A Forrester Total Economic Impact™
Study Commissioned By Red Hat
June 2018

The Total Economic Impact™ Of Red Hat Ansible Tower

Cost Savings And Business Benefits Enabled By Ansible Automation

FORRESTER®

Table Of Contents

Executive Summary **1**
- Key Findings 1
- TEI Framework And Methodology 4

The Ansible Customer Journey **5**
- Interviewed Organization 5
- Key Challenges 5
- Key Results 6

Analysis Of Benefits **7**
- Operational Efficiency Savings 7
- Infrastructure Appliance Savings 8
- Reconfiguration Savings 9
- Security Update Savings 10
- Unquantified Benefits 11
- Flexibility 11

Analysis Of Costs **13**
- Annual Subscription 13
- Implementation And Deployment 13
- Annual Updates 14
- Training Costs 15

Financial Summary **16**

Red Hat Ansible: Overview **17**

Appendix A: Total Economic Impact **18**

Project Director:
Sam Conway

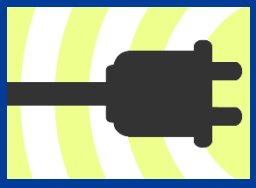
ABOUT FORRESTER CONSULTING

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.

FORRESTER®

Key Benefits

Operational efficiency savings:
$1,321,364



Infrastructure appliance savings:
$389,707

Reduction in man hours to recover from security incident:
94%

Executive Summary

Red Hat provides an easy-to-use IT automation technology that helps its customers easily deploy apps, manage systems, and achieve DevOps goals across their entire organizations. Red Hat commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Ansible through Red Hat® Ansible® Engine and Red Hat Ansible Tower. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Red Hat Ansible Automation and Red Hat Ansible Tower on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed one customer with five years of experience using Ansible. The organization used Ansible to automate core IT operations for its cloud service platform, avoid expensive name-brand appliance purchases, and support its cloud service business operations. This organization followed a typical Ansible adoption pattern, as it began with Ansible Engine and writing Playbooks for ad hoc tasks. From there, the organization deployed Ansible Tower, which enabled the company to extend and manage orchestration at scale, ensuring that the entire organization could recognize automation's benefits.

Prior to using Ansible, the interviewed customer had staff manually provision, update, and maintain the cloud service infrastructure. However, manually completing tasks was time-intensive and error-laden and frequently required expensive hourly contractors. The IT workforce found the manual tasks repetitive, dull, and difficult to complete at scale, while trying to meet increasingly more complex customer demands.

Red Hat Ansible Automation allowed the organization to automate frequent IT tasks, such as server patches, reconfigurations, and provisioning new servers for customers. The organization also replaced the functionality of IT infrastructure appliances, avoiding the cost of purchasing name-brand units.

Key Findings

Quantified benefits. The interviewed organization experienced the following risk-adjusted present value (PV) quantified benefits:

- **Operational efficiency savings of $1,321,364.** The interviewed organization used Ansible to streamline core business activities for its managed cloud service operations. The organization automated the process of bringing servers online and provisioning them to customers, cutting delivery lead times by 66%. The efficiency gains in delivery accelerated revenue recognition, delighted customers, and drastically reduced the man hours required to meet customer demands, representing a three-year PV of $1,321,364.
- **Infrastructure appliance savings of $389,707.** Rather than purchase name-brand appliances for its data centers, the interviewed organization created an Ansible Playbook and ran the automated functionality using generic Linux systems. The organization avoided purchasing 10 name-brand infrastructure appliances, representing a three-year PV of $389,707.

ROI
146%

Benefits PV
$1.73 million

NPV
$1.03 million

Payback
< 3 months

- **Automated reconfiguration, reducing man hours by 94%.** The organization automated the recovery and reconfiguration process following security incidents. Automating the process reduced its incident response time by 94% and eliminated the need to call in expensive hourly contractors. Automating recovery and reconfiguration resulted in a three-year savings of $12,049.
- **Automated security updates, reducing man hours by 80%.** Prior to using Ansible, the organization required FTE (full-time equivalent) resources to manually update security for the Linux environment — a task required with increasing frequency to comply with new regulations like the General Data Protection Regulation (GDPR). Ansible automated and simplified this task — requiring 80% less time and making it easy enough for in-house resources to complete. Automating security updates resulted in a three-year PV of $6,521.

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

- **Avoided hiring additional staff.** Simplifying and automating common IT tasks allowed the organization to avoid hiring additional staff to meet demands of its growing customer base.
- **Accelerated revenue recognition.** By automating server delivery, the organization accelerated the speed at which it recognized revenue from clients.
- **Improved security standards.** The organization adopted CIS (Center for Internet Security) Controls and Benchmarks into its automated scripts, which were easy to edit and enabled the organization to keep up with rapidly evolving standards.
- **Avoided costly errors.** With process automation, the organization avoided potentially costly errors committed during the manual provisioning and configuration of servers.
- **Improved employee morale.** Staff in the organization's data centers experienced improved morale when they no longer had to complete rote manual tasks. Automation of tasks freed employees to work on more exciting projects and experiment with Ansible further.
- **Larger recruitment pool.** With Ansible Automation, the organization reduced its need for specialized programming language skills, increasing the potential talent pool to fill roles.

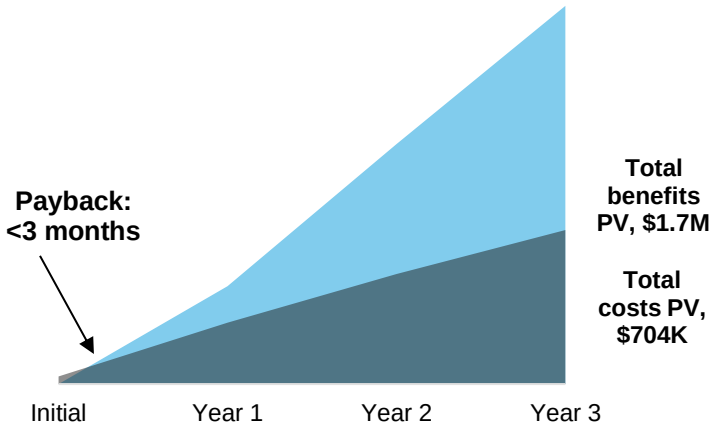
Costs. The interviewed organization experienced the following risk-adjusted PV costs:

- **Annual subscription fee.** The organization pays an annual subscription fee to Red Hat for the use and support of Ansible Tower. These fees to Red Hat totaled $646,271 over a three-year period.
- **Internal implementation and deployment costs of $23,874.** Initial implementation and deployment took approximately one month. During this time, two infrastructure architects spent 80% of their time overseeing the implementation and deployment of Ansible, resulting in a total cost of $23,874.
- **Costs to maintain and update scripts of $18,801.** The lead infrastructure architect dedicates one day per month upgrading and writing new Ansible Playbooks, resulting in a total cost of $18,801 over three years.

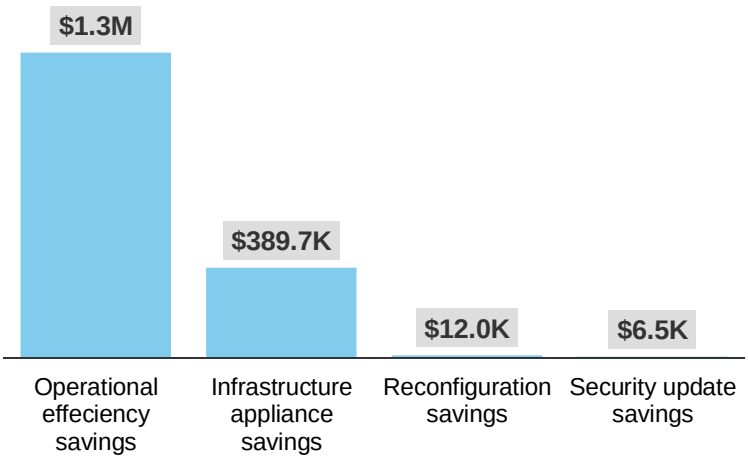
› **Internal training costs of $15,967.** The organization trained end users for 1 hour each on Ansible and infrastructure architects for 10 hours. The organization refreshes subject matter experts annually. These internal training costs totaled $15,967 over a three-year period.

Forrester's interview with an existing customer and subsequent financial analysis found that the interviewed organization experienced benefits of $1,729,641 over three years versus costs of $704,490, adding up to a net present value (NPV) of $1,025,151 and an ROI of 146%.

Financial Summary



Benefits (Three-Year)



FORRESTER®

TEI Framework And Methodology

From the information provided in the interview, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Red Hat Ansible.

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 Red Hat Ansible 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 Red Hat stakeholders and Forrester analysts to gather data relative to Ansible.

CUSTOMER INTERVIEW
Interviewed one organization using Ansible to obtain data with respect to costs, benefits, and risks.

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

CASE STUDY
Employed four fundamental elements of TEI in modeling Red Hat Ansible'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 Ansible Customer Journey

BEFORE AND AFTER THE ANSIBLE INVESTMENT

Interviewed Organization

For this study, Forrester interviewed a Red Hat Ansible Automation customer. This customer:

- Is a managed service provider based in the United States, operating worldwide.
- Manages five data centers across North America and Europe.
- Employs over 1,000 employees worldwide.
- Used a Unix platform to manage its data centers prior to deploying Ansible.
- Uses Ansible to automate and perform tasks on its managed cloud platform, including deploying servers, deploying operating systems, networking, reconfigurations, and patching. The organization manages 1,500 nodes with Ansible.
- Started by writing Playbooks with Ansible Engine, and then scaled and controlled that automation with Ansible Tower.

> "We were trying to do a quick fix on a customer issue, and it became quite repetitive doing it manually, so we started using Ansible. We quickly realized this was a tool that could be built up and rolled out across multiple products and greatly improve the consistency of work and help us complete tasks quicker."
>
> *Lead architect, managed service provider*

Key Challenges

The organization faced key productivity, functionality, and cost issues when managing and expanding its cloud platform:

- **Time-consuming manual entries.** The organization relied on staff to manually enter command lines when reconfiguring servers or executing new deployments in the data centers. As the organization grew and offered more services, this became operationally inefficient. Furthermore, manual entries were prone to inconsistencies and errors and wore down staff morale.
- **Difficulty scaling automated cloud platform.** The organization developed a cloud platform and quickly discovered that scaling out and managing the infrastructure was untenable using traditional command lines. New systems had difficulty communicating with each other, and manually fixing issues quickly overwhelmed the existing workforce.
- **Skill limitations and costly contractors.** As the organization's offerings grew, it found that it lacked sufficient skills to manage high-level operations and meet customer demands. The lead architect told Forrester: "Any time an issue was raised, I had to have a senior engineer on hand. There were no scripts I could hand off to someone to run."
- **Trouble meeting growing customer demands and expectations.** The organization lacked the manpower to meet customer needs at scale when delivering services manually. Customers expected an unobtrusive experience on the cloud platform, which was not initially being delivered. The lead architect told Forrester, "Before I would have had to open hundreds of firewall ports and install things on client servers that they did not want in order to manage the platform."

> "We developed a cloud platform for our customers. That's fine when you're small-scale, but when you want to grow, you'll find managing with command lines doesn't work very well. That's why Ansible's Tower API was a must-have."
>
> *Lead architect, managed service provider*

- **Capital-intensive investments in infrastructure hardware.** To scale-out its cloud platform and maintain high service quality, the organization required investments in expensive infrastructure appliances.

Key Results

The interview revealed several key results from the Ansible Tower investment. With Ansible, the organization:

- **Improved operational efficiency.** Using Ansible, the organization cut lead times on customer deliveries. Prior to automation, the organization required staff to manually provision and deploy servers for the cloud service customers. The lead architect said: "It's all about repeatability and consistency. I don't have to have an engineer deal with the server. I can build 10 servers exactly the same way with one engineer just executing the automation."
- **Avoided costly infrastructure appliance investments.** Continuing to expand and improve its cloud platform required the organization to invest in costly appliances. Rather than purchase name-brand appliances, the organization replicated the functionality and deployed them on generic Linux systems, which cost 84% less per unit.
- **Created easy-to-understand Ansible Playbooks.** The organization standardized and simplified processes, developing easy-to-use Playbooks, which enabled senior engineers and subject matter experts to delegate formerly complex tasks. This improved employee efficiency and allowed the organization to avoid paying expensive outside contractors to complete specialized tasks. The organization saved $30 per hour by delegating tasks to less experienced staff. Staff could complete tasks, such as patching, in far less time — providing even greater cost savings.
- **Improved response times to security incidents.** With automated Playbooks, the organization enabled its workforce to quickly respond to security incidents. Incident response time improved by 94% through automated reconfiguration. Instead of manually working through hundreds of command lines, the organization turned remediation into one that could be executed "with the push of a button."

"Our automated processes are enabled in Ansible Tower. Now, even individuals who don't have knowledge about a different operating system or network device are enabled to manage and fix things that are completely outside of their comfort zone. They don't have to enter things manually or follow a guide. It's already written and automated for them."

Lead architect, managed service provider

"The client now knows what they are going to get. We've introduced new standards for delivery times, which wasn't something we could do previously. From a business standpoint, it makes us an option that clients are more likely to choose."

Lead architect, managed service provider

Analysis Of Benefits

QUANTIFIED BENEFIT DATA

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Operational efficiency savings	$484,500	$532,950	$586,245	$1,603,695	$1,321,364
Btr	Infrastructure appliance savings	$0	$247,000	$247,000	$494,000	$389,707
Ctr	Reconfiguration savings	$4,845	$4,845	$4,845	$14,535	$12,049
Dtr	Security update savings	$2,622	$2,622	$2,622	$7,866	$6,521
	Total benefits (risk-adjusted)	$491,967	$787,417	$840,712	$2,120,096	$1,729,641

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 interviewed organization expects risk-adjusted total benefits to be a PV of more than $1.7 million.

Operational Efficiency Savings

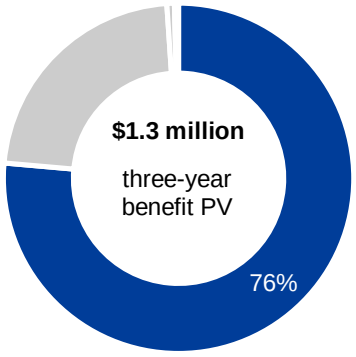
The organization interviewed for this study provided managed cloud services to a growing list of customers. As the number of customers grew and individual customers increased their service demands, the company required more servers to be brought online and deployed in its five global data centers. Prior to Ansible, the organization completed this task manually, with engineers installing operating systems and tools required for standardization before testing and deploying servers. With Ansible, the organization automated tasks required to deploy a server, greatly reducing manual touchpoints and lead time required for customer delivery.

- With automated server delivery, the organization cut lead times by 16 hours, from three business days to one.
- The organization saved 48,000 hours of staff time by automating the process of bringing servers online, stress testing resources and deleting nodes. In the first year of Ansible use the organization created and destroyed 3,000 nodes.
- The organization retains 1,500 net nodes under management on an annual basis.

Forrester has modeled this benefit using the following calculations and assumption:

- Annual growth rate of 10% in server deliveries due to increasing cloud demand.
- Fully burdened staff compensation of $44,200.
- 50% productivity recapture.

Readers are likely to experience a wide range of results based on their current operations and scale of business. To account for these risks, Forrester adjusted the benefit downward by 5%, yielding a three-year risk-adjusted total PV of $1,321,364.



Operational efficiency savings: **76%** of total benefits

FORRESTER®

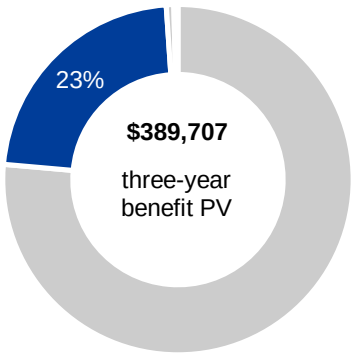
Operational Efficiency Savings: Calculation Table					
REF.	**METRIC**	**CALC.**	**YEAR 1**	**YEAR 2**	**YEAR 3**
A1	Servers brought online		3,000	3,300	3,630
A2	Hours of lead time saved per server		16	16	16
A3	Total hours lead time saved	A1*A2	48,000	52,800	58,080
A4	Productivity recapture		50%	50%	50%
A5	Lead time hours recaptured	A3*A4	24,000	26,400	29,040
A6	Fully burdened comp		$44,200	$44,200	$44,200
At	Operational efficiency savings	A5*(A6/2,080)	$510,000	$561,000	$617,100
	Risk adjustment	↓5%			
Atr	Operational efficiency savings (risk-adjusted)		$484,500	$532,950	$586,245

Infrastructure Appliance Savings

As the organization expanded and improved its cloud platform, it required continued investment in new tools and infrastructure hardware. To fill this need in the past, the organization purchased name-brand appliances from vendors that carried hefty price tags. The organization explored ways to cut costs and found that it had the ability to automate the functionalities of certain appliances using Ansible Playbooks — describing the workload and deploying it on generic Linux systems.

- The organization avoided purchasing 10 name-brand vendor appliances over a two-year period, supplanting them with generic appliances that cost $52,000 less per unit — an 84% savings.
- "We looked at what the appliances did and realized it was something that could be scripted. What we've done now is automate what that device was doing and deploy it on a standard piece of hardware. For the same value, I can deploy five generic units."

The reduction in infrastructure appliance costs will vary with the existing skill sets of internal staff, scale of business, and capital asset requirements. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of $389,707.



Infrastructure appliance savings: **23%** of total benefits

FORRESTER®

Infrastructure Appliance Savings: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Planned appliance purchases			5	5
B2	Name-brand infrastructure appliance cost			$64,000	$64,000
B3	Unbranded Linux automated appliance cost			$12,000	$12,000
B4	Infrastructure appliance per unit savings	B2-B3		$52,000	$52,000
Bt	Infrastructure appliance savings	B1*B4		$260,000	$260,000
	Risk adjustment	↓5%			
Btr	Infrastructure appliance savings (risk-adjusted)		$0	$247,000	$247,000

Reconfiguration Savings

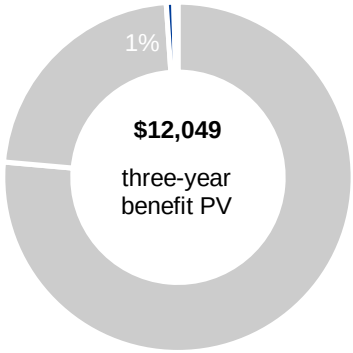
Prior to Ansible, the organization experienced a security incident in which a customer altered files it should not have had access to. These changes occurred due to a security loophole in the configuration management system. As the customer's managed service provider, the organization had to fix the issue and close any existing security loopholes.

- "It was a couple hundred servers we had to log on to and manually change three sets of passwords for each. This was done manually, and it took 36 hours to change each one and all the relevant documentation that went along with it."
- The organization wrote an Ansible script that was able to resolve subsequent incidents that required server reconfigurations in 2 hours.

In modeling this benefit, Forrester assumes:

- Fully burdened infrastructure architect compensation of $156,000.
- Two annual incidents requiring large-scale reconfigurations.

Readers will experience a range of results based on the scope of business and security controls. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of $12,049.



Reconfiguration savings: **<1%** of total benefits

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.

FORRESTER®

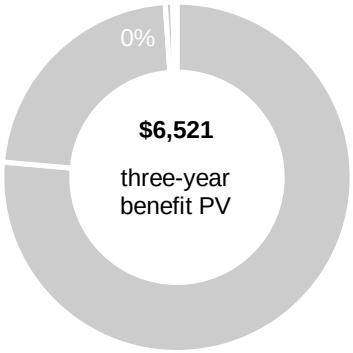
Reconfiguration Savings: Calculation Table					
REF.	**METRIC**	**CALC.**	**YEAR 1**	**YEAR 2**	**YEAR 3**
C1	Fully burdened comp infrastructure architect		$156,000	$156,000	$156,000
C2	Hourly infrastructure architect comp	C1/2,080	$75	$75	$75
C3	Man hours required to manually reconfigure server passwords		36	36	36
C4	Man hours to reconfigure server passwords with Ansible script		2	2	2
C5	Reconfiguration incidents		2	2	2
Ct	Reconfiguration savings	(C2*C3*C4) - (C2*C4*C5)	$5,100	$5,100	$5,100
	Risk adjustment	↓5%			
Ctr	Reconfiguration savings (risk-adjusted)		$4,845	$4,845	$4,845

Security Update Savings

The interviewed organization adopted CIS standards and required manual scripting updates on an ad hoc basis to comply with the latest security guidelines. To complete this task in the past, the organization had to pull guidelines from various sites and compile scripts for deployment. The lead architect told Forrester: "When we were updating for CIS before, we would have to go through these giant scripts line by line. It was a massive piece of work. Now, I use Ansible, and there are very small changes that need to be made. We can also push these tasks down to people on the team who have a less mature skill level, and they can understand how to read and write these scripts. It's self-documented and very easy to read. We don't need the hourly specialists to come in overnight and do the work."

- The organization enabled existing staff to complete security updates, eliminating the need for hourly contractors who specialized in such tasks. By using existing resources, the organization saved $30 per hour when completing security updates.
- Due to GDPR, the organization moved to a monthly patching cycle, increasing the frequency of updates.
- The organization reduced the staff hours required for updates by 80% with Ansible automation.

Readers may experience a wide range of results based on their security needs and existing IT talent. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of $6,521.



Security update savings: **<1%** of total benefits

FORRESTER®

Security Update Savings: Calculation Table					
REF.	**METRIC**	**CALC.**	**YEAR 1**	**YEAR 2**	**YEAR 3**
D1	Annual updates		12	12	12
D2	Hourly outsourced engineer cost		$50	$50	$50
D3	Hours to complete security updates		5	5	5
D4	Annual security update costs before Ansible	D1*D2*D3	$3,000	$3,000	$3,000
D5	Hourly in-house IT cost		$20	$20	$20
D6	Hours to complete updates with Ansible		1	1	1
D7	Annual update costs with Ansible	D1*D5*D6	$240	$240	$240
Dt	Security update savings	D4-D7	$2,760	$2,760	$2,760
	Risk adjustment	↓5%			
Dtr	Security update savings (risk-adjusted)		$2,622	$2,622	$2,622

Unquantified Benefits

The interviewed organization reported additional benefits of Ansible Engine and Tower that it was unable to specifically measure or quantify:

- **Improved security standards.** The lead architect told Forrester: "We adopted CIS industry standards, which have hardened our platform. They invariably change every three or six or nine months, and previously we would have had to update scripts again and again. Now we can keep up with the life cycle changes a lot quicker and maintain the latest and greatest standards."
- **Avoided hiring additional staff and increased size of potential recruitment pool.** Simplifying and automating common IT tasks allowed the organization to avoid hiring additional staff to meet demands of its growing customer base. Ansible Automation alleviated the need for the organization to recruit staff with specialized programming expertise, making it easier to fill vacant roles.
- **Accelerated revenue recognition.** Reduced lead time for server delivery allowed the organization to fulfill contracts faster and recognize revenue more quickly.
- **Reduced costly errors.** Automating frequently completed tasks reduced manual touchpoints and potential errors.
- **Improved employee morale.** Automation of tasks reduced employee capacity, allowing them to work on new, innovative initiatives instead of dull and repetitive tasks.

> "People don't want to do the same thing day in and day out — they want to try things that are more interesting. We've shown our staff that automating these tasks isn't going to automate away their roles, but it's going to allow them to spend time on more interesting projects."
>
> *Lead architect, managed service provider*

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 Ansible and later realize additional uses and business opportunities, including:

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.

- **Expanding the platform to offer new services to customers.** With Ansible, the organization can streamline ongoing IT operations and refocus its staff on new initiatives. As a result, employees can dedicate hours to developing experimental new services and exploring ways to improve or expand the existing cloud platform.
- **Deploying Ansible across more service lines.** The organization plans to harness knowledge gained through its experience using Ansible and find ways to simplify, automate, and streamline operations beyond its cloud platform.

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

Analysis Of Costs

QUANTIFIED COST DATA

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Etr	Annual subscription	$0	$259,875	$259,875	$259,875	$779,625	$646,271
Ftr	Implementation and deployment	$23,874	$0	$0	$0	$23,874	$23,874
Gtr	Annual updates	$0	$7,560	$7,560	$7,560	$22,680	$18,801
Htr	Training costs	$12,206	$3,091	$335	$335	$15,967	$15,544
	Total costs (risk-adjusted)	$36,080	$270,526	$267,770	$267,770	$842,146	$704,490

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 interviewed organization expects risk-adjusted total costs to be a PV of more than $700,000.

Annual Subscription

The interviewed organization pays Red Hat an annual subscription fee for use of Ansible Tower. The subscription fee covers future updates as well as 24x7 maintenance and support for the 1,500-node buildout.

Readers may experience varying subscription costs based on number of nodes and desired level of support. Red Hat offers several pricing packages to meet varying customer needs. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year adjusted PV of $646,271.

Annual Subscription: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	Annual subscription			$247,500	$247,500	$247,500
Et	Annual subscription	E1		$247,500	$247,500	$247,500
	Risk adjustment	↑5%				
Etr	Annual subscription (risk-adjusted)		$0	$259,875	$259,875	$259,875

Implementation And Deployment

The initial implementation and deployment of Ansible Tower took one month. During that period, infrastructure architects at the organization put together Playbooks, tested scripts, and integrated Ansible with the cloud platform. The lead infrastructure architect told Forrester: “The initial rollout was one Tower server. Of course, enhancements took place, and it became a larger project to align with our growth and changes in our network. That took us all-in a month to roll out. We had the ability for Tower to be used within our environment in under a week with the tools provided out of the box. However, we had to work out the integration with different teams and that prolonged the project. That was down to our organization, not Red Hat.”

One month
Total implementation and deployment time

FORRESTER®

› Two infrastructure architects dedicated 80% of their time to deploying Ansible, creating documentation, and ensuring that Ansible Playbooks were in a reproduceable state.

Forrester makes the following assumptions in modeling this cost:

› Fully burdened infrastructure architect compensation of $156,000.

Forrester recognizes that readers may experience varying implementation results based on operational readiness, staff skill sets, and scopes of operations. To account for these risks, Forrester has adjusted this cost upward by 15% yielding a three-year rick-adjusted total PV of $23,874.

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.

Implementation And Deployment: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	Time to deploy and integrate Ansible (hours)		173			
F2	Architects dedicated to deployment and integration		2			
F3	Fully burdened comp infrastructure architect		$156,000			
F4	Percentage of time dedicated to deployment and integration		80%			
Ft	Implementation and deployment	F1*F2*(F3/ 2,080)*F4	$20,760			
	Risk adjustment	↑15%				
Ftr	Implementation and deployment (risk-adjusted)		$23,874	$0	$0	$0

Annual Updates

The interviewed organization reviews and updates its Playbooks monthly to both improve existing processes and incorporate new tools and functionalities. This process requires one business days per month, or 12 per year, totaling 96 manhours for the organization's infrastructure architects.

When modeling this cost Forrester assumes:

› Eight work hours in a standard business day.

› Fully burdened infrastructure architect compensation of $156,000.

Forrester recognizes that readers may experience varying update cost results based on workforce skill sets and scopes of operations. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted total PV of $18,801.

Two infrastructure architects
spent 80% of their time on integration and deployment.

FORRESTER®

Annual Updates: Calculation Table						
REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
G1	Hours dedicated updating scripts			96	96	96
G2	Fully burdened comp infrastructure architect			$156,000	$156,000	$156,000
Gt	Annual updates	G1*(G2/2,080)		$7,200	$7,200	$7,200
	Risk adjustment	↑5%				
Gtr	Annual updates (risk-adjusted)		$0	$7,560	$7,560	$7,560

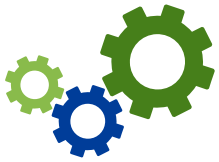
Training Costs

The organization required internal training sessions for infrastructure architects as well as end users. Infrastructure architects required 10 hours of training each during the initial rollout period, to be proficient in writing and editing Playbooks. These subject matter experts required a 5-hour refresher in the second year to stay current on new tools and how they would be deployed on the organization's platform. End users required 1 hour of training each on how to run automated Playbooks to execute operational tasks.

Forrester makes the following assumptions in modeling training costs:

- Fully burdened infrastructure architect compensation of $156,000.
- Fully burdened end user compensation of $44,200.
- Five percent annual turnover in end user employees.

Forrester recognizes that training costs will vary based on an organization's scope of operations and complexity of Ansible deployment. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted total PV of $15,544.



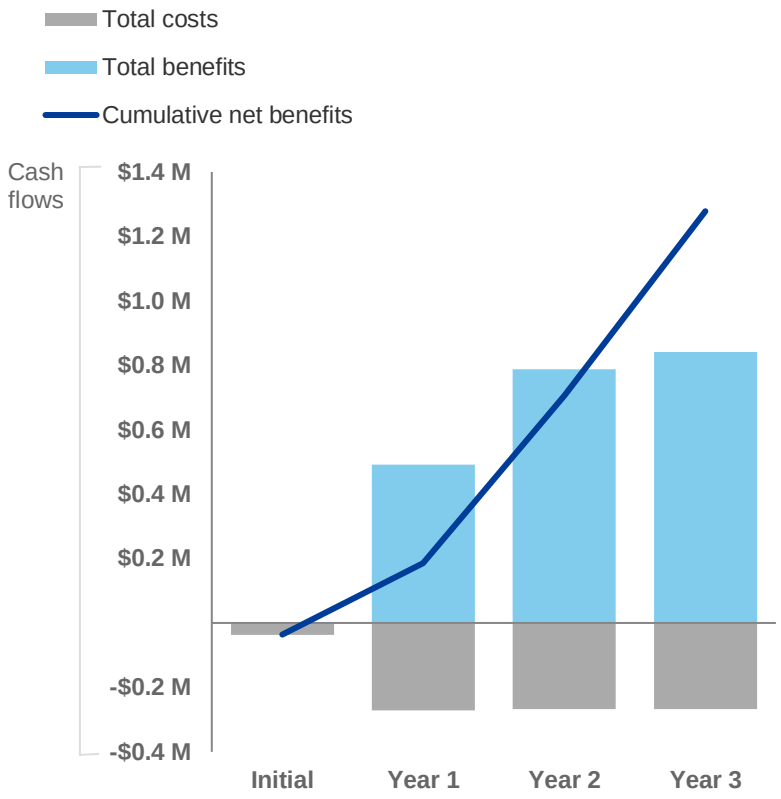
One hour
Total training time per new end user

Training Costs: Calculation Table						
REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
H1	Infrastructure architect training hours		70	35		
H2	Fully burdened comp infrastructure architect		$156,000	$156,000		
H3	Infrastructure architect training cost	H1*(H2/2,080)	$5,250	$2,625		
H4	End user training hours		300	15	15	15
H5	Average end user fully burdened comp		$44,200	$44,200	$44,200	$44,200
H6	Core user training cost	H4*(H5/2,080)	$6,375	$319	$319	$319
Ht	Training costs	H3+H6	$11,625	$2,944	$319	$319
	Risk adjustment	5%				
Htr	Training costs (risk-adjusted)		$12,206	$3,091	$335	$335

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 interviewed 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	($36,080)	($270,526)	($267,770)	($267,770)	($842,146)	($704,490)
Total benefits	$0	$491,967	$787,417	$840,712	$2,120,096	$1,729,641
Net benefits	($36,080)	$221,441	$519,647	$572,942	$1,277,950	$1,025,151
ROI						146%
Payback period						< 3

FORRESTER®

Red Hat Ansible: Overview

The following information is provided by Red Hat. Forrester has not validated any claims and does not endorse Red Hat or its offerings.

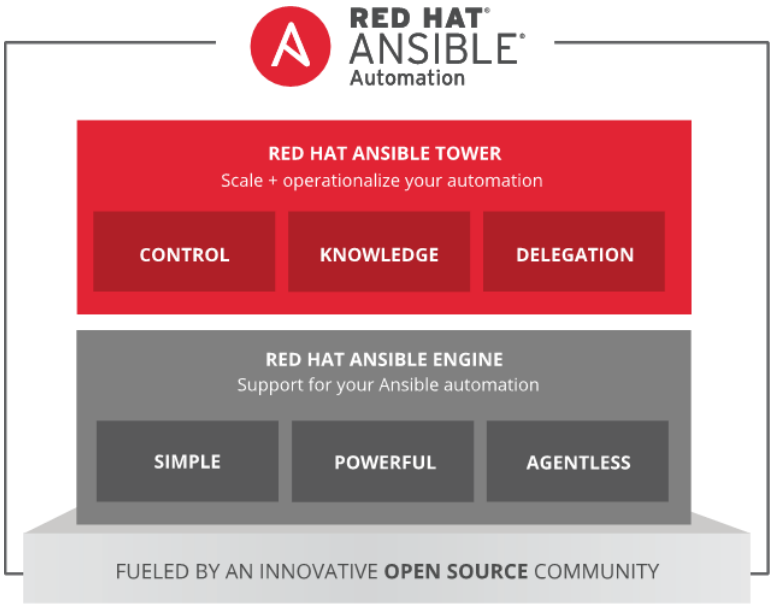
Ansible is used by thousands of organizations globally to help them automate IT tasks, such as configuration management, provisioning, workflow orchestration, application deployment and life cycle management. Ansible is easy to adopt across the entire enterprise — from networks, servers, security and compliance to cloud, infrastructure, and DevOps and CI/CD — all of which can benefit from the power of Ansible Automation.

Red Hat Ansible Automation

Red Hat Ansible Automation is a powerful automation platform that is made up of Red Hat Ansible Tower and Red Hat Ansible Engine.

Red Hat Ansible Engine is a simple, agentless, and powerful IT automation command-line tool. Ansible enables users of nearly any skill to write human-readable Playbooks that automate the routine tasks that keep them busy, so they can spend their time on more important and valuable work.

Red Hat Ansible Tower is how IT organizations manage their automation at scale. It's a browser-based application that enables customers to control how automation is deployed and used, provides auditable knowledge about the source and outcomes of automation, and enables administrators to delegate to nonprivileged users. Ansible Tower relies on Red Hat Ansible Engine for its automation capabilities.



FORRESTER®

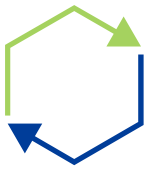
Appendix A: Total Economic Impact

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.