

A Forrester Total Economic Impact™
Study Commissioned By SAP
March 2019

The Total Economic Impact™ Of SAP HANA Enterprise Cloud

Cost Savings And Business Benefits
Enabled By HANA Enterprise Cloud

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Executive Summary

To meet the evolving needs of its customers, SAP developed an end-to-end private managed cloud solution that combines SAP HANA with a comprehensive functional and technical service team focused on improving IT system reliability and scalability. SAP commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential ROI that enterprises may realize by deploying this solution known as HANA Enterprise Cloud (HEC). The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of HEC on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with years of experience using HEC. In today's competitive landscape, businesses and governments need to ensure that their IT systems are operating at maximum efficiency, reliability, and security. HEC was designed to function as a concierge service to help organizations overcome business and IT operational challenges, to enhance agility, reduce risk, drive innovation and growth, and transform IT and business operation.

Prior to using HEC, the customers mostly focused on maintaining a disparate collection of applications and tools with a combination of off-premises and on-premises infrastructure. The demands to improve performance and system agility often led them to pursue quick-fix or partial solutions that increased operational complexity. Solutions yielded limited success, leaving customers burdened with suboptimal practices around security and database management. These limitations left the organizations with systems that lacked scalability and adaptability to new technology.

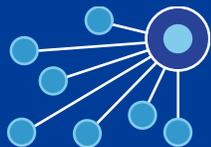
Key Findings

Quantified benefits. The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by the organizations interviewed:

- › **Transformation of IT operations caused by a shift in focus away from infrastructure maintenance and toward the application layer.** Freed from the tasks of maintaining hardware, software upgrades, releases, etc., the number of IT employees dedicated to system administration dropped and greater emphasis was placed on system innovation and strategy. Over three years, the improved efficiency and reduction in IT staff was worth more than \$3.8 million to the organization.
- › **The speed of business intelligence and daily reporting improved significantly.** Enterprise resource planning (ERP) related tasks are now processed between 2 to 1,000 times faster, generating \$2.9 million in productivity gains for the business.
- › **Gains in system reliability reduced operational risk.** Overall system availability rose while the response time to address problems improved, freeing up users for more productive tasks and protecting revenues. This improvement in IT performance generated \$2.8 million in savings.

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

Benefits And Costs



Transform IT operations:
\$3,825,871



Enhance operational performance:
\$2,861,770



Reduce operational risk:
\$2,838,417



ROI
91%



Benefits PV
\$9.5 million



NPV
\$4.5 million



Payback
3 months*

*Payback is measured against the go-live date of HEC and not the start of the contract.

› **Adaptive and scalable operating model matched the demands of a rapidly changing business model.** In order to compete in a global economy, businesses need to quickly bring new operations online and ensure that their IT resources are properly configured to maximize performance. Successful firms are not tied down by legacy infrastructure but utilize the latest technology to maximize the utility obtained by users and customers to stay ahead of the competition.

› **By managing the SAP technical stack, HEC provides enhanced security to the overall IT environment.** Organizations need to ensure that their business and customer data is safe and secure. Interviewed companies cited SAP's proactive approach to compliance and data security in the cloud as a key benefit of the service.

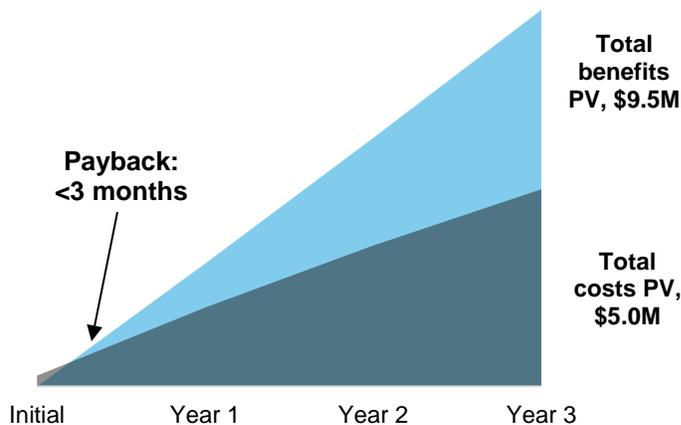
Costs. The interviewed organizations experienced the following risk-adjusted PV costs:

› **Managed services/subscription cost for SAP HEC of more than \$4.7 million over three years.** This included a private cloud service and monthly subscription costs based on the use of the system, rather than the number of users.

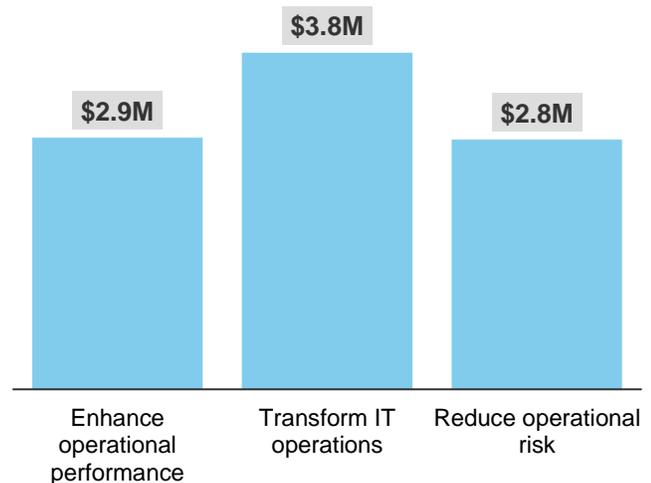
› **Cost to configure and implement, \$271,000.** The cost comprised 800 internal FTE hours devoted to migration planning and testing.

Forrester's interviews with four existing customers and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of \$9.5 million over three years versus costs of \$5 million, adding up to a net present value (NPV) of \$4.5 million and an ROI of 91%.

Financial Summary



Benefits (Three-Year)



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 Framework And Methodology

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

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 SAP HEC can have on an organization:



DUE DILIGENCE

Interviewed SAP stakeholders and Forrester analysts to gather data relative to HEC.



CUSTOMER INTERVIEWS

Interviewed four organizations using HEC 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 SAP HEC'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.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by SAP 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 SAP HEC.

SAP 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.

SAP provided the customer names for the interviews but did not participate in the interviews.

The HEC Customer Journey

BEFORE AND AFTER THE HEC INVESTMENT

Interviewed Organizations

For this study, Forrester conducted four interviews with SAP HEC customers. Interviewed customers include the following:

INDUSTRY	REGION	INTERVIEWEE	NUMBER OF USERS
Industrial machinery	Global, headquartered in Finland	VP, global applications	6,000 users and 200 IT professionals
Retail and wholesale distribution	Global, headquartered in Germany	Leader of corporate IT	1,200 users and 50 IT professionals
Hotel industry	Global, headquartered in Spain	Manager IT	4,000 users
Regional government	India	Chief technology officer	1.5 million users and 400 IT professionals

Key Challenges

During interviews, the executives shared key challenges or problems that drove their need for an alternate solution. Those issues included:

- **The demands associated with maintaining IT infrastructure diverted attention away from the application layer.** One IT executive told Forrester: “Our earlier attempt to implement an ERP system was unsatisfactory, because the project team had to focus too much attention on the infrastructure component and neglected the basics of the application.” As a result, the organization failed to maximize the utility of the enterprise resource planning (ERP) system.
- **Filling the skills gap required to operate SAP systems.** The IT managers that spoke to Forrester stated that their teams lacked the necessary skills and expertise to implement and maintain business warehouse (BW) or ERP systems in SAP. In addition, the difficulty in hiring and managing professionals with the required skills would delay implementation of the applications, and taking on this responsibility was viewed to be costlier in the long run.
- **Managing vendors that only offer partial solutions with limited customization.** Relying on multiple vendors for different layers of the solution stack generated added costs and produced poorer performance. In addition, this made managing system security much more challenging.

“We don’t have to worry about the ability of our employees to host SAP systems. This is an advantage for a company that’s just focused on its core business.”

Leader corporate IT, retail and wholesale distribution



Solution Requirements

The interviewed organizations searched for a solution that could:

- Address the needs of their entire SAP technical stack and be fully scalable and secure.
- Simplify licensing and reduce costs.
- Provide leading edge technology and an SAP road map that puts the organization on the path to implement S/4HANA in the future.

After an extensive RFP and business case process evaluating multiple

“With HEC we had the opportunity to move from a pay-per-user to a pay-per-use model, greatly reducing our overall costs.”

Manager IT, hotel industry



vendors, the interviewed organizations chose HEC and began deployment.

Key Results

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

- › **Elevated the IT organization's contribution to business innovation and growth.** Relieved from managing data centers, hardware, software upgrades, and releases, etc., IT professionals focused more of their energy on strategy, ensuring that IT systems were properly aligned with current and future business demands.
- › **Modernized and advanced business capabilities and service levels.** After implementing HEC, organizations consistently noted a marked improvement in system performance. For example, one interviewee indicated that processing times for payroll dropped 90%, analysis of open accounts and payable items fell 25%, and invoice entries declined 55%.
- › **Enhanced security levels across the IT landscape.** As an organization expands and tries to respond to various stakeholders, its IT landscape can become very disparate and disjointed. An IT executive shared that his organization was lacking best practices for security and relied instead on the practices associated with separate applications. With HEC, the organization migrated to a much more streamlined and structured process that improved system security.
- › **Improved IT system reliability.** Maintaining legacy infrastructure and applications becomes increasingly challenging over time. By upgrading and customizing their SAP technology stack with HEC, interviewees recognized a reduction in system downtimes and when there were issues that needed attention, the response time from SAP was swift.

Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

Description of composite. The global, multibillion-dollar B2C organization provides sales, customer support, and service/warranty support for its consumer products in high volume. The organization has a strong brand, global operations, a large customer base of about 20 million customers, and a strong online and offline presence. The average value of its products is \$100.

Deployment characteristics. The organization has global operations across 10 data centers and 2,800 system users. It adds about one or two data centers every couple of years through acquisition or through outsource arrangements to support capacity for lines of business.

“When we implemented HEC, users asked, ‘What have you done to the system?’. When we asked ‘why?’, their comments were ‘It’s just faster than before!’. That was really nice to hear.”

Manager IT, hotel industry



“We saved 150 to 200 hours per year in IT administrative costs to address downtime incidents, which are really stressful.”

Leader corporate IT, retail and wholesale distribution



Key assumptions:

- 2,800 users
- 10 data centers
- Prior environment: hybrid cloud running some SAP applications, but not HANA

Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Enhance operational performance	\$828,500	\$1,160,600	\$1,529,864	\$3,518,965	\$2,861,765
Btr	Transform IT operations	\$1,496,000	\$1,540,880	\$1,587,106	\$4,623,986	\$3,825,871
Ctr	Reduce operational risk	\$1,094,469	\$1,143,746	\$1,195,506	\$3,433,720	\$2,838,417
	Total benefits (risk-adjusted)	\$3,418,969	\$3,845,226	\$4,312,477	\$11,576,672	\$9,526,053

Benefit 1: Enhance Operational Performance

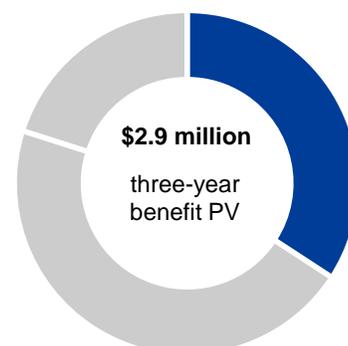
Each of the companies that Forrester interviewed reported significant improvement in ERP system performance. To stay ahead of the competition and excel in customer satisfaction, businesses must have the ability to process growing volumes of data at ever-increasing speeds. The interviewed organizations realized this goal by relying on SAP HEC to provide the architecture of a private cloud system optimized to run their SAP and third-party applications.

Forrester based the financial model for this benefit on the time saved by managers and service professionals who were tasked with executing business intelligence reports. By processing growing volumes of business data with greater speed and frequency, individuals in the organization are empowered to make decisions more quickly, thus raising their productivity. The key assumptions are as follows:

- Runtime for month-end regional business intelligence reports improves by 99%.** The composite organization experiences a decline in runtimes for key managerial reports from 50 minutes to 30 seconds. Forrester assumed that these managers convert 20% of that time-savings into productive activities and decision making.
- Runtime for daily reports improves by 50%.** The runtime for the most common business reports executed by service professionals runs twice as fast in SAP HEC, falling from 4 minutes to 2 minutes. Forrester assumed these service professionals convert 50% of time saved into productivity enhancement.
- Frequency of reporting increases.** Given the improvement in processing time and the increasing demand for business intelligence, the model also assumes that the reports or similar tasks are run more frequently each year, from three times a day in Year 1 to five times a day in Year 3.

Because the exact results of this benefit will depend upon the degree to which an organization prioritizes data capture and investing in leading edge applications, Forrester risk-adjusted this benefit downward by 10% to account for readers who may realize lesser results. The benefit yielded a three-year, risk-adjusted total PV of \$2.9 million.

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 more than \$9.5 million.



Enhance operational performance:
30% 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.

Enhance Operational Performance: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Regional managers running monthly BI reports	Year 1: Composite, Year 2-3: $A1py*(1+X3)$	280	288	297
A2	Previous monthly BI report time to execute, per report (minutes)	Composite	50	50	50
A3	Efficiency gain	Composite	99%	99%	99%
A4	Current BI report runtime, per report (minutes)	$A2*(1-A3)$	0.5	0.5	0.5
A5	Hours saved per year	$((A1*A2*12)-(A1*A4*12))/60$	2,772	2,851	2,940
A6	Country manager hourly salary	Year 1: Assumption, Year 2-3: $A6py*(1+X3)$	\$65.00	\$66.95	\$68.96
A7	Productivity conversion	Assumption	20%	20%	20%
A8	Annual efficiency value from BI monthly reports	$A5*A6*A7$	\$36,036	\$38,175	\$40,548
A9	Local business users generating daily reports	Year 1: Composite, Year 2-3: $A9py*(1+X3)$	2,520	2,596	2,674
A10	Previous daily report generation time, per report (minutes)	Composite	4	4	4
A11	Efficiency gain	Composite	50%	50%	50%
A12	Current daily report generation time, per report (minutes)	$A10*(1-A11)$	2	2	2
A13	Daily report generation frequency	Composite	3	4	5
A14	Hours saved per year	$((A9*A10*A13*260)-(A9*A12*A13*260))/60$	65,520	89,995	115,873
A15	Local business users hourly salary	Year 1: Composite, Year 2-3: $A15py*(1+X3)$	\$27.00	\$27.81	\$28.64
A16	Productivity conversion	Assumption	50%	50%	50%
A17	Annual efficiency value from daily reports	$A14*A15*A16$	\$884,520	\$1,251,380	\$1,659,301
At	Enhance operational performance	$A8+A17$	\$920,556	\$1,289,555	\$1,699,849
	Risk adjustment	↓10%			
Atr	Enhance operational performance (risk-adjusted)		\$828,500	\$1,160,600	\$1,529,864

Benefit 2: Transform IT Operations

A primary need for all the interviewed organizations was to further the transformation of IT operations, shifting resources and manpower away from the upkeep of the solution toward a focus on maximizing the utility of operational data and aligning the IT landscape to the organization's strategic path. The interviewed organizations leveraged the managed services component of SAP HEC to do the project planning needed to get SAP HANA up and running quickly and then provide SAP expertise for problem solving and advice as their needs evolved. Based upon this input, the composite organization reduces the costs associated with an in-house SAP Basis team and an in-house infrastructure team.

For the composite organization, Forrester assumes that:

- › The IT administration and third-party vendor resources under SAP HEC drop by 29%.
- › These cost savings are recognized in Year 1 and continue to accrue into the future.
- › IT engineer salaries continue to grow at a rate of 3% over the next few years.

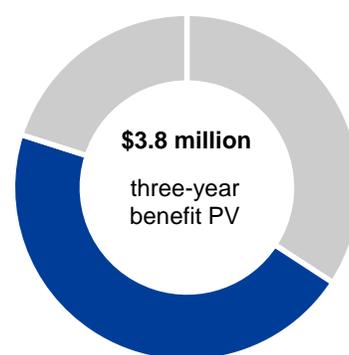
The IT administrative savings associated with SAP HEC will vary depending upon:

- › The extent to which an organization's IT landscape has already migrated its operations to the cloud.
- › The current reliance on third-party vendors to manage and maintain its IT landscape.
- › The fully loaded compensation of IT administrators.

To account for these variations, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of \$3.8 million.

"The deployment of SAP HEC was a paradigm shift for our IT organization, especially the infrastructure team. Our overall productivity rose by 75% to 90%.

Chief technology officer, regional government



Transform IT operations:
40% of total benefits

Transform IT Operations: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Prior IT administration FTE	Composite	75	75	75
B2	Ongoing IT administration FTE	Composite	53	53	53
B3	IT support engineer salary	Year 1: Assumption, Year 2-3: $B3py*(1+X3)$	\$80,000	\$82,400	\$84,872
Bt	Transform IT operations	$(B1-B2)*B3$	\$1,760,000	\$1,812,800	\$1,867,184
	Risk adjustment	↓15%			
Btr	Transform IT operations (risk-adjusted)		\$1,496,000	\$1,540,880	\$1,587,106

Benefit 3: Reduce Operational Risk

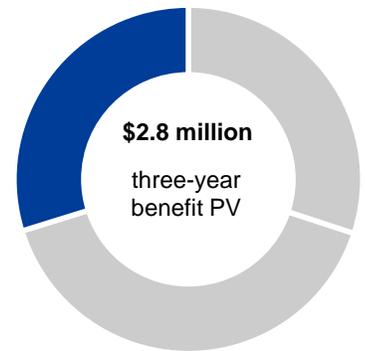
Each organization was operating with aging infrastructure and software tools prior to implementing SAP HEC. This produced an IT systems

environment with unacceptable downtimes and delayed resolutions to system problems. One organization estimated that its IT team saved between 150 to 200 hours a year in avoided downtimes by deploying SAP HEC to modernize and stabilize its infrastructure and software platform.

For modeling purposes, Forrester calculated the impact of operational risk by estimating the disruption of user productivity and loss of revenue generated by system downtimes. The key assumptions are as follows:

- › 20% of the 2,800 users were impacted by system outages.
- › System availability improved by nearly 1% or 7 hours per month under SAP HEC.
- › Impacted users converted 50% of the increased system availability into productive activities.
- › 5% of the system outages had a direct impact on the composite organization's revenue.

The actual benefit that readers should expect to realize will depend on the performance and reliability of the existing platform. To account for this risk, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of nearly \$2.8 million.



Reduce Operational Risk: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Current system availability	Composite	99.95%	99.95%	99.95%
C2	Prior system availability	Composite	99%	99%	99%
C3	Increased up-time per month (hours)	$(C1-C2)*24*365/12$	6.9	6.9	6.9
C4	Percent of internal users affected	Assumption	20%	20%	20%
C5	Internal user headcount	Year 1: Composite, Year 2-3: $C7py*(1+X3)$	2,800	2,884	2,971
C6	Average system user hourly salary	Year 1: Composite, Year 2-3: $C8py*(1+X3)$	\$27.00	\$27.81	\$28.64
C7	Productivity conversion	Assumption	50%	50%	50%
C8	Annual increase in productivity due to system availability	$C3*C4*C5*C6*C7*12$	\$625,968	\$664,089	\$704,541
C9	Average revenue per hour	Year 1: Composite, Year 2-3: $C8py*(1+X3)$	\$159,817	\$164,612	\$169,550
C10	Percentage of revenue impacted by system availability	Assumption	5%	5%	5%
C11	Revenue recognized from system availability	$C3*C9*C10*12$	\$661,642	\$681,494	\$701,937
Ct	Reduce operational risk	$C8+C11$	\$1,287,610	\$1,345,583	\$1,406,478
	Risk adjustment	↓15%			
Ctr	Reduce operational risk (risk-adjusted)		\$1,094,469	\$1,143,746	\$1,195,506

Unquantified Benefits

While the interviewed organizations observed strong and quantifiable benefits from SAP HEC, additional realized benefits were not quantified for this study due to their qualitative nature or lack of available data and metrics.

- One-stop shop for your entire SAP environment.** By shifting responsibility for hardware, software, data central operations, maintenance, upgrades, security, SOC audits, disaster recovery, etc., to SAP HEC, IT administration was free to concentrate its efforts on the application layer to drive innovation and enhance business value.
- Single point of accountability.** The interviewed organizations leveraged SAP HEC to implement a more streamlined and structured process for managing infrastructure. This eliminated finger-pointing and improved the response time of IT support/help desk employees. Freed from these tasks, IT administrators focused on maximizing the utility of operational data and aligning the IT landscape to the company's strategic path.

“Once a problem was made clear to SAP, they easily grasped the situation and got it resolved in a timely manner. That was a real advantage for our IT team.”

Chief technology officer, regional government



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

- › **Establishing a pathway to becoming an SAP Intelligent Enterprise.** Organizations choose HEC because they want a choice in how they deploy SAP software and they need help with the necessary customizations and moving systems to the cloud. The managed services element of HEC takes an organization from where it is today to a place where it can advance its innovation agenda with the latest technologies.
- › **Rightsizing your SAP technology stack.** As business operations expand, HEC customers can quickly adjust their SAP environment without the delays associated with ordering new hardware or finding and hiring IT engineers with the necessary experience. This permits the IT leadership to focus on the digital transformation of the enterprise and the strategic aspects of providing IT services to their organization.

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.

"The ability to easily scale our IT services to meet business requirements — company acquisitions, peak loading — has been a top benefit for us."

Manager IT, hotel industry



Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Dtr	Managed service/ subscription fee	\$0	\$1,897,500	\$1,897,500	\$1,897,500	\$5,692,500	\$4,718,802
Etr	Implementation costs	\$271,040	\$0	\$0	\$0	\$271,040	\$271,040
	Total costs (risk-adjusted)	\$271,040	\$1,897,500	\$1,897,500	\$1,897,500	\$5,963,540	\$4,989,842

Cost 1: Managed Service/Subscription Fee

The managed service/subscription fee associated with SAP HEC varied across the organizations that were interviewed. SAP makes this private cloud service available to its customers as a bring-your-own-license (BYOL) or a monthly subscription based on the number of users. The SAP pricing model was a key driver behind the investment decision for one interviewed organization that shared, “With HEC we had the opportunity to move from a pay-per-user to a pay-per-use model — so that has had the greatest impact: great cost-cutting.”

To estimate the managed service/subscription fee for the composite organization, Forrester examined the fees that the interviewees were paying for SAP HEC relative to the size of their operation and the number of users. This relationship was applied to the same characteristics of the composite organizations to derive an annual cost.

Managed service/subscription fee costs can vary due to uncertainty related to:

- › Different organizations will have different licensing agreements prior to their deployment.
- › Organizations may limit their SAP HEC deployment to mission critical activities.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$4,989,842.

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 more than \$4.9 million.

“Competing offers were the same price per month, but delivered much worse servers, performance, and less scalability.”

VP global applications, industrial machinery



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.

Managed Service/Subscription Fee: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
D1	Cloud deployment and technical services	Composite	\$0	\$1,725,000	\$1,725,000	\$1,725,000
Dt	Managed service/subscription fee	D1	\$0	\$1,725,000	\$1,725,000	\$1,725,000
	Risk adjustment	↑10%				
Dtr	Managed service/subscription fee (risk-adjusted)		\$0	\$1,897,500	\$1,897,500	\$1,897,500

Cost 2: Implementation Cost

The planning, implementation, and deployment process for SAP HEC also varied across the interviewed organizations. For some, the process required little support from the firm's IT administrators, while others were migrating a disparate set of data centers and software platforms to the SAP private cloud. For this latter group, the implementation included developing the project plan, arranging the network connections, testing the migration, and executing the migration. SAP facilitated this transition with its end-to-end implementation services that help organizations design, deploy, and adopt SAP solutions faster and with lower risk.

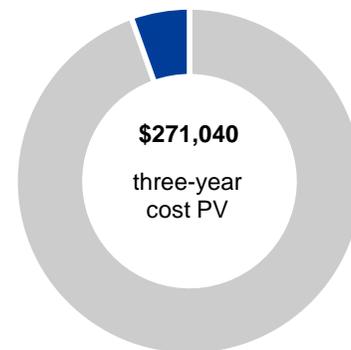
The composite organization's implementation cost is based upon the following assumptions:

- › The composite organization was consolidating its data and software platforms from a hybrid cloud to SAP HEC.
- › The support from SAP specialists throughout the implementation is already included in the organization's managed service/subscription fee.
- › The composite organization assigned six IT professionals to oversee and manage the implementation, which was conducted over a six-month period.

Implementation costs can vary due to the circumstances of an organization's prior IT landscape, including:

- › Reliance upon third-party vendors and their cooperation during the migration.
- › The degree of consolidation to a single SAP technology stack.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of \$271,040.



**Implementation cost:
5% of total costs**



**Total implementation
and deployment time:
six months**

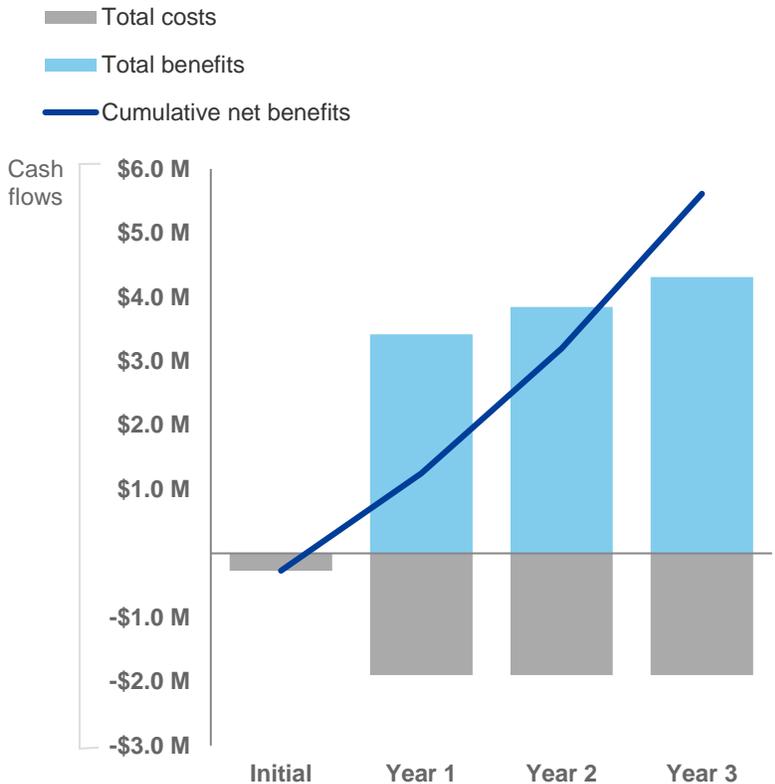
Implementation Cost: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	IT administration and engineer hourly salary	Assumption	\$38.50			
E2	Migration planning and testing, internal FTEs (days)	Composite	800			
Et	Implementation costs	$E1*(E2*8)$	\$246,400	\$0	\$0	\$0
	Risk adjustment	↑10%				
Etr	Implementation costs (risk-adjusted)		\$271,040	\$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	(\$271,040)	(\$1,897,500)	(\$1,897,500)	(\$1,897,500)	(\$5,963,540)	(\$4,989,842)
Total benefits	\$0	\$3,418,969	\$3,845,226	\$4,312,477	\$11,576,672	\$9,526,053
Net benefits	(\$271,040)	\$1,521,469	\$1,947,726	\$2,414,977	\$5,613,132	\$4,536,211
ROI						91%
Payback period						<3*

*Payback is measured against the go-live date of HEC and not the start of the contract.

SAP HEC: Overview

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

Accelerate Your Journey To The Cloud

How Leading Companies Realize Business Value with SAP HANA Enterprise Cloud

Deploying technology that helps streamline operations and drive innovation is top priority in the digital agenda. That's why many of our customers are choosing SAP HANA Enterprise Cloud to support their digital transformation goals.

SAP HANA Enterprise Cloud is a fully scalable, secure, and private cloud-based service. It provides a comprehensive cloud infrastructure and managed services that enable you to accelerate and simplify the adoption of SAP S/4HANA, along with other solutions powered by SAP HANA. With built-in operations and management functionalities, SAP HANA Enterprise Cloud can be implemented quickly – without requiring trade-offs in performance, integration, security, or disaster recovery.

By offering the full power of the SAP HANA platform in a private managed cloud environment, the service brings benefits such as:

Simplicity
through rapid
deployment

Experience
with over 2,100
databases under
management

Optimization
of the IT software
landscape

Peace of mind
through an
integrated
support model

Innovation
with a comprehensive
cloud portfolio

Find Out More

SAP HANA Enterprise Cloud is an integral part of the overall SAP cloud solution portfolio. No matter what your industry or where you work, we have an ideal cloud strategy for your business. Learn more by visiting www.SAP.com/HEC.

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.

Payback is measured against the go-live date of the investment and not the start of the contract.