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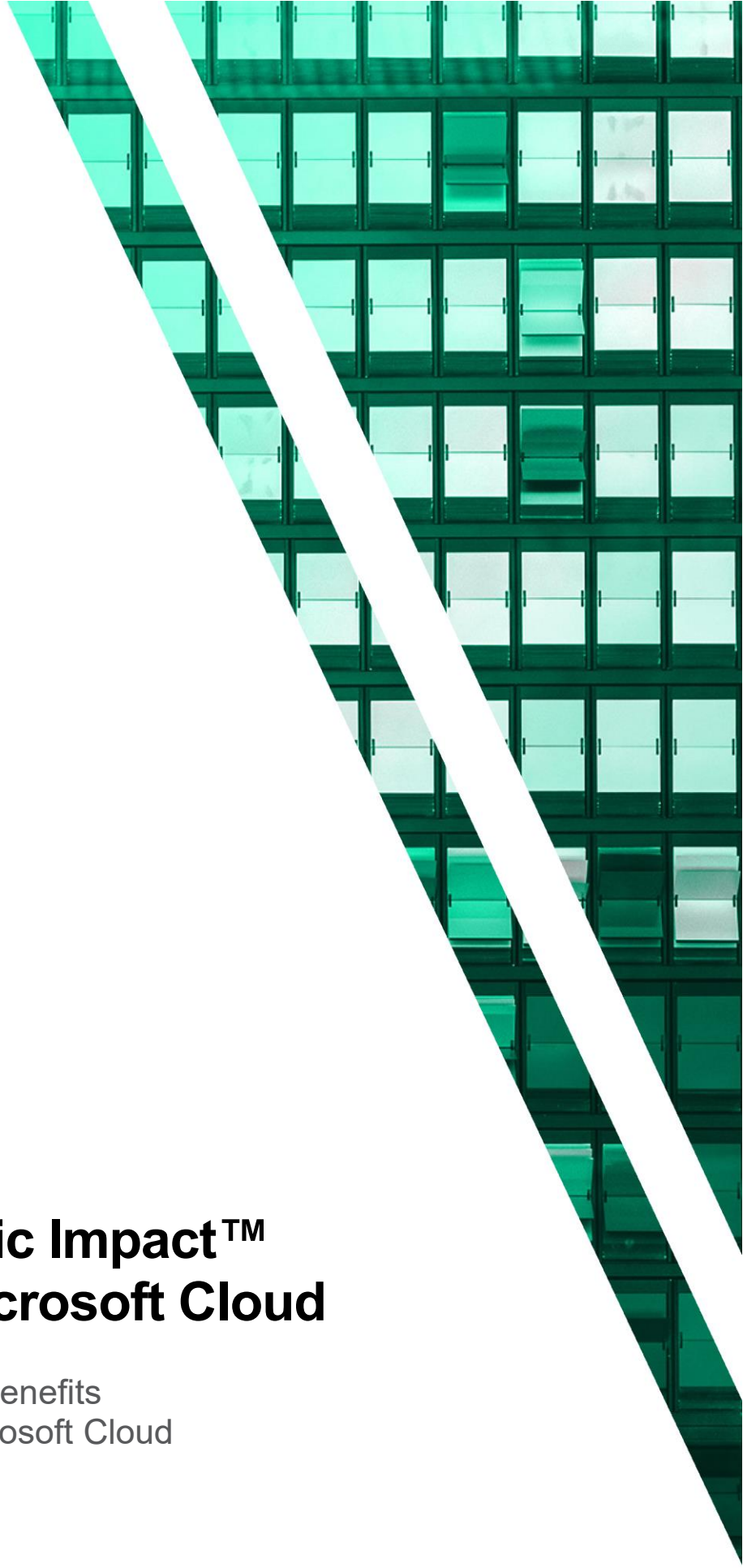

The Total Economic Impact™ Of SAP On The Microsoft Cloud

Cost Savings And Business Benefits Enabled By SAP On The Microsoft Cloud

JULY 2023

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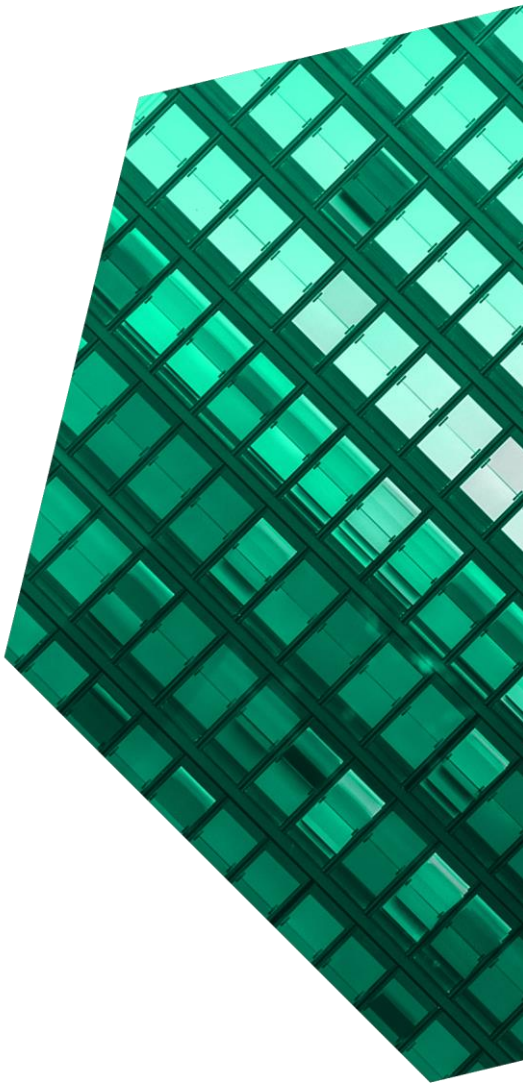

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Executive Summary

SAP on the Microsoft Cloud provides companies with a cost-effective, flexible, and secure infrastructure platform to support SAP's enterprise resource planning tools. With SAP on the Microsoft Cloud, companies reduce the time and costs required to maintain on-premises SAP infrastructure. The Microsoft Cloud infrastructure can be easily scaled up or down as needed to support business requirements. SAP on the Microsoft Cloud is highly secure and protected by the Microsoft's cloud security offerings.

SAP on the Microsoft Cloud is a cost-effective, scalable infrastructure platform to support SAP applications. The Microsoft Cloud is an SAP-certified cloud platform. The Microsoft Cloud platform offers strong security features and transparent pricing, along with excellent customer support. With SAP on the Microsoft Cloud, companies can easily leverage the functionality of other Microsoft Cloud products.

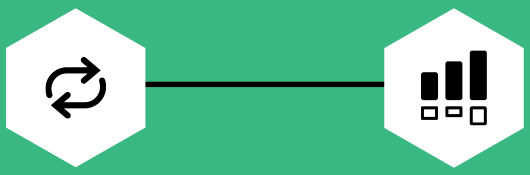
Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying SAP on the Microsoft Cloud.[1] The purpose of this study is to provide readers with a framework to evaluate the potential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

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four representatives with experience using SAP on the Microsoft Cloud. For the purposes of this study,

Reduced on-premises infrastructure costs (per year)

$6.3 million

KEY STATISTICS



Return on investment (ROI)

118%

Net present value (NPV)

$10.52M

Forrester aggregated the interviewees' experiences and combined the results into a single composite organization that is a global organization with 10,000 employees and revenue of $5 billion per year.

Prior to using SAP on the Microsoft Cloud, these interviewees noted that their organizations were concerned about the time and costs required to support SAP on-premises. It was difficult to scale infrastructure capacity as needed and there could be downtime if the underlying on-premises infrastructure failed. SAP developer time was often wasted waiting for infrastructure to be provisioned. The legacy on-premises infrastructure could not support SAP S/4HANA without an extensive and expensive upgrade.

After the investment in SAP on the Microsoft Cloud, the interviewees' organizations reduced their on-premises infrastructure costs and easily migrated to SAP S/4HANA. Key results from the investment also include enhanced developer productivity, easier

infrastructure scalability, reduced downtime, and an enhanced security posture. The interviewees selected the Microsoft Cloud as their SAP cloud platform citing a long history of partnering with Microsoft and the breadth of Microsoft's cloud offerings. They were confident in the Microsoft Cloud's top-notch security and transparent pricing.

While most of the interviewees' companies used SAP native on the Microsoft cloud, one company used RISE with SAP. RISE with SAP on the Microsoft Cloud is a package that includes the technology, platform, and SAP services. The RISE with SAP offering was cost-effective, secure, and provided additional flexibility.

KEY FINDINGS

Quantified benefits. Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Avoided costs of on-premises infrastructure of up to $6.3 million per year.** The composite organization cut its on-premises infrastructure costs by migrating SAP to the Microsoft Cloud. The avoided costs include the cost of on-premises hardware and the operating costs associated with the on-premises data centers, such as power and cooling. The composite organization reduces the size of the infrastructure team supporting the on-premises SAP deployment and shifts them to higher-value-added tasks.
- **Improved costs and time to value for SAP applications including a 25% improvement in developing new applications and a 25% improvement in fixing issues.** With SAP on the Microsoft Cloud, developer productivity improves at the composite organization. Developers no longer have to wait for infrastructure to be available to begin work. In its prior state, if there was an issue with an SAP application, it was not easy to spin up infrastructure to quickly test if it was a resource or a coding issue. SAP on the Microsoft Cloud allows developers to fix any SAP-related issues quickly.
- **Improved end user productivity worth $657,000.** The composite organization finds that, with the move of SAP to the Microsoft Cloud, end-user productivity improved. This benefits employees in human resources, finance, and accounting who are heavy SAP users. They spend less time waiting for developers to fix any SAP application issues and SAP data in the Microsoft Cloud is more easily integrated with other Microsoft Cloud tools.
- **Improved time to value of expanded operations worth $466,000.** The composite organization leverages the flexibility of SAP on the Microsoft Cloud to launch new products more easily and expand into new geographies.
- **Avoided downtime worth $463,000.** The composite organization finds that moving SAP from on-premises to the Microsoft Cloud improves its security posture and reduces the risk of downtime due to security attacks direct at the on-premises operations.

Unquantified benefits. Benefits that provide value for the composite organization but are not quantified in this study include:

- **Scalability**. Before moving SAP to the Microsoft Cloud, it was difficult for the infrastructure team at the composite organization to scale on-premises infrastructure up and down to meet business requirements. This resulted in overprovisioning on-premises infrastructure to meet peak demand. With SAP on the Microsoft Cloud, infrastructure is now easily scaled up and down.
- **Leveraging Microsoft Cloud products.** By moving SAP to the Microsoft Cloud, the composite organization easily leverages the functionality of other Microsoft Cloud offerings, including Office365, Teams, Power Platform, Power BI, Azure Monitor, Azure Logic Apps,

storage, and security tools (e.g., Sentinel, Microsoft AD, Microsoft Defender).

- **Improved security with the Microsoft Cloud.** Microsoft Cloud's strong security tools lead to an improved security posture at the composite organization vs. running SAP on-premises.
- **Microsoft partnership, support, and simplicity.** The composite organization has a long relationship with Microsoft, which is a key reason it chooses the Microsoft Cloud as its SAP cloud infrastructure platform. The partnership with Microsoft helps their lean infrastructure team succeed.

Costs. Three-year, risk-adjusted PV costs for the composite organization include:

- **The Microsoft Cloud infrastructure costs of $6.1 million.** The composite organization pays Microsoft a monthly fee of $225,000 for the Microsoft Cloud infrastructure to support SAP. The cost declines over time as the composite organization identifies operating efficiencies.
- **Cost to migrate and manage Microsoft Cloud infrastructure of $2.8 million.** The composite organization uses an internal cross-functional team to manage the migration of SAP from on-premises to the Microsoft Cloud. The migration takes nine months.

The representative interviews and financial analysis found that a composite organization experiences benefits of $19.4 million over three years versus costs of $8.9 million, adding up to a net present value (NPV) of $10.5 million and an ROI of 118%.

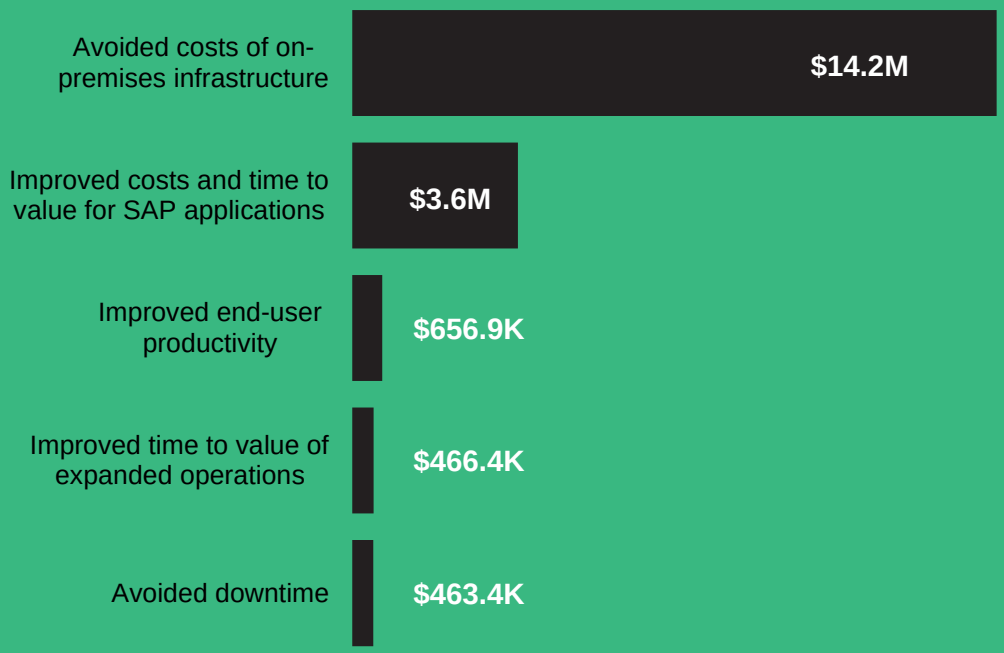
ROI
118%

BENEFITS PV
$19.39M

NPV
$10.52M

PAYBACK
<6 months

Benefits (Three-Year)



“We are predominantly a Microsoft shop. I’ve always loved working with Microsoft products, so [the Microsoft Cloud] was our choice for a cloud provider.”

— Business systems lead, media and entertainment

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in SAP on the Microsoft Cloud.

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

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Microsoft 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 study to determine the appropriateness of an investment in SAP on Microsoft Cloud.

Microsoft 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.

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

DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to SAP on the Microsoft Cloud.

INTERVIEWS

Interviewed four representatives at organizations using SAP on the Microsoft Cloud to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewees' 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 interviewees.

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. Please see Appendix A for additional information on the TEI methodology.

The SAP On The Microsoft Cloud Customer Journey

Drivers leading to the SAP on the Microsoft Cloud investment

Interviews

Role	Industry	Region	Annual Revenue (USD)
Enterprise architect	Food and beverage	Europe	$2 billion
IT architect	Financial services	Europe	$60 billion
Business systems lead	Media and entertainment	United States	$10 billion
SAP solutions architect	Higher education	Canada	$3 billion

KEY CHALLENGES

Before migrating SAP to the Microsoft Cloud, the interviewees' organizations typically ran SAP on-premises on servers located in their data centers. Alternatively, some of the interviewees' companies relied on partners to host SAP on their third-party infrastructure.

The interviewees noted how their organizations struggled with common challenges, including:

- **SAP on-premises infrastructure was expensive and time-consuming to maintain.** Hardware was refreshed every three to five years, leading to large capital outlays. IT teams spent significant time ordering, installing, and maintaining the on-premises infrastructure**.**
- **Capacity planning was difficult.** It was difficult for the infrastructure teams to forecast hardware requirements, especially for companies that were growing rapidly. If a project ended, there was no efficient way to decommission the infrastructure.
- **Developers had to wait for infrastructure to be provisioned.** Developers wasted time waiting for infrastructure to support new development projects. Developers could wait months for hardware to be provisioned and installed to support new development efforts**.**

> **"[Before SAP on the Microsoft Cloud] most of the issues were related to provisioning hardware. Every time we needed to upscale a project, we would have to wait up to six months to deliver the infrastructure. The main reason we decided to move everything [to the Microsoft Cloud] is to be more flexible."**
>
> *Enterprise architect, food and beverage*

- **Legacy on-premises infrastructure did not support SAP S/4HANA.** The interviewees' companies wanted to shift SAP to S/4HANA; however, the legacy on-premises infrastructure was not adequate. An upgrade to the existing infrastructure would cost millions of dollars.

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected.

The composite organization is representative of the four interviewees, and it 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 operates globally with $5 billion in annual revenue and 10,000 employees. The composite organization uses SAP's enterprise resource planning (ERP) software extensively to support its human resources, finance, and accounting operations.

Deployment characteristics. Before the migration to the Microsoft Cloud, the composite organization ran SAP on on-premises hardware in its data centers. A large, 30-person infrastructure team maintained the on-premises infrastructure supporting SAP. Twenty-five SAP developers worked to update and develop new SAP applications. Before migrating to the Microsoft Cloud, the composite organization used SAP ECC 6.0.

The composite organization reviewed multiple public cloud providers before choosing the Microsoft Cloud as its SAP infrastructure platform. Microsoft's security, support, and extensive cloud product offering differentiated the Microsoft Cloud.

The composite organization spent nine months migrating SAP to the Microsoft Cloud. After the migration, the composite organization decommissions the on-premises infrastructure supporting the Microsoft Cloud. The internal IT and developer teams supporting the on-premises version of SAP are redeployed to supporting SAP on the Microsoft Cloud or other high-value-added tasks.

After the migration, the composite organization shifts to SAP S/4HANA. The composite organization runs 50 SAP instances on the Microsoft Cloud. The Microsoft Cloud supports SAP applications in development, production, and quality control environments.

The composite organization uses a wide variety of other Microsoft Cloud applications, including Office365, Teams, Power Platform, Power BI, Azure Monitor, Azure Logic Apps, and security tools (e.g., Sentinel, Microsoft AD).

"We did a comparison between the big three to four cloud providers and [the Microsoft Cloud] was the most mature. They offered us everything we needed and provided us with good support."

Enterprise architect, food and beverage

Key Assumptions

- **$5 billion in revenue**
- **10,000 employees**
- **Nine-month migration of SAP to the Microsoft Cloud**

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	Avoided costs of on-premises infrastructure	$4,702,050	$6,269,400	$6,269,400	$17,240,850	$14,166,206
Btr	Improved costs and time to value for SAP applications	$1,310,400	$1,474,200	$1,638,000	$4,422,600	$3,640,273
Ctr	Improved end-user productivity	$161,606	$323,213	$323,213	$808,031	$656,867
Dtr	Improved time to value of expanded operations	$114,750	$229,500	$229,500	$573,750	$466,414
Etr	Avoided downtime	$186,354	$186,354	$186,354	$559,062	$463,435
	Total benefits (risk-adjusted)	$6,475,160	$8,482,667	$8,646,467	$23,604,293	$19,393,195

AVOIDED COSTS OF ON-PREMISES INFRASTRUCTURE

Evidence and data. The interviewees' organizations reduced their on-premises infrastructure costs by migrating SAP to the Microsoft Cloud. The Microsoft Cloud enabled the shift to SAP S/4HANA.

- Most of the interviewees reported that they were able to save costs related to on-premises infrastructure and the personnel supporting the on-premises infrastructure. One interviewee shared that, while it was more expensive to run SAP on the Microsoft Cloud, the flexibility benefits made the migration worthwhile.
- When SAP was on-premises, large, cross-functional teams were typically required to build out or expand the underlying infrastructure stack. With SAP on the Microsoft Cloud, a smaller infrastructure team could quickly scale the required infrastructure up and down to meet current needs.
- The SAP solution architect at a higher education institute shared: "Now, we have one team who can build the whole stack of infrastructure from bringing up the VMs [virtual machines] to getting the operating system and then deploying the SAP software. It has been a phenomenal change for us."
- This SAP solutions architect also noted, "If we wanted the on-premises infrastructure to support S/4HANA, we would have to do a big hardware refresh and that would have been millions of dollars."

"[With SAP on the Microsoft Cloud,] we don't have to reinvest in our on-premises data center. We don't need anyone in the data center building, servers, or cabling."

IT architect, financial services

Modeling and assumptions. For the analysis, Forrester assumes the following:

- Before moving SAP to Microsoft Cloud, the composite organization spends $3 million each

year refreshing the on-premises infrastructure supporting SAP. Associated maintenance fees totaled $450,000 per year.

- The composite organization also spent $600,000 per year to operate the on-premises data centers, including power and cooling, before moving SAP to the Microsoft Cloud.
- The composite organization begins decommissioning the on-premises infrastructure supporting SAP in Year 1.
- Before SAP was migrated to the Microsoft Cloud, 30 IT FTEs were devoted to supporting the on-premises infrastructure.
- The IT team members' annual average salary including benefits is $120,000.

Risks. The avoided costs of on-premises infrastructure will vary based on:

- The on-premises infrastructure footprint.
- The size of the IT team supporting the on-premises infrastructure.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $14.2 million.

Avoided Costs Of On-Premises Infrastructure

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Cost of legacy hardware and infrastructure related to SAP	Interviews	$3,000,000	$3,000,000	$3,000,000
A2	Avoided maintenance fees for decommissioned legacy technology	A1*15%	$450,000	$450,000	$450,000
A3	Avoided cost of physical data center space	Interviews	$600,000	$600,000	$600,000
A4	Percentage of SAP environment migrated	Composite	75%	100%	100%
A5	Reduced legacy infrastructure costs	(A1+A2+A3)*A4	$3,037,500	$4,050,000	$4,050,000
A6	Infrastructure team supporting legacy infrastructure (FTEs)	Composite	30	30	30
A7	Time saved servicing infrastructure	Interviews	75%	75%	75%
A8	Time saved on capacity planning	Interviews	3%	3%	3%
A9	Time saved on scaling infrastructure	Interviews	3%	3%	3%
A10	Infrastructure team average fully burdened annual salary	TEI Standard	$120,000	$120,000	$120,000
A11	Percentage of SAP environment migrated	Composite	75%	100%	100%
A12	Reduced legacy infrastructure support costs	A6*(A7+A8+A9)*A10*A11	$2,187,000	$2,916,000	$2,916,000
At	Avoided costs of on-premises infrastructure	A5+A12	$5,224,500	$6,966,000	$6,966,000
	Risk adjustment	↓10%			
Atr	Avoided costs of on-premises infrastructure (risk-adjusted)		$4,702,050	$6,269,400	$6,269,400
	Three-year total: $17,240,850			**Three-year present value: $14,166,206**	

IMPROVED COSTS AND TIME TO VALUE FOR SAP APPLICATIONS

Evidence and data. The interviewees found that it was much more efficient for the developers to work with SAP on the Microsoft Cloud.

- Once SAP was migrated to the Microsoft Cloud, the developers did not have to waste time waiting for infrastructure to be commissioned. If there was an issue with an SAP application's performance, the developers could quickly scale up the infrastructure to determine if it was an infrastructure or a coding issue.
- The IT architect at a financial services organization shared: "For the developers the time savings is reduced waiting times. If they need to change the infrastructure because it's too slow or something is not right, this can now be fixed in hours."
- The IT architect added: "If [SAP application] performance is not good, we can scale up to see if it's better. If not, then we know it has nothing to do with resources and is more likely a problem within the code. We can narrow down performance problems faster."
- The SAP solution architect at a higher education organization noted: "[SAP on the Microsoft Cloud] has given the developers flexibility. If a developer wants to do a proof of concept in a sandbox, we can quickly scale that up."

Modeling and assumptions. For the analysis, Forrester assumes the following:

- Before the migration to the Microsoft Cloud, 25 developers supported SAP on-premises.
- With the move of SAP to the Microsoft Cloud, developers now save up to 25% of their time spent developing new applications and up to 25% of their time spent fixing existing application issues.

> **"The speed in which we can build infrastructure is an order of magnitude faster, 10 or 20 times faster. What would have taken 10 days now takes a few hours."**
>
> *SAP solution architect, higher education*

- The average developer salary including benefits is $70 per hour (or $145,600 per year).

Risks. The improved costs and improved time to value for SAP applications will vary based on:

- The number of developers supporting SAP before migrating SAP to the Microsoft Cloud.
- The number of new SAP applications developed annually.
- SAP developer salary.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $3.6 million.

Improved Costs And Time To Value For SAP Applications					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
B1	Developers supporting SAP on-premises	Composite	25	25	25
B2	Time savings developing new applications with SAP on Microsoft Cloud	Interviews	20.0%	22.5%	25.0%
B3	Time savings fixing application issues with SAP on Microsoft Cloud	Interviews	20.0%	22.5%	25.0%
B4	Total developer hours saved with SAP on Microsoft Cloud	B1*(B2+B3)*2,080 hours per year	20,800	23,400	26,000
B5	Fully burdened cost of SAP developer time (per hour)	TEI Standard	$70	$70	$70
Bt	Improved costs and time to value for SAP applications	B4*B5	$1,456,000	$1,638,000	$1,820,000
	Risk adjustment	↓10%			
Btr	Improved costs and time to value for SAP applications (risk-adjusted)		$1,310,400	$1,474,200	$1,638,000
	Three-year total: $4,422,600		**Three-year present value: $3,640,273**		

IMPROVED END-USER PRODUCTIVITY

Evidence and data. The interviewees found that with the move of SAP to the Microsoft Cloud end-user productivity improved. The SAP solution architect at a higher education institute noted: “Our payroll runs almost two times faster after moving to the cloud. There’s been a huge performance bump. Our financial month end runs about three times faster, so we can close our financial month much quicker.”

Modeling and assumptions. For the analysis, Forrester assumes the following:

- 125 end users in finance, accounting, and human resources use SAP heavily.
- With the shift to the Microsoft Cloud, developers fix SAP issues faster, leading to improvements in end-user productivity.
- End-user productivity increases up to 75% for specific tasks. On average productivity increases 3.75% in Year 1 and 7.5% in Year 2 when SAP is fully migrated to the Microsoft Cloud.
- The average end-user salary per hour including benefits is $39 (or $81,120 per year).
- The end users convert 50% of the time saved into productive time.

Risks. The improved end user productivity benefit will vary based on:

- The number of end users using SAP applications.
- End-user salary.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $657,000.

Improved End-User Productivity					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
C1	FTEs heavily using SAP on Microsoft Cloud	Composite	125	125	125
C2	Time savings with SAP on Microsoft Cloud	Interviews	3.75%	7.50%	7.50%
C3	Total end user hours saved with SAP on Microsoft Cloud	C1*C2*2,080 hours per year	9,750	19,500	19,500
C4	Fully burdened rate of average employee (per hour)	TEI Standard	$39	$39	$39
C5	Productivity recapture	TEI Standard	50%	50%	50%
Ct	Improved end-user productivity	C3*C4*C5	$190,125	$380,250	$380,250
	Risk adjustment	↓15%			
Ctr	Improved end-user productivity (risk-adjusted)		$161,606	$323,213	$323,213
	Three-year total: $808,031		**Three-year present value: $656,867**		

IMPROVED TIME TO VALUE OF EXPANDED OPERATIONS

Evidence and data. The interviewees leveraged the flexibility of SAP on the Microsoft Cloud to launch new products more easily and expand into new geographies.

- One interviewee shared how their company was easily able to integrate and grow an acquisition in New Zealand by shifting their systems to SAP on the Microsoft Cloud.
- The SAP solution architect at a higher education institute shared that they were just beginning to realize the benefits of combining other Microsoft products with SAP on the Microsoft Cloud. They noted: “There are some interesting use cases we have come up with using some of the Microsoft products. For example, Form Recognizer is a Microsoft Cloud Cognitive Service that we use for OCR recognition. And Logic Apps is another Microsoft Cloud product that we have tried to use with SAP for some interesting business cases.”

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The composite organization launches one new product or expands into one new region in Year 1. This increases to two new launches in Years 2 and 3.
- Before SAP on the Microsoft Cloud, each launch took nine months. Now with SAP on Microsoft Cloud, it is 30% faster to launch new products and expand into new regions.
- Each expansion generates $500,000 of incremental revenue. Forrester applies a 10% operating margin to account for associated costs.

Risks. The improved time to value of expanded operations benefits will vary based on:

- The number of new regional or product launches each year.
- Time to implement a new launch before moving SAP to the Microsoft Cloud.
- Annual revenue generated by each new launch.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $466,000.

Improved Time To Value Of Expanded Operations					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
D1	Number of new product launches per year	Interviews	1	2	2
D2	Months to launch new products (before shift to the Microsoft Cloud)	Interviews	9	9	9
D3	Acceleration in launch time after migration	Interviews	30%	30%	30%
D4	Average annual revenue of new products	Interviews	$500,000	$500,000	$500,000
D5	Operating margin	TEI standard	10%	10%	10%
Dt	Improved time to value of expanded operations	D1*D2*D3*D4*D5	$135,000	$270,000	$270,000
	Risk adjustment	↓15%			
Dtr	Improved time to value of expanded operations (risk-adjusted)		$114,750	$229,500	$229,500
	Three-year total: $573,750			**Three-year present value: $466,414**	

AVOIDED DOWNTIME

Evidence and data. The interviewees found that moving SAP from on-premises to the Microsoft Cloud improved their security posture and reduced the risk of downtime due to security attacks directed at their on-premises operations.

- While most of the interviewees did not experience significant downtime due to security issues, the time and cost to remediate any issues could be significant.
- One interviewee noted that after a significant security attack, the infrastructure team at their company spent three weeks working 17 to 18 hours per day to remediate and repair the infrastructure.
- The enterprise architect at a food and beverage firm shared that their company experienced an attack when part of the SAP workload was in the Microsoft Cloud and part was on-premises. They noted: "The workload that we had already in Microsoft Cloud was not affected by the attack because the attack was prevented by the firewall we put in place and the security label we put in place. We had to rebuild basically everything we had on-premises because not having this kind of layer of security in the middle, it has been compromised."

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The composite organization experiences one critical outage per year before migrating SAP to the Microsoft Cloud.
- The 10 infrastructure team members spend 18 hours a day for three weeks resolving and remediating the hardware outages in the composite's previous environment. This equates to 3,780 hours per outage.
- The average salary including benefits for the infrastructure team is $58 per hour (or $120,000 annually).

Risks. The avoided downtime benefit will vary based on:

- The number of critical outages.
- The time to remediate a critical outage.
- IT team member average salary.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $463,000.

Avoided Downtime

Ref.	Metric	Source	Year 1	Year 2	Year 3
E1	Critical outages	Interviews	1	1	1
E2	Hours to repair outage	Interviews	3,780	3,780	3,780
E3	Infrastructure team cost per hour including benefits	TEI Standard	$58	$58	$58
Et	Avoided downtime	E1*E2*E3	$219,240	$219,240	$219,240
	Risk adjustment	↓15%			
Etr	Avoided downtime (risk-adjusted)		$186,354	$186,354	$186,354
	Three-year total: $559,062		**Three-year present value: $463,435**		

UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but are not quantified:

- **Scalability**. Interviewees noted it was difficult to scale on-premises infrastructure up and down to meet business requirements. This could result in over-provisioning of on-premises infrastructure to meet peak demand. With SAP on the Microsoft Cloud, infrastructure could be easily scaled up and down.
    - The SAP solution architect at a higher education organization noted: “One of our challenges was scaling up and scaling down. We couldn’t do that on-premises. In the past when we were on-premises, we would have challenges with peak load scenarios. We would overprovision our hardware. At some point, if we could not scale, then there would be poor application response.”

“Cyber review came up solid for [the Microsoft Cloud]. We do not sign up for any platform that cannot pass our cyber review. The security is rock solid on [the Microsoft Cloud]. This gives us a peace of mind that we can sleep at night knowing our data and environment is in a safe and secure place.”

Business systems lead, media and entertainment

- The business systems lead at a media and entertainment firm shared: "[With SAP on the Microsoft Cloud,] it is really easy to scale up and scale down. It can be done in a matter of hours, not waiting for weeks and weeks like we used to do before."

- **Leveraging Microsoft Cloud products.** By moving SAP to the Microsoft Cloud, interviewees easily leveraged the functionality of other Microsoft Cloud offerings, including Office365, Teams, Power Platform, Power BI, Azure Monitor, Azure Logic Apps, storage, and security tools (e.g., Sentinel, Microsoft AD). The interviewees shared examples of how they leveraged other Microsoft tools with SAP on the Microsoft Cloud.
  - The interviewee at the higher education institute noted their organization used Microsoft Azure Monitor to gain visibility into the SAP workloads running on the Microsoft Cloud. The agent is backed by Premium SSD Azure Disk Storage. The monitoring agent increased workload stability with higher observability. The interviewee also noted their higher education institute used Azure Logic Apps to automate alerts coming out of SAP and push them back to Azure Monitor. This helped their IT team better monitor application performance data.
  - The interviewee at the financial services company noted they used Premium SSD Azure Disk Storage and Azure Files. Azure Files helped their company operate business-critical SAP transport directories and with general file share.
- **Improved security with the Microsoft Cloud.** Interviewees called out the Microsoft Cloud's strong security tools, which led to an improved security posture vs. running SAP on-premises.

"A key benefit [of SAP on the Microsoft Cloud] is the simplicity of the contract. We do not have to worry about three to five contracts per year. It is one contract, one commitment, and one SLA under which the whole environment is working."

Business systems lead, media and entertainment

The SAP solution architecture at the higher education institute said: "We have Microsoft Cloud monitoring which has improved the monitoring of our environment. Security is much better, now being able to use some of the Microsoft products like Sentinel to secure our infrastructure. From our end, Microsoft provided a big, strong foundation build for our environment."

- **Microsoft partnership, support, and simplicity.** Interviewees called out their organizations' long relationships with Microsoft as a key reason they chose the Microsoft Cloud as their SAP cloud infrastructure platform. Their partnership with Microsoft helped their lean IT and infrastructure teams succeed. With Microsoft as their infrastructure provider, they limited the number of infrastructure contracts and agreements needed to support SAP.
  - The SAP solution architecture at the higher education institute noted: "We got RFPs from multiple [public cloud] vendors but the response from Microsoft was far more complete. With the Microsoft Cloud, FastTrack service offering experts from Microsoft with deep expertise would be engaged in the migration project, providing project management and architectural know-how."

- The enterprise architect at a food and beverage firm said: “We looked at the pros and cons of each cloud platform. With Microsoft, we already had a long partnership, and we were using a lot of Microsoft products. It was the natural evolution for us to get the benefits of working with a big supplier instead of splitting into many different platforms.”
- The SAP solution architecture at the higher education institute also shared: “We have a small, lean central IT department within the university, and we did not want to be multi-cloud. We would not have had enough staff to support multi-cloud, so we had to decide which cloud provider to choose. We looked to the future, and Microsoft was the best fit.”

FLEXIBILITY

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

- **Flexible infrastructure environment**. The enterprise architect at a food and beverage firm noted: “The key goal for us was not cost savings, but to gain flexibility. Managing hardware is quite complex because you cannot do a long-term forecast. You don’t know what will happen in a year and it could be that we will double the size of the company. Having an environment that is flexible is really crucial to us, and that’s something we achieved by migrating to [the Microsoft Cloud].”
- **RISE with SAP**. The Microsoft Cloud supports both SAP native and RISE with SAP. While most of the interviewees’ companies used SAP native, the business systems lead noted their media and entertainment company used RISE with SAP. RISE with SAP on the Microsoft Cloud is a package which includes the technology, the platform, and the SAP services. The RISE with SAP offering was cost effective, secure, and provided additional flexibility. The business systems lead shared some of the benefits of RISE with SAP. They stated:
  - “SAP RISE gives us access to over 1,000 APIs to integrated 200-plus applications.”
  - “SAP RISE saved us time and money. It was more cost-effective than if we had to pay to be in our old environment. It was a no-brainer since this is where we wanted to be from a technology perspective and, with the costs pointing in the right direction, it became a very easy decision.”
  - “The Microsoft cloud platform was certified by SAP. It offered premium storage and the whole environment was AI-driven. Maintenance was proactive and we had default disaster recovery. Before RISE, we did not have disaster recovery. If there was a flood or a fire in our data center, we did not have any disaster recovery.”

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

“The main benefits [of SAP on the Microsoft Cloud] are flexibility and speed. We are so much faster getting new systems deployed and getting new projects started in [the Microsoft Cloud].”

IT architect, financial services

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**
Ftr	Microsoft Cloud infrastructure cost	$0	$2,126,250	$2,693,250	$2,558,594	$7,378,094	$6,081,090
Gtr	Cost to migrate and manage the Microsoft Cloud infrastructure	$630,000	$1,071,000	$756,000	$756,000	$3,213,000	$2,796,424
	Total costs (risk-adjusted)	$630,000	$3,197,250	$3,449,250	$3,314,594	$10,591,094	$8,877,514

MICROSOFT CLOUD INFRASTRUCTURE COST

Evidence and data. The interviewees' organizations paid Microsoft a monthly fee for the Microsoft Cloud infrastructure to support SAP. It was easy to understand the cost of the Microsoft Cloud infrastructure vs. the costs of the on-premises infrastructure. The enterprise architect at a food and beverage firm noted: "In [the Microsoft Cloud] you can see immediately the cost of your SAP environment and how that cost is changing month to month. This is really useful to us and was impossible on-premises."

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The composite organization pays Microsoft $225,000 per month for the Microsoft Cloud infrastructure to support SAP. The cost declines over time as the composite organization identifies operating efficiencies.
- Pricing will vary. Please contact Microsoft for additional details.

> **"Before we migrated to [the Microsoft Cloud], the only concern was performance because we have a lot of demanding SAP solutions. We found no difference in performance. We were able to do the migration with no disruption and the business didn't realize that we were in the cloud."**
>
> *Enterprise architect, food and beverage*

Risks. The Microsoft Cloud infrastructure cost will vary based on:

- The extent to which an organization uses SAP.
- The number of SAP instances.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $6.1 million.

Microsoft Cloud Infrastructure Cost						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	Microsoft Cloud infrastructure fees (monthly)	Interviews		$225,000	$213,750	$203,063
F2	Percentage of SAP environment migrated	Composite		75%	100%	100%
Ft	Microsoft Cloud infrastructure cost	F1*F2*12 months	$0	$2,025,000	$2,565,000	$2,436,756
	Risk adjustment	↑5%				
Ftr	Microsoft Cloud infrastructure cost (risk-adjusted)		$0	$2,126,250	$2,693,250	$2,558,594
	Three-year total: $7,378,094			**Three-year present value: $6,081,090**		

COST TO MIGRATE AND MANAGE THE MICROSOFT CLOUD INFRASTRUCTURE

Evidence and data. The interviewees used a combination of internal IT teams and third-party partners to migrate SAP to the Microsoft Cloud.

- The migration of SAP from on-premises to the Microsoft Cloud was seamless with no negative impact on application performance or business user experience.
- Most of the interviewees' companies used the Microsoft Cloud as their primary cloud platform, so there were operating efficiencies associated running SAP on the Microsoft Cloud.
- The business systems lead at a media and entertainment organization noted: "We are predominantly a Microsoft shop. All our applications, DevOps and other technology were moving toward [the Microsoft Cloud]. Taking our SAP environment in the same vicinity of our other applications was a seamless experience. We can share our administration and our cloud group has expertise with [the Microsoft Cloud]. From the operational side, it's a little bit easier for us to have SAP in the same environment as our other applications."

Modeling and assumptions. For the analysis Forrester assumes the following:

- The composite organization uses an internal, cross-functional team to migrate SAP to the Microsoft Cloud. The team includes infrastructure and security specialists. The team works on the migration of SAP from on-premises to the Microsoft Cloud for nine months. Ten team members work on the migration full-time for the nine-month period, resulting in 7.5 FTEs.
- Once SAP is migrated to the Microsoft Cloud, six infrastructure team FTEs support the platform.
- The average annual salary including benefits is $120,000 for infrastructure team members.

Risks. The cost to migrate and manage the Microsoft Cloud infrastructure will vary based on:

- The complexity of the migration from on-premises to the Microsoft Cloud.
- The average infrastructure team member's annual salary.

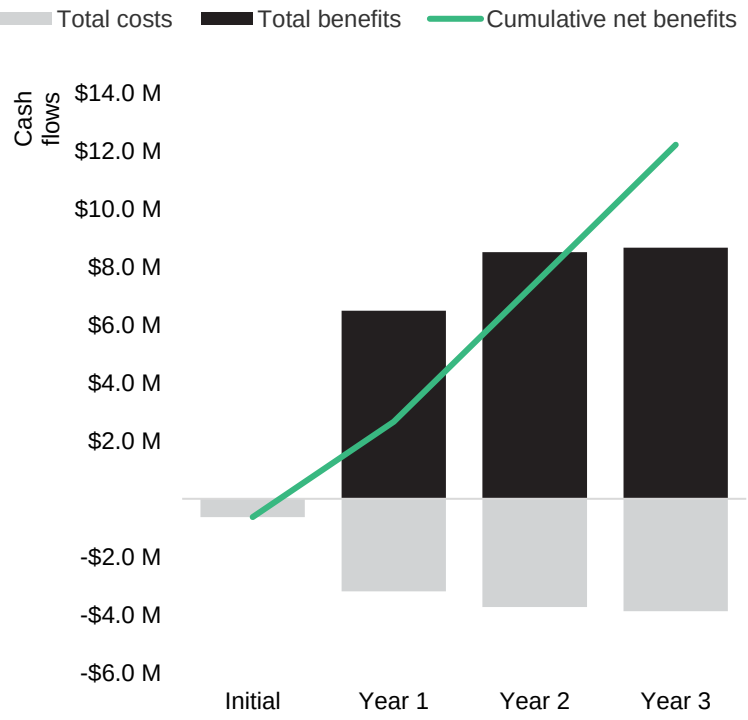
Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $2.8 million.

Cost To Migrate And Manage Microsoft Cloud Infrastructure						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
G1	Implementation and migration team (FTEs)	Interviews	5.0	2.5		
G2	Infrastructure maintenance team (FTEs)	Interviews		6	6	6
G3	Infrastructure team, annual salary fully burdened	TEI Standard	$120,000	$120,000	$120,000	$120,000
Gt	Cost to migrate and manage Microsoft Cloud infrastructure	(G1+G2)*G3	$600,000	$1,020,000	$720,000	$720,000
	Risk adjustment	↑5%				
Gtr	Cost to migrate and manage Microsoft Cloud infrastructure (risk-adjusted)		$630,000	$1,071,000	$756,000	$756,000
	Three-year total: $3,213,000			**Three-year present value: $2,796,424**		

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 Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($630,000)	($3,197,250)	($3,449,250)	($3,314,594)	($10,591,094)	($8,877,514)
Total benefits	$0	$6,475,160	$8,482,667	$8,646,467	$23,604,293	$19,393,195
Net benefits	($630,000)	$3,277,910	$5,033,417	$5,331,873	$13,013,199	$10,515,681
ROI						118%
Payback						<6 months

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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