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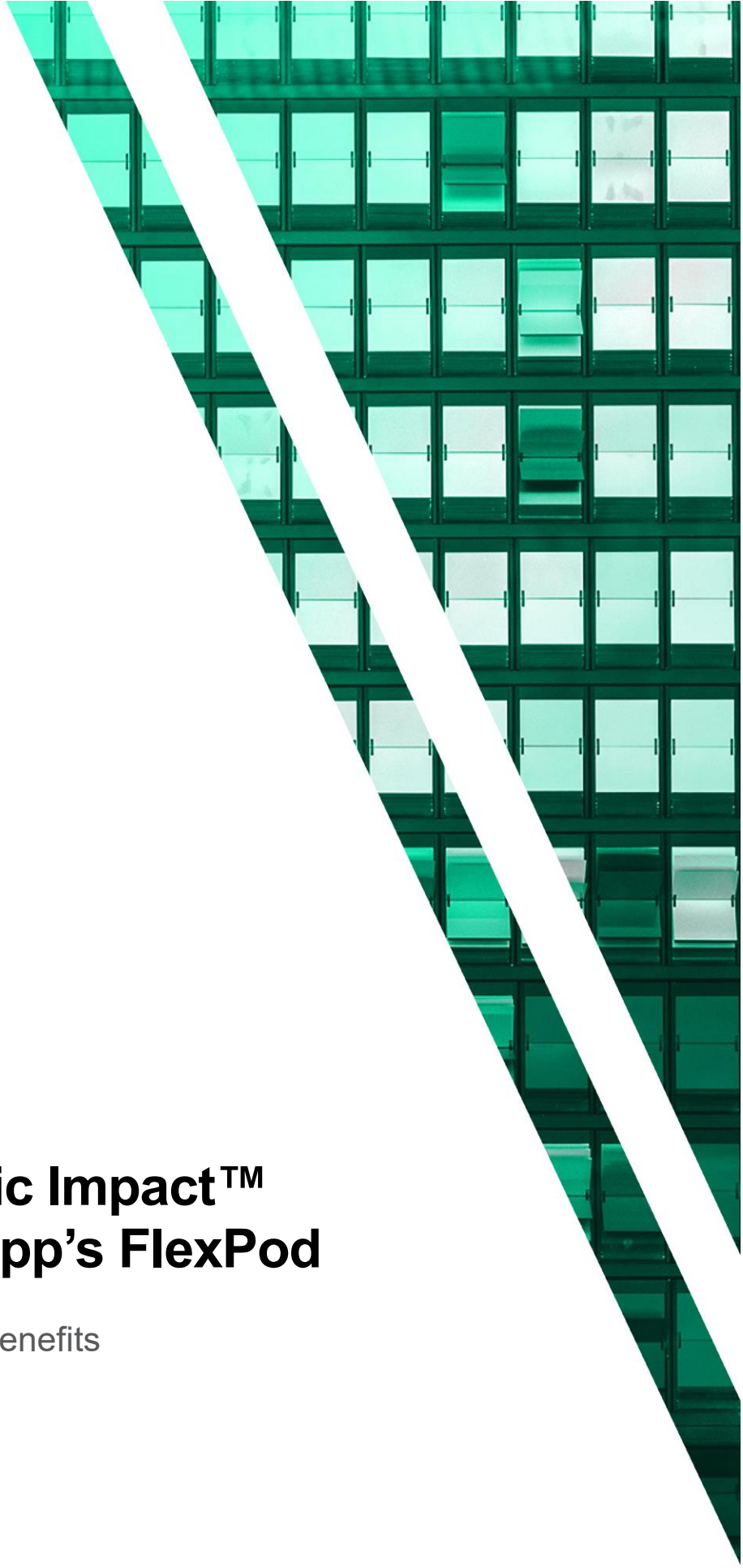

# The Total Economic Impact™ Of Cisco and NetApp's FlexPod

## Cost Savings And Business Benefits Enabled By FlexPod

**NOVEMBER 2021**

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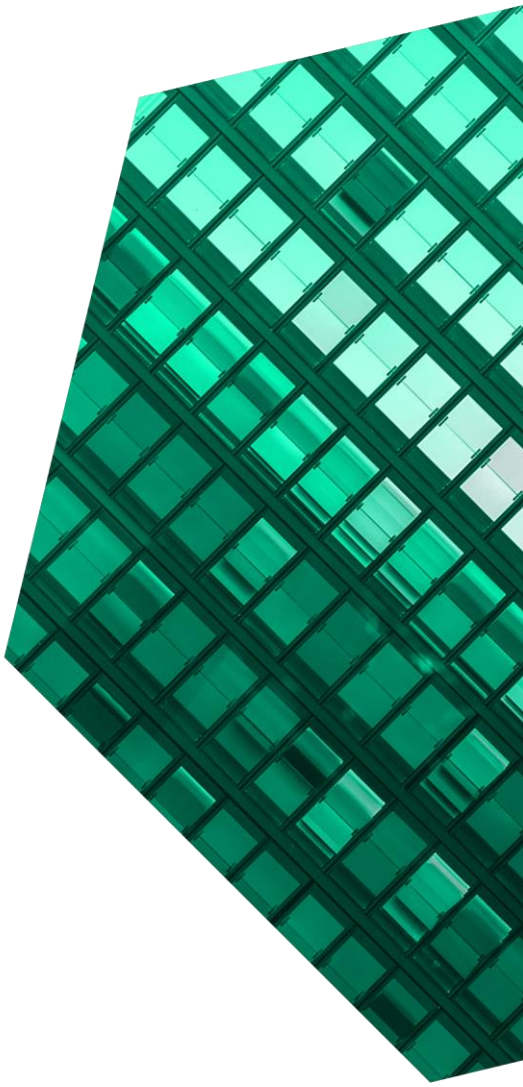


ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. For more information, visit forrester.com/consulting.

## Executive Summary

Converged infrastructure enables large-scale companies to synthesize their IT architecture and build more agile and efficient IT management processes. In this Total Economic Impact study, we investigate the realized business value of the Cisco® and NetApp® FlexPod® solution, and its impact on customers SAP HANA implementations.

FlexPod is a converged infrastructure jointly engineered by Cisco and NetApp. It enables IT leaders to deploy computing, network, and storage infrastructure stacks using Cisco Validated Designs (CVDs), helping organizations unlock efficiencies, improve infrastructure flexibility, and reduce risk.

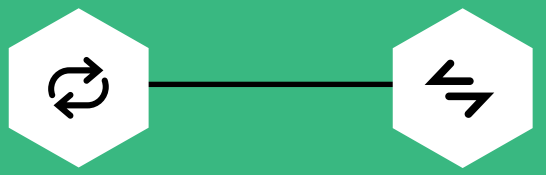
Cisco and NetApp commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to examine the potential return on investment (ROI) that enterprises may realize by deploying FlexPod.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the FlexPod solution on their respective organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four tech leaders from organizations that have experience using FlexPod. For the purposes of this study, Forrester aggregated the experiences of the interviewed customers and combined the results into a single composite organization.

Before using FlexPod, the customers had to architect their own computing, storage network, and storage infrastructure stacks. Earlier attempts were costly, with huge margins for error and limited support. Those limitations led to poor operations, costly infrastructure refreshes, increased downtime, and a difficulty managing infrastructure.

After implementing the FlexPod solution, the interviewed customers were able to significantly reduce infrastructure costs and risks associated with their infrastructure stacks. In this light, SAP HANA implementations became more efficient, compared to scenarios without the FlexPod solution.

**KEY STATISTICS**



Return on investment (ROI)
**125%**

Payback period
**13 Months**

*"We chose FlexPod because it was flexible and expandable. It allowed us to use one reference architecture that we could build everything else out of."*
*— IT Operations Manager at an Electricity Transmission Company*

### KEY FINDINGS

**Quantified benefits.** Risk-adjusted present value (PV) quantified benefits include:

- **The FlexPod reference architecture enabled a 20% time saving in network management and maintenance.** Cisco Validated Designs allowed interviewed organizations to leverage a reference architecture that helped build stronger systems

from the very beginning, requiring 20% less maintenance effort of their server room overall. SAP HANA implementations could be completed twice as fast, enabling a $261,560 cost saving over a 3-year period.

*Cisco Validated Designs and enhanced efficiency enabled a 20% time saving in server room management with Flexpod.*

- **Interviewed organizations noticed a $3 million cost savings in hardware refresh and infrastructure costs after FlexPod's implementation.** The flexibility of the FlexPod solution allowed interviewed organizations to consolidate networking architecture more effectively and to reduce unnecessary costs on standby racks and storage by half. The solution also required less time and effort to plan, maintain, and manage updates of network architecture, with cost savings of $2.5 million attributed to Flexpod.
- **High-quality architecture build enabled 4 times reduction in downtime.** Time taken to identify and rectify network downtime issues reduced from 4 hours to just 15 minutes on average for IT managers. Considering the downtime impact to the composite organization, this time saving in downtime recovery, as well as quicker update and network maintenance, the solution provided a $132,090 cost saving over a three-year horizon.

**Unquantified benefits.** Benefits that are not quantified for this study include:

- **Avoided cost of experimentation and infrastructure issues.** CVDs made SAP HANA implementation easier and more effective, so that organizations don't have to guess about the requirements for architecture design.
- **Effective use of IT leadership time and effort.** Reduced effort in standard maintenance and planning, allowing senior leaders to spend more time on strategic initiatives.
- **Faster and more effective deployment of SAP HANA implementation.** FlexPod agility and reference architecture allowed a much faster deployment of SAP HANA. According to some interviewed organizations, original timelines were cut in half.
- **Improved employee experience EX and less turnover.** Most IT departments saw at least a 10% churn, but the composite organization has seen no turnover in their IT teams since implementing FlexPod.

**Costs.** Risk-adjusted PV costs include:

- **Upfront infrastructure spends on FlexPod of $1 million over a three-year horizon.** NetApp storage and Cisco UCS components that were implemented as part of FlexPod's converged infrastructure saw an initial implementation cost of $1 million that didn't require specific updates within the three-year horizon this model is based on.
- **Implementation and ongoing labor costs of $84,546 across a three-year horizon.** This ongoing cost considered an average of two FTEs that required specific attention to Flexpod's initial implementation, and ongoing management and updates thereafter.

The customer interviews and financial analysis found that the composite organization realized total benefits of $2,892,385 over three years, versus costs of $1,284,546, adding up to a net present value (NPV) of $1,607,839 and an ROI of 125%.

ROI
**125%**

BENEFITS PV
**$2,892,385**

NPV
**$1,607,839**

PAYBACK
**13 months**


Overall benefits to interviewed organizations from implementing the FlexPod solution.

## TEI FRAMEWORK AND METHODOLOGY

From the information gathered in the interviews, Forrester constructed a Total Economic Impact™ framework for organizations that are considering an investment in the FlexPod solution.

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 evaluating the impact that the FlexPod solution can have on an organization.

### DUE DILIGENCE

Interviewed Cisco and NetApp stakeholders and Forrester analysts to gather data relative to the FlexPod converged infrastructure solution.

### CUSTOMER INTERVIEWS

Interviewed four decision makers at organizations using FlexPod to obtain data about costs, benefits, and risks.

### COMPOSITE ORGANIZATION

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

### FINANCIAL MODEL FRAMEWORK

Constructed a financial model that represents the interviews using the TEI methodology. Risk adjusted the financial model based on issues and concerns of the interviewed organizations.

### CASE STUDY

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. See Appendix A for additional information about the TEI methodology.

# The FlexPod Customer Journey

Drivers leading to the FlexPod investment

**Interviewed Organizations**

| Industry | Region | Interviewee | Number of years using FlexPod |
|---|---|---|---|
| Telecommunications | Headquartered in Australia | IT commercial operations manager | 10 years |
| High tech | Headquartered in Austria | Data center operations lead | 10 years |
| High tech | Headquartered in Germany | Director of cloud | 7 years |
| E-commerce | Headquartered in USA | IT Team lead | 5 years |

## KEY CHALLENGES

The interviewed organizations struggled with common challenges before FlexPod, including the following:

- **Infrastructure performance and downtime.** Inefficient design of network infrastructure resulted in an error-prone architecture that caused performance issues to business-critical systems and frequent downtime, impacting productivity.
- **Maintenance and security challenges with disparate vendors and solutions to manage.** The previous network environment consisted of a combination of separate vendors and solutions for compute and storage. This made infrastructure management and maintenance unproductive and complex, according to interviewed organization.
- **Excess purchasing of storage and compute stack due to inflexible updates and maintenance.** To avoid shortages in storage and servers, interviewed organizations ended up spending a vast majority of their IT budget on storage and server space. This situation led to high TCO that needed to be managed more efficiently.

*"Our technological construct was not homogenous, which caused us numerous maintenance and security problems. We used FlexPod to replace a conglomerate of different vendors and solutions – helping us reduce costs and complexity, while also better preparing us for future challenges."*
*— Head of Platform Services at a Consulting and IT Company*

## SOLUTION REQUIREMENTS

Given these initial challenges, interviewed organizations adopted FlexPod as a part of the central fabric of their network infrastructure. Especially with respect to SAP HANA implementation, FlexPod was expected to provide the following capabilities:

- Reference architecture that enabled efficient setup of SAP HANA migration and infrastructure components.
- Flexibility in ongoing maintenance and storage management to help curtail unnecessary storage costs.
- Seamless SAP HANA migration without the need for excessive downtime that reduced the migration time and improved overall availability.

*"We chose FlexPod because it would help us consolidate our systems, enhance end-to-end security, and because it was proven best practice." — Infrastructure Management Team Lead at an E-Commerce Company*

**COMPOSITE ORGANIZATION**

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a 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 has the following characteristics.

**Description of composite.** The composite organization is a hi-tech conglomerate that migrated into cloud and data center services from a core functioning telecommunications presence. The organization has a strong brand and a global presence, with more than $500 million in annual revenue and 2,000 employees. The IT organization consists of a partner network of close to 50 partners, managed with a central IT team of close to 30 FTEs managing global operations.

**Deployment characteristics.** The FlexPod deployment was implemented by the composite organization over 10 years ago. The SAP HANA implementation started two years ago and is based on the FlexPod solution at its core.

**Key assumptions**

- **$500 million in annual revenue**
- **2,000 employees with an IT management of 30 FTEs**
- **Implementation of Flexpod components including NetApp storage arrays, Cisco UCS manager**

# 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 | Cost Savings From Enhanced Efficiency | $97,368 | $84,240 | $79,688 | $261,295 | $218,006 |
| Btr | Cost Savings From Increased Flexibility | $1,023,288 | $1,021,694 | $1,021,744 | $3,066,726 | $2,542,289 |
| Ctr | Cost Savings From Reduced Risk | $51,650 | $53,200 | $54,795 | $159,645 | $132,090 |
| | Total benefits (risk-adjusted) | $1,172,306 | $1,159,133 | $1,156,227 | $3,487,667 | $2,892,385 |

### COST SAVINGS FROM ENHANCED EFFICIENCY

One of the key benefits that interviewed organizations realized from their FlexPod deployment was efficiency in network architecture design and maintenance.

- Cisco Validated Designs helped reduce by 20% the time required for senior IT staff to manage network architecture.
- Ease of maintenance also enabled the organization to reduce the time spent by senior IT staff, allowing ongoing maintenance to be done by relatively junior staff.
- With efficiency in network architecture build and maintenance, SAP HANA implementation took almost half the time it would have taken without FlexPod, according to interviewed organizations. Migrating more than 50 systems for the SAP HANA migration would have taken 18 months, according to interviewed organizations. The ease of CVDs and reference architecture halved the implementation time required.

**Modeling and assumptions.** To quantify the impact of this benefit, the following assumptions were made:

- Average senior IT staff hourly salary at $62; average junior IT staff salary at $40 per hour.
- Productive conversion of time saved into productive work in the organization at 50%.
- 20% of this benefit attributed to implementing FlexPod, considering little changes needed to infrastructure over the three-year horizon.

**Risks.** Considering the accuracy of the assumptions and estimates provided by the interviewed organizations, Forrester adjusted this benefit downward by 10%, yielding a 3-year, risk-adjusted total present value (discounted at 10%) of $218,006.

*"FlexPod has helped us dramatically reduce ongoing management costs. It is one unified design and is much simpler to manage, allowing us to save from both an ongoing time and FTE perspective – we have been able to use more junior people to do the work much more quickly."*

*— IT Operations Manager at an Electricity Transmission Company."*

## Cost Savings From Enhanced Efficiency

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| A1 | Hours spent on server room management without FlexPod | Composite | 31,250 | 30,340 | 29,456 |
| A2 | Average hourly IT FTE Salary | Assumption | $62 | $64 | $66 |
| A3 | Percentage time saved on server room management with Flexpod | Composite | 20% | 20% | 20% |
| A4 | Hours spent on server room management with FlexPod | A4*(1-A3) | 25,000 | 24,272 | 23,565 |
| A5 | Average Hourly IT FTE Salary of junior staff | Assumption | $40 | $41 | $42 |
| A6 | Cost saving from server room management with FlexPod | (A1*A2)-(A5*A6) | $937,500 | $937,500 | $937,500 |
| A7 | Potential months required for SAP HANA implementation without Flexpod | Composite | 12 | 6 | |
| A8 | Number of FTEs involved in SAP HANA implementation | Composite | 10 | 5 | |
| A9 | FTE time dedicated to FlexPod set-up of SAP HANA implementation | Composite | 50% | 50% | |
| A10 | Average IT FTE Hourly Salary | Composite | $40 | $41 | $42 |
| A11 | Potential cost of SAP HANA implementation without Flexpod | A7*A8*(2080/12)* A9 | $416,000 | $107,120 | |
| A12 | Reduction in time spent on SAP HANA implementation with Flexpod | Composite | 50% | 50% | 50% |
| A13 | Cost of SAP HANA implementation after Flexpod | A11*A12 | $208,000 | $53,560 | |
| A14 | Cost savings from productivity in SAP HANA implementation with FlexPod | A11-A13 | $208,000 | $53,560 | $0 |
| A15 | Total cost saving from enhanced efficiency with Flexpod | A5+A10 | $1,145,500 | $991,060 | $937,500 |
| A16 | Productivity ratio | Assumption | 50% | 50% | 50% |
| A17 | Attribution ratio | Assumption | 20% | 20% | 20% |
| At | Net cost savings from enhanced efficiency | A15(A6*A14)+A12) | $114,550 | $99,106 | $93,750 |
| | Risk adjustment | ↓15% | | | |
| Atr | Net cost savings from enhanced efficiency (risk-adjusted) | | $97,368 | $84,240 | $79,688 |
| | **Three-year total: $261,295** | | | **Three-year present value: $218,006** | |

## COST SAVINGS FROM INCREASED FLEXIBILITY

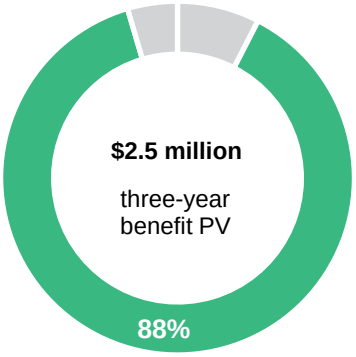
The flexibility that the FlexPod implementation provided in managing, updating, and designing network architecture and storage brought about significant technology cost savings.

- Cisco Validated Designs enabled infrastructure and architecture planning efforts that would previously have taken months to be accomplished in just several weeks.
- Efficiency in updates and maintenance allowed the composite organization to have less of a physical footprint with its converged architecture, reducing unnecessary upfront costs. For instance, with the FlexPod solution, organizations that would have usually bought six racks in one purchase interval now need to buy two racks upfront and add on only when needed. This reduced power usage, cabling, and storage space used by more than half.
- As a collective impact of this flexibility and efficiency, infrastructure spend for the composite organization was reduced from $6 million to $3 million annually.

**Modeling and assumptions.** To quantify the impact of this benefit, the following assumptions were made:

- $62 per hour salary for IT staff
- 50% productivity conversion of time saved
- 40% of this benefit realized attributed to FlexPod, growing over years of implementation
- Estimations on hardware spend and attribution to FlexPod

**Risks.** To account for the risks of estimates from interviewed organizations and salary assumptions, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of 2,542,289.




*"The name speaks for itself – FlexPod is flexible. We can scale up, scale down, and scale out with ease. Having a FlexPod [solution] has dramatically reduced architecting effort and helped us save millions in refresh spend each year."*

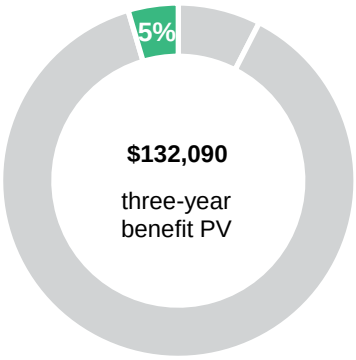
*— Data Center Operations Team Lead at a Manufacturing Company*

| Cost Savings From Increased Flexibility | | | | | |
|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Year 1** | **Year 2** | **Year 3** |
| B1 | Number of FTEs working on network architecture planning and development | Composite | 2 | 2 | 2 |
| B2 | Proportion of time spent on architecture planning | Composite | 30% | 20% | 20% |
| B3 | Number of months required for architecture planning | Composite | 4 | 3 | 3 |
| B4 | Estimated hours spent on network architecture planning and development without FlexPod | B1*B2*(2080/12 *B3) | 416 | 208 | 208 |
| B5 | Percentage of time saved on architecture planning with FlexPod | Composite | 75% | 75% | 75% |
| B6 | Hours spent on network architecture planning and development with FlexPod | B4*(1-B5) | 104 | 52 | 52 |
| B7 | Average IT FTE Hourly Salary | Assumption | $62 | $64 | $66 |
| B8 | Cost savings from productivity in architecture planning | B7*(B4-B6) | $19,344 | $9,962 | $10,261 |
| B9 | Average hardware refresh spends before FlexPod | Composite | $6,000,000 | $6,000,000 | $6,000,000 |
| B10 | Average hardware refresh spends after FlexPod | Composite | $3,000,000 | $3,000,000 | $3,000,000 |
| B11 | Average hardware refresh savings with FlexPod | B7-B8 | $3,000,000 | $3,000,000 | $3,000,000 |
| B12 | Productivity ratio | Assumption | 50% | 50% | 50% |
| B13 | Attribution ratio | Assumption | 40% | 40% | 40% |
| Bt | Net Cost Savings From Increased Flexibility | B11((B6*B10)+B9) | $1,203,869 | $1,201,992 | $1,202,052 |
| | Risk adjustment | ↓15% | | | |
| Btr | Net Cost Savings From Increased Flexibility (risk-adjusted) | | $1,023,288 | $1,021,694 | $1,021,744 |
| | **Three-year total: $3,066,726** | | | **Three-year present value: $2,542,289** | |

## COST SAVINGS FROM REDUCED RISK

Reduced complexity in technical assets, as well as flexibility in ongoing maintenance, helped organizations realize faster recovery on downtime instances as well as cost savings from staff productivity.

- The composite organization was able to reduce time taken to resolve downtime instances from 4 hours to 15 minutes per instance.
- The reduced organization impact on productivity because of faster downtime recovery was also reduced, saw an average cost saving of $239,545 across the three-year horizon.
- Before FlexPod implementation, the composite required at least 10 of its FTEs to work overtime on weekends for updates and maintenance to take place through the year. With FlexPod this overtime was no longer required, resulting in cost savings of $79,127 over a three-year period.




*"We used to have a handful of hardware problems a month. Since FlexPod, we have had no more than 1 a month — even with this, we've managed to have 0 downtime because of the FlexPod unified stack that allows highly standardized and modular best practice architecture patterns.*
*— Head of Platform Services at a Consulting and IT Company*

**Modeling and assumptions.** To quantify the impact of this benefit, the following assumptions were made:

- $40 per hour salary of IT staff
- An average 10% of workforce impacted by a given instance of downtime, considering the cost savings of 1,000 employees across the organization
- $62 per hour average cost of FTEs across the organization
- Average overtime rate of $80 per hour, double standard FTE hourly rate
- 50% productivity conversion of time saved
- 50% of this benefit attributed to FlexPod specifically

**Risks.** To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV of $132,090.

## Cost Savings From Reduced Risk

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| C1 | Downtime instances on network performance | Composite | 1 | 1 | 1 |
| C2 | Number of FTEs working on downtime recovery | Composite | 1 | 1 | 1 |
| C3 | Hours taken for downtime recovery per incident before FlexPod | Composite | 4 | 4 | 4 |
| C4 | Hours taken for downtime recovery per incident after FlexPod | Composite | 0.25 | 0.25 | 0.25 |
| C5 | Average FTE Hourly Salary | Assumption | $40 | $41 | $42 |
| C6 | Cost savings from reduced downtime instances with FlexPod | C1*C2*C5*(C3-C4) | $150 | $155 | $159 |
| C7 | Percentage of FTEs impacted by downtime | Assumption | 10% | 10% | 10% |
| C8 | Number of FTEs impacted by downtime | Composite | 1,000 | 1,000 | 1,000 |
| C9 | Average cost of employees across organization | Assumption | $62 | $64 | $66 |
| C10 | Cost saving from productivity in downtime recovery | C8*C9*(C3-C4) | $232,500 | $239,475 | $246,659 |
| C11 | Average hours of downtime for updates and maintenance per year before FlexPod | Composite | 320 | 320 | 320 |
| C12 | Average overtime IT FTE Hourly Salary | Assumption | $80 | $82 | $85 |
| C13 | Cost saving from no downtime required for updates and maintenance with FlexPod | C12*C13 | $25,600 | $26,368 | $27,159 |
| C14 | Productivity factor | Assumption | 50% | 50% | 50% |
| C15 | Attribution ratio | Assumption | 50% | 50% | 50% |
| Ct | Net Cost Savings From Reduced Risk | (C8+C11+C14) *C15*C16 | $64,563 | $66,499 | $68,494 |
| | Risk adjustment | ↓20% | | | |
| Ctr | Net Cost Savings From Reduced Risk (risk-adjusted) | | $51,650 | $53,200 | $54,795 |
| | **Three-year total: $159,645** | | | **Three-year present value: $132,090** | |

## UNQUANTIFIED BENEFITS

Additional benefits that customers experienced that we were not able to quantify include:

- Enabling more value-added work to be managed by senior IT staff
- More secure systems with less network complexity
- Improved attrition rates due to ease of IT management and reduced overtime maintenance efforts
- Reduced regulatory and compliance effort

*"FlexPod has increased stability [and] security and reduced overall organizational risk. Professionalized support from Cisco and NetApp has also been invaluable."*
*— Head of Platform Services at a Consulting and IT Company*

*"We are spending a lot less, but we are delivering substantially better outcomes than we ever were in terms of footprint, power, people, and more."*
*— IT Operations Manager at an Electricity Transmission Company*

## FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement FlexPod and later realize additional uses and business opportunities, including:

- Ease of SAP HANA implementation across the organization because of inherent benefits from managing IT architecture in a FlexPod environment
- Cleaner and more secure IT infrastructure for future implementations and upgrades with implementations based on reference architecture and validated designs.

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

# 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 | FlexPod configuration and implementation cost | $1,200,000 | $0 | $0 | $0 | $1,200,000 | $1,200,000 |
| Etr | Implementation and ongoing maintenance cost | $47,616 | $18,392 | $12,629 | $13,008 | $91,644 | $84,546 |
| | Total costs (risk adjusted) | $1,247,616 | $18,392 | $12,629 | $13,008 | $1,291,644 | $1,284,546 |

### FLEXPOD CONFIGURATION AND IMPLEMENTATION COST

The composite organization considers the following in its costs for configuration and implementation of the FlexPod solution:

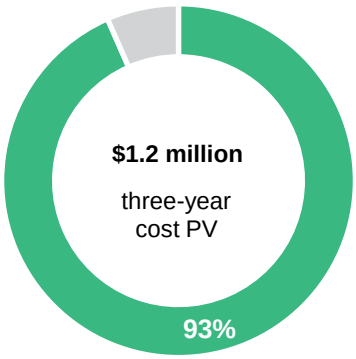
- The composite organization's Flexpod configuration consisted of a combination of NetApp storage arrays, Cisco networking and UCS system, along with CommVault leveraged for integration. SAP HANA modules were standardized across the business with Flexpod units
- The Cisco UCS and NetApp storage units incorporated into Flexpod cost the composite organization $1 million of an initial investment, with infrastructure refreshes only moving beyond the three-year horizon of this TEI model.

**Modeling and assumptions.** To quantify the impact of this benefit, the following assumptions were made:

- Assumptions on memory, storage and server spend of composite organization
- Assumptions on additional configuration costs for SAP HANA Suite

**Results.** To account for the risks in modeling assumptions, Forrester adjusted this cost upward by 20%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1,200,000.

*"FlexPod itself only took 3 days to set up. Within 9 months we'd installed all machines, completed all tests, and migrated all our servers across [the company]."*
*— Data Center Operations Team Lead at a Manufacturing Company*



| FlexPod Configuration And Implementation Cost | | | | | | |
|---|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Initial** | **Year 1** | **Year 2** | **Year 3** |
| D1 | Cost of the FlexPod Solution Components | Composite | $1,000,000 | | | |
| D2 | Implementation Costs | | | | | |
| Dt | FlexPod configuration and implementation cost | D1*D2 | $1,000,000 | $0 | $0 | $0 |
| | Risk adjustment | ↑20% | | | | |
| Dtr | FlexPod configuration and implementation cost (risk-adjusted) | | $1,200,000 | $0 | $0 | $0 |
| | **Three-year total: $1,200,000** | | | **Three-year present value: $1,200,000** | | |

### IMPLEMENTATION AND ONGOING MAINTENANCE COST

In addition to initial investment in FlexPod configuration, the composite organization also had associated labor cost for implementation and ongoing management:

- The ongoing maintenance of the solution includes IT FTEs' time and effort in server administration and initial implementation.
- Initial implementation took about 2 months for the composite organization, resulting in an initial labor cost of $39,680, followed by an average annual ongoing cost of $12,230.

**Modeling and assumptions.** To quantify the impact of this benefit, the following assumptions were made:

- 2 FTEs required for ongoing administrative maintenance
- $62 per hour cost of IT FTEs required

**Results.** To account for the risks in modeling assumptions, Forrester adjusted this cost upward by 20%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $84,546.

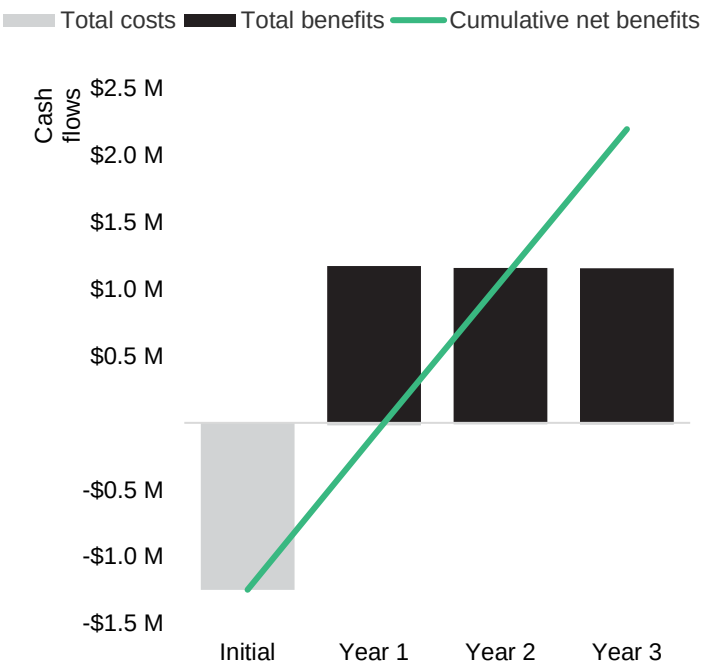
## Implementation and ongoing maintenance cost

| Ref. | Metric | Source | Initial | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|---|
| E1 | Number of FTEs required for FlexPod management and maintenance | Composite | 2 | 2 | 2 | 2 |
| E2 | Number of weeks required for implementation and ongoing management | Composite | 8 | 3 | 2 | 2 |
| E3 | Average hourly cost of FTEs | Assumption | $62 | $64 | $66 | $68 |
| Et | Implementation and ongoing maintenance cost | E1*E3*(2080/52*E2) | $39,680 | $15,326 | $10,524 | $10,840 |
| | Risk adjustment | ↑20% | | | | |
| Etr | Implementation and ongoing maintenance cost (risk-adjusted) | | $47,616 | $18,392 | $12,629 | $13,008 |
| | **Three-year total: $91,644** | | | **Three-year present value: $84,546** | | |

# 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 Benefits and Costs section.**

**Cash flow analysis (risk-adjusted estimates)**

| | Initial | Year 1 | Year 2 | Year 3 | Total | Present Value |
|---|---|---|---|---|---|---|
| Total costs | ($1,247,616) | ($18,392) | ($12,629) | ($13,008) | ($1,291,644) | ($1,284,546) |
| Total benefits | $0 | $1,172,306 | $1,159,133 | $1,156,227 | $3,487,667 | $2,892,385 |
| Net benefits | ($1,247,616) | $1,153,914 | $1,146,504 | $1,143,220 | $2,196,022 | $1,607,839 |
| ROI | | | | | | 125% |
| Payback period (months) | | | | | | 13.0 |

# 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.

# Appendix B: Endnotes

[1] 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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