The Total Economic Impact™ Of HPE GreenLake

Business Benefits And Cost Savings Enabled By HPE GreenLake

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Project Director:
Richard Cavallaro

Project Contributor
Samuel Sexton

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.

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ROI
147%

Benefits PV
$25.0 million

NPV
$14.9 million

Payback
<12 months

Executive Summary

Organizations across industries are realizing that their business models are changing as the pace of digital transformation gains speed. In this new on-demand economy in the age of the customer, IT teams must support their businesses in a nimble and flexible manner in order to achieve success. According to Forrester's research, organizations understand that cloud is no longer an option — it's inevitable.[1] However, cloud strategies across industries, workloads, and applications differ significantly. Businesses may require on-premises IT solutions to comply with security and regulatory requirements, sunk capital investments, performance requirements, and the amount of necessary control organizations need. HPE GreenLake provides the best of both worlds with infrastructure services that allow organizations to operate their IT on-premises while taking advantage of the benefits of the public cloud.

HPE commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by leveraging HPE GreenLake. The purpose of this study is to provide organizations with a framework to evaluate the potential financial impact of using HPE GreenLake.

HPE GreenLake is a scalable IT infrastructure service that provides a consumption-based IT model that is aligned to capacity usage. This allows IT organizations to easily scale up to handle fluctuations in demand and changing market conditions. In addition, organizations get personalized support to augment their IT teams, freeing up internal resources to focus on more value-added and innovative opportunities. This flexible hybrid IT model provides organizations with the agility to scale and grow fast without the burden of identifying and procuring new infrastructure. The pay-as-you-go model that HPE GreenLake offers also frees up cash flow and reduces the need to plan for long-term capital expenditures. Organizations that use HPE GreenLake gain benefits and cost savings by:

› Improving time-to-value of business initiatives and therefore increasing business productivity

› Reducing the need to invest in IT infrastructure and therefore realizing capex savings.

› Providing organizations with a flexible infrastructure to scale quickly.

› Reducing or removing the time associated with capacity planning.

› Improving IT productivity with additional support resources and HPE's expertise.

› Providing self-service reporting and dashboards on their metered usage to budget and forecast demand.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with multiple years of experience using HPE GreenLake. Customers chose HPE GreenLake for its global footprint, expertise, and ability to help drive the economics of public cloud with the security and performance of on-premises IT.
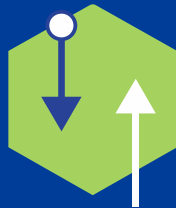
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Time-to-market: 75% faster

TCO savings: 30% to 40%

Reduction in outside fees: 60%

IT resource savings: 40%

"HPE GreenLake provides us with the on-demand capacity and agility that we need. Our business is growing year after year, and technology has to support our growth. To satisfy and continue to offer our customers a great experience, we need to have the flexibility to make business decisions and the IT infrastructure capacity to help execute."

Global network data manager, online retail company

Forrester interviewed multiple global enterprises across a range of industries and locations over two years. These organizations had multiple data centers and an extensive physical and virtual infrastructure footprint. Additionally, the interviewed organizations had different storage hardware in their environments, ranging from traditional spinning disks to all-flash arrays across multiple petabytes of data.

For those organizations that were interviewed multiple times over the period of analysis, the realized benefits, which are attributable to HPE GreenLake, increased over time from expansion of the GreenLake deployment across additional data centers and infrastructure. Sources of benefit include accumulation of capex savings from hardware purchase and maintenance, the reductions of FTEs to support infrastructure growth, and additional cost and personnel savings as HPE GreenLake is deployed across additional geographies or lines of business.

To reflect on the total economic impact that HPE GreenLake could have on an organization's business, Forrester developed a composite organization, described in fuller detail later in the study, based on benefit and cost data gathered from the customer interviews. The composite organization is representative of the companies that Forrester interviewed and is used to present the aggregate financial analysis in this study. While the study aims to quantify direct cost savings and incremental benefits related to an investment in HPE GreenLake, organizations may achieve additional benefits such as the ability to influence business metrics, enjoy access to the latest technology, and improve the organization's security posture.

Key Findings

Forrester's interviews with existing HPE GreenLake customers and subsequent financial analysis found that a global organization with 5 petabytes of storage and $8M worth of physical assets could expect to experience benefits of $25.0M present value (PV) over three years versus costs of $10.1M PV, adding up to a net present value (NPV) of about $14.9M. Over the same period, the composite organization could achieve a 147% ROI in HPE GreenLake.

The interviewed organizations also noted that they were able to get a payback on their investment within 12 months of full implementation. Payback is based on companies recovering their costs of deploying and integrating HPE GreenLake into their business environment.

› **Quantified benefits.** The following risk-adjusted quantified benefits are representative of those experienced by the interviewed organizations and reflect the financial analysis associated with the composite organization. All values are reported in three-year present value:

› **Shortened time-to-market of deploying global IT projects by 75%.** Interviewed customers noted a significant decrease in time-to-market for the global IT projects after the HPE GreenLake investment. Organizations achieved this benefit by having a buffer of extra on-site capacity that is already implemented. The usage of this capacity is metered, and organizations only pay what they use. Organizations can also access self-service reporting to budget and forecast future capacity demands. This improves the efficiency of executing IT projects, allows to capacity to quickly scale up, and reduces the time spent on procuring capacity to line up with business needs. In addition, organizations take advantage of HPE Pointnext Services, HPE's own support services, to provide the right storage, compute, and backup resources; this allows organizations to focus on projects instead of operational considerations.

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> **"Our IT vision is to be in the cloud. However, with a large data center, we need the control and security of critical applications and workloads to be on-premises. HPE GreenLake provides us with the best of both worlds while significantly reducing our costs and improving our IT productivity managing in this model."**
>
> *Storage architect global consulting company*

> **"As a manager of infrastructure, I can sleep better at night after moving to HPE GreenLake. Our complex infrastructure is now more reliable with fewer major incidents. This is all while shifting a good number of our engineers to higher value tasks."**
>
> *Director of infrastructure, reporting organization*

> **"Our decision to move to HPE GreenLake has significantly reduced our procurement time to add infrastructure capacity to meet business demand, and we have seen a perpetual reduction in cost from managing in this model."**
>
> *Global data center manager, chemical company*

› **Reduced historic TCO by up to 40%.** HPE GreenLake customers save up to 40% of their historic spend on infrastructure (compared against GreenLake fees) by enabling them to avoid overprovisioning on infrastructure and eliminate expenses for technology refreshes, especially as infrastructure requirements of the organization continue to evolve. With HPE GreenLake, companies could use modern, more powerful technology and scale their usage up or down as required by their business needs.

› **Saved 60% of the professional services/contractor costs, on average.** By replacing their legacy infrastructure, customers avoided maintenance and professional services expenses with HPE GreenLake. Interviewees also cited superior support from HPE as a significant factor in reducing these costs.

› **Improved IT resources productivity by 40%.** With HPE GreenLake supporting organizational choices of on-premises infrastructure and data center management tasks (including support, administration, and planning), organization's internal IT professionals could take on a more strategic role of supporting business initiatives. Some interviewees noted that more reliable infrastructure attributable to HPE GreenLake has driven addition personnel resource savings.

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

› Improved business productivity due to fewer system outages and faster application performance, and improved service delivery.

› Access to the latest technology in hardware, resulting in better data compression, deduplication, and, ultimately, cost savings on storage.

› Reliability and transparency with growing workloads and business demands.

› Improved security utilizing HPE expertise to proactively manage and support on-premises servers, storage, and networking.

Costs. The following risk-adjusted costs are representative of those experienced by the companies interviewed and reflect the financial analysis associated with the composite organization. All values are reported in the three-year PV:

› **HPE GreenLake implementation and integration costs totaling approximately $323K.** This included planning, defining requirements, data migration, and testing on the HPE platform. In addition, the implementation time takes into account the internal procurement process requirements. The full end-to-end transition took six months and the equivalent of 12 full-time resources for 40% of their time.

› **HPE GreenLake annual costs totaling approximately $4.7M.** This included the annual HPE GreenLake contract across the entire infrastructure, including compute, storage, and backup.

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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 HPE GreenLake.

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 HPE GreenLake can have on an organization:

DUE DILIGENCE
Interviewed HPE GreenLake stakeholders and Forrester analysts to gather data relative to HPE GreenLake.

CUSTOMER INTERVIEWS
Interviewed multiple organizations using HPE GreenLake over multiple years 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 HPE GreenLake'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 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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The HPE GreenLake Customer Journey

BEFORE AND AFTER THE HPE GREENLAKE INVESTMENT

Interviewed Organizations

For this study, Forrester interviewed multiple clients over two years using HPE GreenLake. Interviewed clients include the following:

INDUSTRY	REGION	INTERVIEWEE	INTERVIEW YEAR(S)
Online retailer	Headquartered in Europe	Global network data manager	2018, 2020
Chemical company	Headquartered in US	Global data center manager	2018, 2020
Consulting/ advisory services	Headquartered in Europe	Storage architect	2018, 2020
Reporting	Headquartered in Europe	Director of infrastructure	2020
Healthcare	Headquartered in Europe	IT operations manager	2018
Manufacturing	Headquartered in Europe	Head IT transformation	2018

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 five 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:

› A global multibillion-dollar organization with operations across 100 countries.

› Employs 400 total IT employees; 25 full-time equivalents (FTEs) from IT spend time managing the infrastructure.

› Faces end-of-life challenges or significant upgrade expenses for its storage and server environment.

Key assumptions:
- 10 data centers
- 4 petabytes of storage
- 500 physical assets
- 3,000 virtual servers

Key Challenges

Prior to its investment in HPE GreenLake, the composite organization had the following challenges:

› **Lack of business agility.** Technology limitations from the previous environment, such as storage procurement, impacted the interviewed organizations' ability to act quickly on time-sensitive business opportunities.

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- › **Increased cost due to overprovisioning server and storage capacity.** These included both initial capital costs and higher support costs.

- › **Increased pressure to reduce IT headcounts and budgets.** Organizations could not afford to dedicate resources to routine support and maintenance activities. Expensive, higher level IT resources were often supporting hardware and other lower level initiatives.

- › **Increase in downtime causing incidents.** Interviewees noted that as their pre-HPE GreenLake infrastructure aged, it naturally became more complex, fragmented, and fragile, leading to downtime, lost productivity for affected users, and IT personnel hours spent on resolving this downtime.

- › **Constant change in technology**. Organizations were looking to get access to the latest hardware without constantly replacing their existing infrastructure and incurring large capital expenses.

- › **Standardization of global operations and transparency** across usage and consumption within the organization.

- › Desire to simplify the IT provisioning process and improve time-to-value. The existing process was simply taking too long.

- › **An increasing amount of data** needing to be stored and accessed. It was challenging to keep up with storage requirements to support growth.

Solution Requirements

The composite organization searched for a solution that could:

- › **Accelerate** its transformation to the cloud.

- › **Reduce risk and provide control** of key workloads and data living on-premises.

- › **Expand current capacity** without investing into the on-premises infrastructure.

- › Allow organizations to scale up or downsize as required by business.

- › **Standardize capabilities** across the organization.

- › **Improve how organizations pay for capacity**, including pay for what is being used and a single invoice across data centers.

- › Reduce/remove the burden of capacity planning.

- › **Improve IT productivity** to have resources focus on value-added tasks rather than routine tasks.

> "Setting up and managing a data center is complex, frustrating, and sucks a lot of time from our internal resources. Partnering with HPE has allowed us to get experts on our side so our internal resources can focus on more value-added and strategic initiatives."
>
> *Head of IT transformation, manufacturing company*

> "HPE GreenLake has freed up our engineers to work on something of higher value than just maintaining service and storage."
>
> *Director of infrastructure, reporting organization*

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- › Key Results
- › Key quantified results from the HPE GreenLake investment for the composite organization include:
    - › Increased net-new revenue due to faster time-to-market.
    - › Capex savings due to eliminated need for overprovisioning.
    - › Reduced cost of support/professional services.
    - › Increased IT team productivity by eliminating the need to support the data centers.

> "HPE GreenLake has provided us with better performance, lower support costs, and eliminated what used to be a cumbersome process of ordering and procuring new hardware. HPE makes it very easy to get the capacity we need."
>
> *Storage architect, global consulting company*

Financial Summary

Total benefits PV, $25.0M

Total costs PV, $10.1M

Initial | Year 1 | Year 2 | Year 3

Benefits (Three-Year)

$14.4M — Faster time-to-market

$6.2M — Capex savings

$1.5M — Reduction in professional services costs

$2.8M — IT resource savings (support, admin, planning)
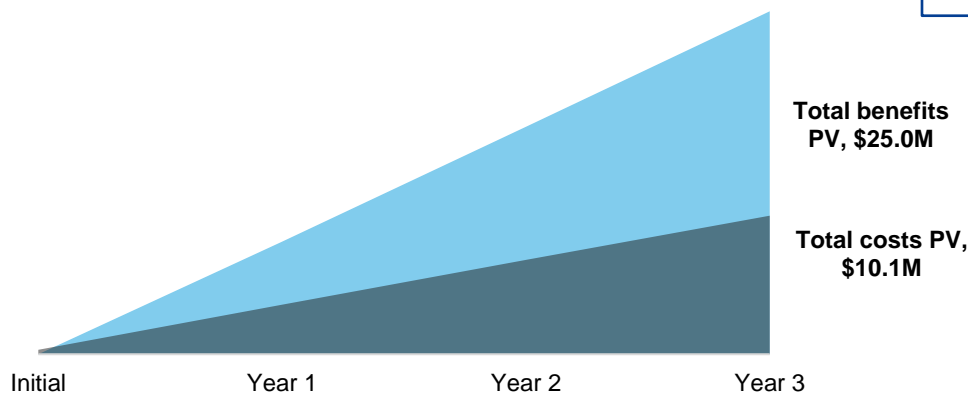
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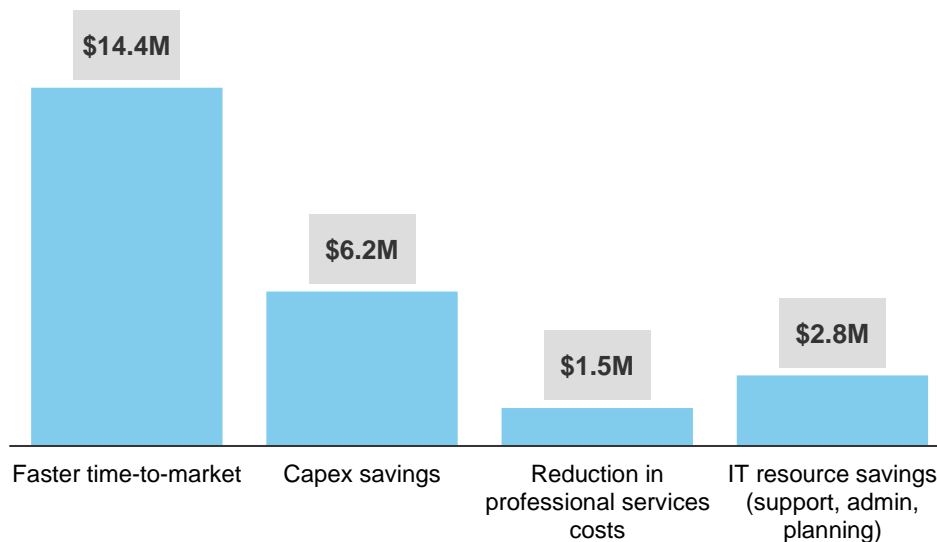
Financial Analysis

QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total Benefits						
Atr	Faster time-to-market of deploying global IT projects	$5,103,000	$5,832,000	$6,561,000	$17,496,000	$14,388,302
Btr	Capex savings from avoided server and storage costs	$2,160,000	$2,520,000	$2,880,000	$7,560,000	$6,210,068
Ctr	Reduction in professional services/contractor costs	$648,000	$648,000	$648,000	$1,944,000	$1,611,480
Dtr	IT resource savings (support, admin, planning, data engineering)	$1,140,000	$1,140,000	$1,140,000	$3,420,000	$2,835,011
	Total benefits (risk-adjusted)	**$9,051,000**	**$10,140,000**	**$11,229,000**	**$30,420,000**	**$25,044,861**

The table above shows the total of all benefits across the areas listed below, as well as present values discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to have a PV of over $25.0M.

Faster Time-To-Market Of Deploying Global IT Projects

Several interviewed organizations told Forrester that launching new IT projects to market with legacy infrastructure generally required extensive capacity planning, provisioning of additional infrastructure, and data center management. While the time varied by project and organization, an average global IT project could take up to six months to implement including accounting for the large time organizations dedicated towards the procurement process for additional capacity requirements.

Customers interviewed for this study noted a significant decrease in time-to-market for the global IT projects after the HPE GreenLake investment, quantifiably saving on personnel capacity for these projects while improving their ability to execute on these projects. It should be noted that while the success of these projects may yield additional financial benefit for the interviewed organizations in the future, it was not included in this analysis. See the Flexibility section further below for more information.

For the composite organization, Forrester assumes:

› Thirty global IT projects were executed each year, including product development, new product launches, customer experience improvements, etc.

› Ninety percent of global projects required additional infrastructure.

› IT needed, on average, four months to launch a project.

> "We can provision a server in 26 hours on GreenLake. Previously, it would take week."
>
> *Director of infrastructure, reporting organization*

HPE GreenLake enables a collective 75% time-to-market improvement for IT projects.

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- Six full-time IT resources were involved in a project from start to finish.

- The average rate of an IT resource was $10,000 per month.

- With HPE GreenLake, the time required to launch a project decreased by 75%, on average.

Faster time-to-market can be influenced by:

- The types and complexity of projects and the resources required to complete these projects.

- Current capacity of the infrastructure to support a new project.

To account for this, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of 14.4M.

> 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.

REF	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
**Faster Time-To-Market Of Deploying Global IT Projects: Calculation Table**
A1	Number of global IT projects (product development, customer experience, new product launches, finance)		35	40	45
A2	Percent of global projects needing additional infrastructure		90%	90%	90%
A3	Time per project in months prior to HPE GreenLake		4	4	4
A4	Number of IT resources required per project		6	6	6
A5	Monthly burden rate of IT resources		$10,000	$10,000	$10,000
A6	Savings in time with HPE GreenLake		75%	75%	75%
At	Faster time-to-market of deploying global IT projects	A1*A2*A3*A4*A5*A6	$5,670,000	$6,480,000	$7,290,000
	Risk adjustment	↓10%			
Atr	Faster time-to-market of deploying global IT projects (risk-adjusted)		$5,103,000	$5,832,000	$6,561,000

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Capex Savings From Avoided Server And Storage Costs

Most interviewed IT departments primarily needed to provide their organizations with infrastructures able to support business growth. Interviewees mentioned over- and under-provisioning for capacity as a recurring issue. While not having enough capacity puts obstacles in the way of new business projects, paying for unused capacity leads to waste of an organization's resources.

Additionally, several organizations recognized that their on-premises infrastructure was becoming obsolete and demonstrated inferior performance. As the hardware was aging, organizations faced costly piece-by-piece technology upgrades that could cause downtime and business disruption. One organization estimated that its move to GreenLake saved nearly 75% of its costs in the data center alone.

By switching from traditional, fully managed on-premises IT models to HPE GreenLake, organizations recognized the following benefits:

› **Avoided risk of over- or under-provisioning capacity.** With HPE GreenLake, IT teams no longer ran the risk of over- or under-provisioning server and storage hardware. HPE GreenLake allowed organizations to scale their usage up or down as needed and only pay for what was used.

› **Avoided costs of hardware refreshes to maintain needed performance levels.** With HPE GreenLake, the organization got access to the latest technology and hardware based on its needs which reduced the occurrences to replace current hardware to maintain needed performance levels, saving additional hardware costs to organizations.

For the composite organization, Forrester assumes:

> › On average, annual server and storage hardware capex prior to HPE was $8 million.

> › On average, the composite organization purchased 30% additional hardware per year, with that need escalating by 5% each year as the organization continued to scale.

> › The organization achieved average capex savings from avoided storage and server costs of 15% using HPE GreenLake.

Reductions in average cost per contact can be influenced by:

> › The amount of server and storage hardware capex.

> › The need for overprovisioning for infrastructure and old hardware replacement.

To account for this, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $6.2M.

> "We've reduced our data center costs by nearly 75% with HPE GreenLake. Each of our sites with data center needs is now opex, not capex."
>
> *Global data center manager, chemical company*

Capex Savings From Avoided Server And Storage Costs: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Physical assets: server and storage hardware capex per year prior to HPE GreenLake		$8,000,000	$8,000,000	$8,000,000
B2	Avoided cost of purchasing additional server and storage hardware		30%	35%	40%
Bt	Capex savings from avoided server and storage costs	B1*B2	$2,400,000	$2,800,000	$3,200,000
	Risk adjustment	↓10%			
Btr	**Capex savings from avoided server and storage costs (risk-adjusted)**		**$2,160,000**	**$2,520,000**	**$2,880,000**

Reduction In Professional Services/Contractor Costs

Interviewed organizations highlighted the cost savings recognized from discontinued use of professional services required to configure and manage the infrastructure prior to adopting HPE GreenLake. By switching to HPE GreenLake, users eliminated costs associated with support fees and add-on professional service fees. The support received from the HPE team was cited by multiple interviewees as a key contributor to this benefit.

For the composite organization, Forrester assumes:

› On average, server and storage hardware cost $8 million.

› The average cost of in-house support or contractor/professional services was 15% of the physical asset's investment.

› After adopting HPE GreenLake, the composite organization cut back the infrastructure support cost by 60%.

The magnitude of this benefit may vary for other organizations due to:

› Internal maintenance resources and need for professional services.

› The value of server and storage hardware.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $1.6M.

Support from the HPE team was consistently cited as consideration and benefit for moving to GreenLake.

"Our relationship with HPE is great. They truly take the time required to understand what we needed as an organization."

Director of infrastructure, reporting organization

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Reduction In Professional Services/Contractor Costs: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Physical assets: server and storage hardware capex per year prior to HPE GreenLake		8,000,000	8,000,000	8,000,000
C2	Estimated professional services/ contractor cost as percentage of annual capex spend prior to HPE GreenLake		15%	15%	15%
C3	Reduction in professional services/ contractor costs		60%	60%	60%
Ct	Reduction in professional services/ contractor costs	C1*C2*C3	$720,000	$720,000	$720,000
	Risk adjustment	↓10%			
Ctr	**Reduction in professional services/ contractor costs (risk-adjusted)**		$648,000	$648,000	$648,000

IT Resource Savings (Support, Admin, Planning)

All interviewed organizations experienced a reduction in IT resources required for infrastructure-related tasks with HPE GreenLake, as compared to legacy on-premises solutions. One customer explained that since the heavy lifting in the data center management shifted to HPE Pointnext support, the internal IT team could take on a more strategic role. Another estimated a 50% savings for its IT personnel, resulting from its GreenLake investment. Yet another interviewee noted that HPE GreenLake allows its organization to continue to scale its hardware footprint as its organization grows with far fewer IT personnel than would been required before. As the interviewed organizations continue to expand geographically, GreenLake has and will continue to enable greater productivity among the IT resources working on these initiatives.

For the composite organization, Forrester assumes:

> A team of 25 IT resources supported infrastructure.

> Forty percent of IT resources were reallocated from data center management.

The magnitude of this benefit may vary for other organizations due to:

> Size of dedicated IT department and average fully burdened salary.

> Percent of resource reallocation depending on skill set of existing IT team.

To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted total PV of $2.8M.

> "Our IT team has grown in the last three years by 20%. But we have increased our infrastructure footprint by 200%. HPE GreenLake has helped us do more with fewer resources."
>
> *Global network data manager, online retailer*

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REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
IT Resource Savings (Support, Admin, and Planning): Calculation Table					
D1	Number of IT resources supporting infrastructure		25	25	25
D2	Yearly FTE burdened rate		$120,000	$120,000	$120,000
D3	IT resource reallocation		40%	40%	40%
Dt	IT resource savings (support, admin, and planning)	D1*D2*D3	$1,200,000	$1,200,000	$1,200,000
	Risk adjustment	↓5%			
Dtr	**IT resource savings (support, admin, and planning) (risk-adjusted)**		**$1,140,000**	**$1,140,000**	**$1,140,000**

Unquantified Benefits

Interviewed organizations experienced the following unquantified benefits:

› **Improved business productivity.** Interviewed organizations reported experiencing fewer system outages and faster application speeds after moving to HPE GreenLake, both of which have a direct impact on an organization's productivity. One interviewee cited a reduction in customer-facing outages as another benefit.

› **Latest hardware technology**. Several interviewees told Forrester that after the initial migration to HPE GreenLake, hardware refreshes were performed at no additional charge and with no downtime, allowing for improved performance, data compression, deduplication, and, ultimately, cost savings. The organization could not quantify the benefit.

› **Reliability and transparency with growing workloads and business demands.** HPE GreenLake allowed global organizations to consolidate their data centers and simplified the invoicing process. IT leadership received full visibility into each location's usage and demands, which, in turn, simplified global resource allocation and billing.

› **Improved security.** HPE GreenLake allows organizations to take advantage of HPE Pointnext support resources and expertise, which protect organizations' infrastructure and valuable data.

Interviewees cite a reduction in downtime incidents affecting IT, business users, and customers with HPE GreenLake.

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Flexibility

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

› **Capacity to take on new business initiatives.** With the infrastructure planning, implementation, and support burden lifted from their shoulders, IT professionals at interviewed organizations could dedicate their time to business projects they previously could not take on, including new product and service launches, enhancements to existing products, and improvements to customer experience. These projects may provide additional downstream revenue for the organization directly or indirectly, which would not have been realized without an investment in HPE GreenLake.

› **Standardization.** With HPE GreenLake, organizations can standardize consumption and IT infrastructure planning and reporting across regions, business units, and product offerings. This provides IT leadership with a consistent view of their IT footprint and provides them with the ability to plan and forecast better.

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

New business opportunities may be realized from improved time-to-market for services.

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so.

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Etr	Implementation	$323,400	$0	$0	$0	$323,400	$323,400
Ftr	Annual costs	$0	$3,630,000	$3,960,000	$4,290,000	$11,880,000	$9,795,868
	Total costs (risk-adjusted)	$323,400	$3,630,000	$3,960,000	$4,290,000	$12,203,400	$10,119,268

The table above shows the total for both implementation and annual costs, as well as present values risk-adjusted upwards at 5% and 10%, respectively. Over three years, the composite organization expects risk-adjusted total costs to have a PV of $10.1M.

Implementation

The transition to HPE GreenLake took interviewed organizations two to five months; this included planning and defining requirements, data migration, and testing. In addition, the time neccesary to go through the organization's procurement process is also reflected in the overall implementation timeline. The number of FTEs involved in the transition was similar across the organizations. HPE charges a fixed nonrecurring price for implementation.

> 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.

For the financial model, Forrester estimates:

› It took six months to transition from on-premises data centers to HPE GreenLake.

› Twelve FTEs were involved in HPE implementation for 40% of their time.

These costs may vary based on the scope of the business, complexity of integration, and internal IT resources. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $323,400.

Implementation: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	Implementation time (months)		6			
E2	Number of internal FTEs		12			
E3	Percentage of time dedicated		40%			
E4	FTE salary (per month)		$10,000			
E5	Fixed HPE cost to support implementation		$20,000			
Et	Implementation	E1*E2*E3*E4+E5	$308,000	$0	$0	$0
	Risk adjustment	↑5%				
Etr	Implementation (risk-adjusted)		$323,400	$0	$0	$0

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Annual Costs

The HPE GreenLake monthly cost is determined by usage and varies based on the infrastructure size and configuration. It can fluctuate from month to month based on usage peaks and lows.

For the composite organization, Forrester uses an average monthly cost of $275,000 in Year 1 escalating to $325,000 by Year 3. The cost may vary due to contract terms as well as the volume of storage and compute used. For the composite organization, peak monthly costs are over $600,000 based on the noted infrastructure assumptions. Please contact HPE for exact pricing for your organization.

To account for these variances, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $9,795,868.

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
Annual Costs: Calculation Table						
F1	HPE GreenLake: average monthly usage costs			$275,000	$300,000	$325,000
F2	Number of months			12	12	12
Ft	Annual costs	F1*F2	$0	$3,300,000	$3,600,000	$3,900,000
	Risk adjustment	↑10%				
Ftr	Annual costs (risk-adjusted)		$0	$3,630,000	$3,960,000	$4,290,000

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Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)

Total costs
Total benefits
Cumulative net benefits

Cash flows
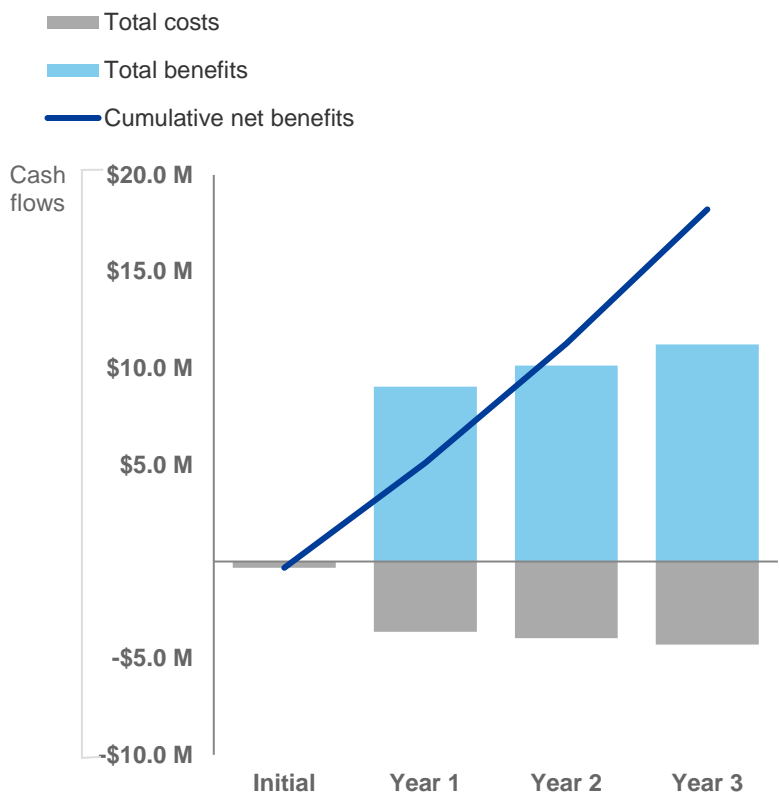
The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

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	($323,400)	($3,630,000)	($3,960,000)	($4,290,000)	($12,203,400)	($10,119,268)
Total benefits	$0	$9,051,000	$10,140,000	$11,229,000	$30,420,000	$25,044,861
Net benefits	($323,400)	$5,421,000	$6,180,000	$6,939,000	$18,216,600	$14,925,593
ROI						147%
Payback period						<12 months

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HPE GreenLake

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

As the edge-to-cloud platform-as-a-service company, HPE helps you accelerate your digital transformation with a holistic strategy across technology, people, economics, and sustainability. HPE GreenLake brings the modern cloud experience to your apps, data, and workloads on-premises, at a colocation, at the edge, or in the cloud, with a self-serve, pay-per-use, scale up and down, and managed for you as a service experience so you free up capital, boost operational and financial flexibility and free up your talent to accelerate what's next for you.

HPE GreenLake offers a portfolio of services for the top workloads that run businesses today. Using standardized, modular hardware, software, and services building blocks HPE GreenLake can simplify the IT experience by delivering a cloud-like consumption model on-premises. With management services delivered from HPE's world-class IT Operation Centers (ITOCs) around the world, HPE can monitor and operate your workloads in the public or private clouds, helping you fill skills gaps, and free up your resources to be more productive. HPE GreenLake Central helps you govern your hybrid estate with one experience, one operating model through one management console – helping you simplify operations, unify visibility, and control and give stakeholders what they need, faster – all through a centralized dashboard and common tools, processes and services.

Get the modern cloud experience on-premises with HPE GreenLake. Choose from a wide variety of services for your workloads: Create and manage the lifecycle of virtual machines and containers in your private cloud from a self-service dashboard with automated provisioning. Consume and gain insights from your data with services for ML Ops, Hadoop data services, database platforms, data management, data storage, data protection, and SAP HANA; Get compute, storage, networking, VDI, and public cloud services through HPE GreenLake Central.

HPE GreenLake delivers services from emerging apps and data at the edge to the most data-intensive apps and high-performance computing needs, optimized for the capacity you need, with purpose-built technology when – and where – you need it. The range of use cases continues to expand, with HPE's broad ecosystem of software, SI and cloud partners. Pay-per-use as you scale up and scale down. Eliminate overprovisioning and free up capital. Always have capacity ahead of demand. Provision quickly from your on-premises buffer of capacity, reduce time to market for the business. Managed for you as-a-service.

World-Class Expertise From HPE Pointnext Services
Every HPE GreenLake service comes with enterprise-grade support from HPE Pointnext Services, with 24x7 monitoring and active capacity management to ensure that your solution grows with business needs.
Need extra help? You can tailor services to add resources and expertise when and where it's needed — from your infrastructure to your apps and workloads. HPE GreenLake Management Services offers a large catalog of services to augment your IT organization, including monitoring, operations, administration, and optimization of your full IT stack.

Experience The Best Of Both Worlds
Outcome-based **IT consumption** delivers a range of benefits that you can't get from solutions solely built from scratch or bought from the public cloud. Delivering the best of both worlds, HPE GreenLake enables:
• **Faster time-to-value** with solutions that are ready quickly and evolve ahead of your needs.
• **Better economics** with a flexible, pay-per-use model that offers simplicity and financial clarity.
• **On-premises** when needed for proper control over compliance, performance, and security.
• **Simplified IT** that's operated for you, to free up resources and add business value.

Learn more at hpe.com/services/greenlake

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Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.
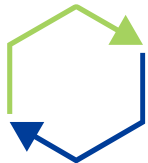
Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

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

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

RETURN ON INVESTMENT (ROI)

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

DISCOUNT RATE

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

PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

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Appendix B: Endnotes

[1] Source: To read our Cloud Computing Playbook, see the Forrester Report "Cloud Services Accelerate Your Pursuit Of Customer Obsession," Forrester Research, Inc., January 30, 2020.