropped it.”

Some of the most important value that clients get from SUSE OpenStack Cloud comes from benefits that don’t have measurable, discrete financial results.

Flexibility

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. There are multiple scenarios in which a customer might choose to implement SUSE OpenStack Cloud and later realize additional uses and business opportunities, including:

- **Standardizing the product catalog.** The senior solutions architect at the automotive company said: “We standardized our internal offering with several levels of engagement. Users only pay when they use CPUs by having a virtual machine (VM) configured. Heavier users are defined by the number of minutes they use, and they pay a higher rate. The most advanced users pay a dedicated rate rather than a variable rate. The whole idea is that prices are relative and based on unit consumption. It works for us as a central IT group and it helps the developers.”
- **Defining roles within the IT organization.** The bank executive told Forrester: We intend to have a cloud brokerage with a cloud administrator, engineer, architect, specialist, and product manager. In their infancy, these roles may be one or two individuals, but as they mature, we expect that they will become unique roles and important to the growth and maturity of our environment.”

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a 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.

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Etr	Cost of SUSE OpenStack	$0	$114,017	$114,017	$114,017	$342,052	$283,544
Ftr	Cost to implement and configure the environment	$124,688	$0	$0	$0	$124,688	$124,688
Gtr	Cost of training	$5,985	$0	$0	$0	$5,985	$5,985
	Total costs (risk-adjusted)	$130,673	$114,017	$114,017	$114,017	$472,724	$414,216

Cost 1: Cost Of SUSE OpenStack Cloud

To support an environment defined as 15,000 workloads (the number and size of workloads can vary widely), the organization pays a total annually of $103,652. The total PV cost over three years was $257,767.

Because of the variation in workloads, which makes it difficult to anticipate the exact pricing required by a reader, Forrester risk-adjusted this cost upward 10%, resulting in a three-year risk-adjusted total PV of $283,544.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of $414,216.

Cost Of SUSE OpenStack: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	SUSE OpenStack Administration Server			$10,000	$10,000	$10,000
E2	SUSE OpenStack Control Nodes			$2,500	$2,500	$2,500
E3	SUSE OpenStack Compute Nodes			$19,200	$19,200	$19,200
E4	SUSE OpenStack Swift Server Nodes			$71,952	$71,952	$71,952
Et	Cost of SUSE OpenStack	E1+E2+E3+E4		$103,652	$103,652	$103,652
	Risk adjustment	↑10%				
Etr	Cost of SUSE OpenStack (risk-adjusted)			$114,017	$114,017	$114,017

Cost 2: Cost To Implement And Configure The Environment

The composite organization instructed five employees to spend 50% of their time for six months working to design, configure, and implement the OpenStack environment. The cost for the organization was 1.25 FTE years. At a burdened salary of $95,000, the total cost was $118,750. Due to variations in the cost and complexity for readers, Forrester risk-adjusted this cost upward by 5%, yielding a risk-adjusted total of $124,688.

Cost To Implement And Configure The Environment: Calculation Table						
REF.	**METRIC**	**CALC.**	**INITIAL**	**YEAR 1**	**YEAR 2**	**YEAR 3**
F1	Five employees for six months at 50% of their time (FTE years)		1.25			
F2	Average burdened salary		$95,000			
Ft	Cost to implement and configure the environment	F1*F2	$118,750			
	Risk adjustment	↑5%				
Ftr	Cost to implement and configure the environment (risk-adjusted)		$124,688			

Cost 3: Cost Of Training

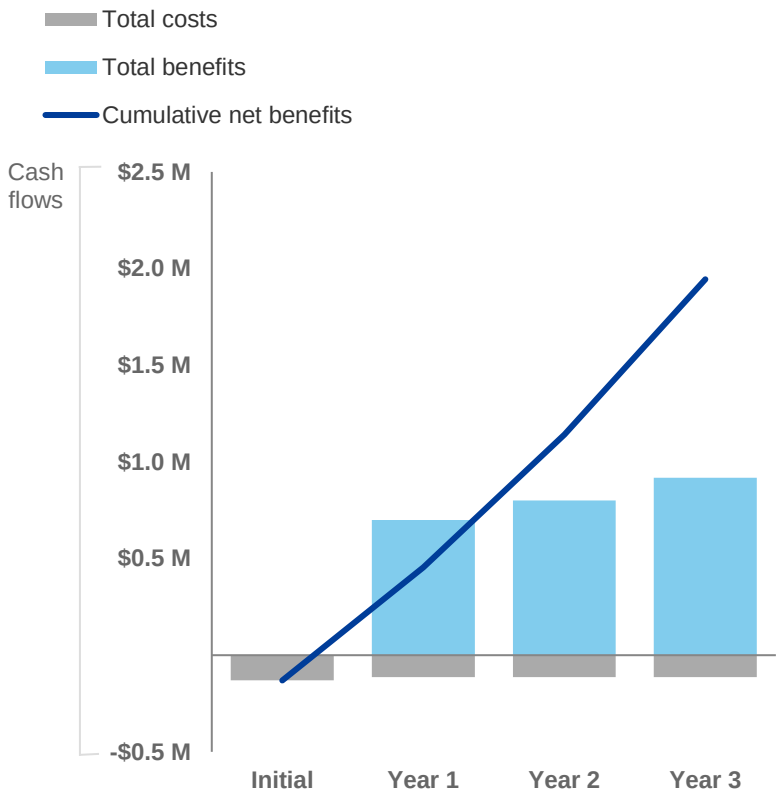
The composite organization paid for three employees to attend one week of training for a total cost of $5,700. Forrester risk-adjusted this cost upward by 5%, resulting in a total cost of $5,985.

Cost Of Training: Calculation Table						
REF.	**METRIC**	**CALC.**	**INITIAL**	**YEAR 1**	**YEAR 2**	**YEAR 3**
G1	Three employees attending one week of training (FTE years)	3/48	0.06			
G2	Average burdened salary		$95,000			
Gt	Cost of training	G1*G2	$5,700	$0	$0	$0
	Risk adjustment	↑5%				
Gtr	Cost of training (risk-adjusted)		$5,985	$0	$0	$0

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



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. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	($130,673)	($114,017)	($114,017)	($114,017)	($472,724)	($414,216)
Total benefits	$0	$699,150	$800,238	$917,889	$2,417,277	$1,986,568
Net benefits	($130,673)	$585,133	$686,221	$803,872	$1,944,553	$1,572,352
ROI						380%
Payback period						<6 months

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SUSE OpenStack Cloud: Overview

The following information is provided by SUSE. Forrester has not validated any claims and does not endorse SUSE OpenStack Cloud or its offerings.

SUSE OpenStack Cloud is the open source cloud solution of choice for enterprise business and service providers, helping you respond quickly to today's ever-changing business-critical demands. SUSE OpenStack Cloud enables you to:

- Build a cloud infrastructure with the operational agility, speed, scalability and control to take full advantage of new business opportunities and rapidly evolving technology trends, such as DevOps and containers.
- Evolve your legacy infrastructure investments into the emerging Software Defined Data Center that you need to remain competitive.
- Deliver the robust, production ready cloud you need to run business -critical workloads and drive business growth, with fast deployment, easy management and enhanced high availability.
- Get there faster with rapid OpenStack cloud deployment and easy management.
- Reduce costs, maximize the value of existing IT investments, while improving choice and flexibility

With orchestration and self-service capabilities and the automated deployment of a highly available control plane, SUSE OpenStack Cloud provides the agility you need to rapidly respond to the needs of your business by improving the speed and ensuring the availability of service delivery. By combining SUSE's experience of delivering enterprise grade open source solutions with the continuous stream of innovation from the vibrant OpenStack development community, we have created a solution that delivers faster innovation, greater flexibility and the world class enterprise support you need. SUSE OpenStack allows enterprises to scale infrastructure without growing IT staff with automation that improves IT staff productivity and expands the enterprise capabilities of your IT infrastructure while maintaining your current investments. SUSE OpenStack Cloud provides the ideal platform for increased innovation, while helping you to control and reduce costs.

To learn more about SUSE OpenStack Cloud, please visit www.suse.com/cloud.

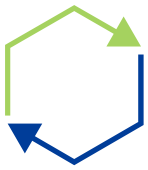
Appendix A: Total Economic Impact

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.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places 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.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.



Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in 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.

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.

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.

RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

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.

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