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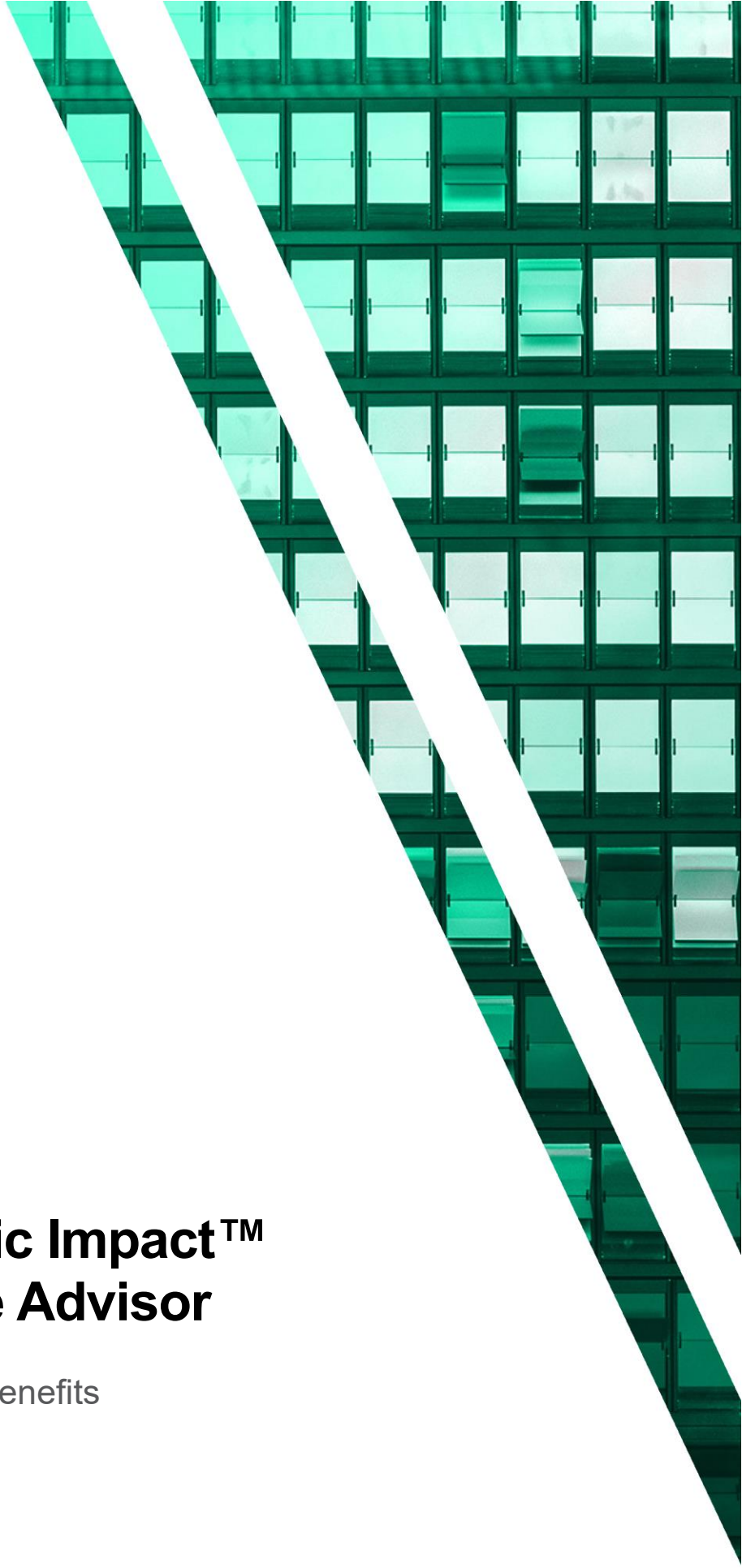

The Total Economic Impact™ Of Microsoft Azure Advisor

Cost Savings And Business Benefits Enabled By Azure Advisor

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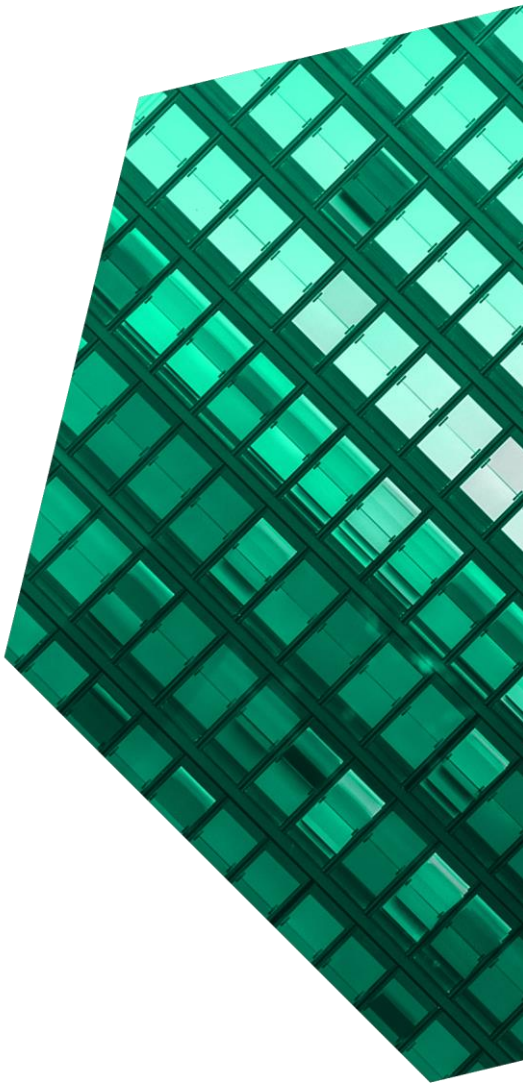


ABOUT FORRESTER CONSULTING

Forrester provides independent and objective research-based consulting to help leaders deliver key transformation outcomes. Fueled by our customer-obsessed research, Forrester's seasoned consultants partner with leaders to execute on their priorities using a unique engagement model that tailors to diverse needs and ensures lasting impact. For more information, visit forrester.com/consulting.

Executive Summary

As companies move more systems and infrastructure onto Microsoft Azure, it is becoming increasingly time-consuming to ensure that they are deployed, configured, and managed correctly. Azure Advisor provides best-practice-based recommendations to help companies optimize Azure services. Following some or all of the recommendations can reduce Azure costs, strengthen security, improve system reliability and performance, and save IT organizations time by creating operational excellence.

Azure Advisor is a no-cost tool Microsoft makes available to Azure customers. It analyzes resource configurations and uses Microsoft-defined best practices to make recommendations across five categories — cost effectiveness, security, reliability, performance, and operational excellence. Each category has associated benefits, so following the recommendations can deliver substantial improvements.

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

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five representatives with experience using Azure Advisor. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization that is a global company with 12,000 employees and $350,000 in monthly Azure spend.

KEY STATISTICS

Azure cost optimization
20%

Net present value (NPV)
$6.01M

Reduction in application performance problems:
33%

Prior to using Azure Advisor, these interviewees noted how their organizations were manually trying to manage Azure configurations without insights into best practices or where to focus their attention. This resulted in organizations spending too much time trying to optimize Azure services and not achieving the desired results. This led to Azure costs growing faster than planned, possible security vulnerabilities, system reliability and performance issues, and operations teams and developers losing valuable time.

After the investment in effort to adopt Azure Advisor, the interviewees leveraged the Azure Advisor recommendations to optimize Azure and their internal operations. Key results from the investment include optimizing Azure spend by 20% and saving IT security teams' time while improving their overall security posture. (These cost savings are consistent with those in Forrester's previous TEI study examining Microsoft Azure Cost Management And Billing.)[2] Interviewees also said that they used Azure Advisor Score, a personalized zero- to 100-point

measure based on each Azure subscription's unique usage pattern.

KEY FINDINGS

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

- **Cost optimization delivers a 20% reduction in Azure costs.** Recommendations that contribute to the savings include decommissioning unused resources such as VMs and databases, rightsizing resources, and reducing the frequency with which workloads were run. These can lead to immediate savings and increase over time as more recommendations are implemented. Over three years, this cost optimization is worth more than $1.8 million to the composite organization.
- **Delivering security recommendations in Azure Advisor reduces effort by 7.5% and improves security.** The recommendations and best practices contained in Microsoft Defender for Cloud are also served up in Azure Advisor. Interviewees said that their IT security teams often prefer to see the recommendations within Azure Advisor, which means that they save time and also implement more of the recommendations. This results in better overall IT security, which is not quantified in the study, and saves the IT organization time. The time savings is worth nearly $101,000 to the composite organization over the life of the study.
- **System reliability increases by 0.5%.** Ensuring that Azure resources are properly configured and can handle peak loads — without being overly specified — improves uptime. Interviewees said that uptime improved by 0.5 percentage points in relation to SLAs. The cost of downtime varies greatly depending on the system in question, industry, and company specifics, but for the composite organization with an hourly downtime cost of $100,000, this benefit is worth $3.8 million over three years.
- **Business users experience a one-third reduction in hours of application performance problems.** Business applications running on Azure are used by many if not all employees. Interviewees said that system performance problems could result in lost employee productivity, revenue loss, and dissatisfied customers. The composite organization achieves $329,000 in increased employee productivity over three years.
- **Implementing operational excellence recommendations saves cloud operations team members 2 hours per week.** Operational excellence recommendations include workflow efficiency, resource manageability, and deployment best practices. Interviewees said that following these recommendations, in addition to spending less time troubleshooting reliability and performance issues, saves cloud operations teams and application developers time. Over three years, these savings are worth $192,000.

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

- **Internal efforts cost $225,000 over three years.** Azure Advisor begins to make recommendations as early as 24 hours after resource creation and with no initial effort required. However, interviewees said that they do spend some time setting up tags and alerts to get more out of the recommendations. Operations teams attend some training, and most of the effort is spent researching and implementing the recommendations. Interviewees said that the effort is minimal compared to the benefits being realized.

The representative interviews and financial analysis found that a composite organization experiences benefits of $6.24 million over three years versus costs of $225,000, adding up to a net present value (NPV) of $6.01 million.

AZURE COST OPTIMIZATION
20%

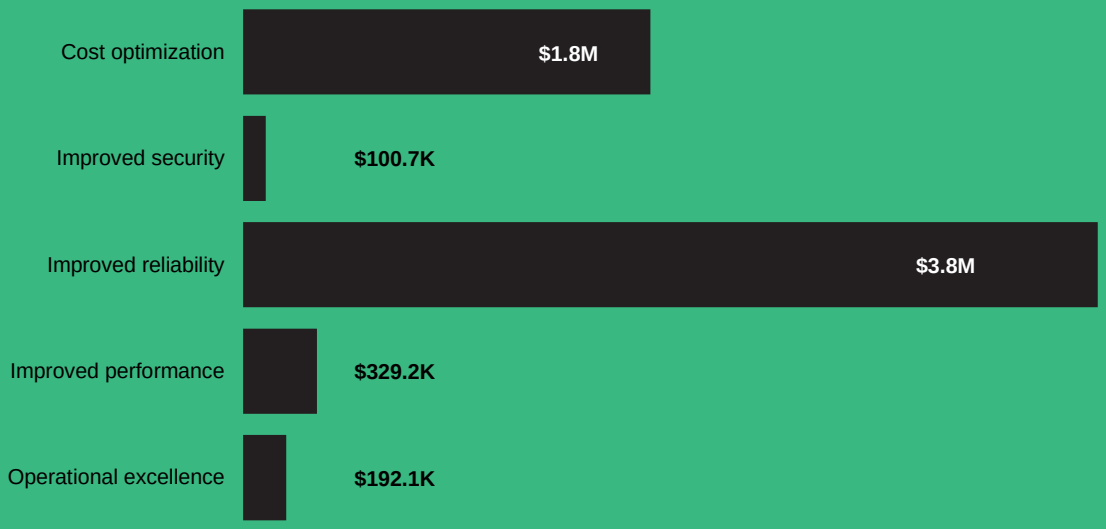
SECURITY PRODUCTIVITY GAIN
7.5%

IMPROVED RELIABILITY
0.5 percentage points

REDUCTION IN PERFORMANCE PROBLEMS
33%

OPERATIONAL EXCELLENCE PRODUCTIVITY GAIN
5%

Benefits (Three-Year)



“There is a lot of momentum to move to the cloud, but it has to be done right. Azure Advisor gives us the best practices and tracking we need to ensure we have the correct security and are managing costs.”

— Director of IT, healthcare

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 Azure Advisor.

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 Azure Advisor can have on an organization.

DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Azure Advisor.

INTERVIEWS

Interviewed five representatives at organizations using Azure Advisor 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 financial 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 Microsoft Azure Advisor Customer Journey

Drivers leading to the Azure Advisor investment

Interviews

Role	Industry	Headquarters	Monthly Average Azure Spend
Director of IT	Healthcare	US	$500,000
CEO	Professional services	US	$100,000
Head of global IT	IT services	US	$50,000
VP	Pharmaceuticals	EMEA	$4 million
Chief technology lead	Technology	US	$1 million

KEY CHALLENGES

Interviewees all talked about the IT and corporate priority their organizations placed on moving to hyperscalers to achieve scale and performance without costs and effort getting out of control. Previously, their infrastructure was a mix of on-prem and in colocation facilities.

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

- **Increasing use of Azure led to increased complexity and manual effort.** The use of Azure was expanding in terms of services, lines of business, use cases, and geographies. All of this created additional complexity that was difficult to track and manage. Increased complexity could create reliability and performance problems, and it was requiring too much manual effort to diagnose and correct.
- **Azure spending was increasing faster than expected.** The expansion of Azure use also resulted in increased costs. In many cases, this grew faster than expected or desired. It could be difficult to understand the causes of the increases and how to address them. Contributing to this problem was turnover in the IT organization as part of the "great reshuffle," which meant that new hires would want to deploy new services in Azure rather than discover what was already in place and reuse it.

> **"A lot of what we were doing before was brute force, and we were reaching the limits of the analyses we could do. With a growing Azure footprint, we could not sustain growth and optimization without Azure Advisor."**
>
> *Vice president, pharmaceuticals*

- **There was a concern that proper security was not in place.** Increased usage of Azure and increased complexity made it harder to ensure that proper security configurations were in place and that ongoing activities such as patching were happening as needed. Defender for Cloud was

providing protection, but interviewees wanted more prescriptive recommendations from Microsoft.

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a financial analysis that illustrates the areas financially affected. The composite organization is representative of the five 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 is a global company headquartered in the United States. It has 12,000 employees and $3 billion in annual revenues. Its monthly budgeted spend on Azure is $350,000 and is forecasted to grow 10% per year as more resources are moved to Azure.

Deployment characteristics. The composite organization uses a wide range of Azure foundational services — including compute, storage, networking, and databases — for production, development, staging, and QA environments. The cloud operations team responsible for Azure comprises 10 FTEs. Additionally, there are 200 cloud developers whose work involves Azure.

Employees at the composite begin to receive and analyze Azure Advisor recommendations as soon as they log in. They set up tags and alerts to focus on areas of higher impact, and they use Azure Advisor Score to understand long-term trends and set priorities. Different types of users access Azure Advisor recommendations in different ways, including via the Azure Advisor Portal and Microsoft Graph. They also use the APIs to integrate Azure Advisor with a ticketing system to automate the implementation of recommendations.

Key Assumptions

- **$350,000 monthly Azure spend.**
- **10 FTEs on the cloud ops team**
- **200 cloud app developers**

Analysis Of Benefits

Quantified benefit data as applied to the composite

Total Benefits						
Ref.	**Benefit**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Atr	Cost optimization	$399,000	$877,800	$965,580	$2,242,380	$1,813,636
Btr	Improved security	$40,500	$40,500	$40,500	$121,500	$100,718
Ctr	Improved reliability	$936,000	$1,872,000	$1,872,000	$4,680,000	$3,804,478
Dtr	Improved performance	$81,000	$162,000	$162,000	$405,000	$329,234
Etr	Operational excellence	$47,250	$94,500	$94,500	$236,250	$192,053
	Total benefits (risk-adjusted)	$1,503,750	$3,046,800	$3,134,580	$7,685,130	$6,240,119

COST OPTIMIZATION

Evidence and data. Interviewees all said that Azure Advisor helped them optimize costs from the very beginning and that the savings increased as they implemented recommendations. These savings could either result in lower total spend or offset future growth in Azure usage. Interviewees shared the following examples of how they optimized costs.

- The CEO at a professional services organization said that their costs were reduced by 25% over a two-year period. The main contributing factors were avoiding additional VMs being spun up by new hires and by ensuring that existing VMs were right-scaled and decommissioned when no longer needed.
- The head of global IT at an IT services company said that they saved 10% early on and expected to save an additional 10% as they used advanced features to find and decommission underutilized databases. These savings would occur while also providing better service to the organization.
- The VP at a pharmaceutical company reported that they were able to achieve a 20% cost savings by reducing how frequently certain workloads ran and by deactivating storage, tables, and user licenses that were no longer required.

> **"We no longer overspend on infrastructure, and we no longer oversize new Azure resources. Our goal is to not spend more money despite adding Azure resources."**
>
> *Head of global IT, IT services*

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- The average monthly Azure spend is $350,000, and it is forecast to increase 10% each year as more resources are moved to Azure.

- Cost optimization results in a 10% savings in the first year as the recommendations are analyzed and implemented. This increases to 20% as the backlog is closed out and Azure Advisor makes more personalized recommendations as it better learns the unique deployment characteristics

Risks. The following risks may result in this benefit being lower than that achieved at the composite organization:

- There are already processes and automation put in place to optimize costs.
- The use of Azure is very limited in size and complexity.

Results. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted PV (discounted at 10%) of more than $1.8 million.

Cost Optimization

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Total annual Azure budgeted spend prior to cost reductions enabled by Azure Advisor	$350,000*12 (growing 10% YoY)	$4,200,000	$4,620,000	$5,082,000
At	Cost optimization	Y1: A1*10% Y2 and Y3: A1*20%	$420,000	$924,000	$1,016,400
	Risk adjustment	↓5%			
Atr	Cost optimization (risk-adjusted)		$399,000	$877,800	$965,580
	Three-year total: $2,242,380			**Three-year present value: $1,813,636**	

IMPROVED SECURITY

Evidence and data. Ensuring that Azure was properly secured was a top priority for all interviewees. This urgency is supported by Forrester's research. Forrester's Business Technographics® survey of 490 security decision-makers found that their public cloud instances were targeted in 22% of all external attacks.[3] Additionally, 108 survey respondents (32%)said that the most frequent cost of a public cloud breach was between $2 million and $5 million.[4] A component of these costs is the internal effort to detect, contain and remediate breaches. Interviewees shared the following examples of how Azure Advisor improved their security and associated effort:

- The CEO at a professional services organization said that they were able to detect 15% to 18% more threats before they were successful, but it was very difficult to put a dollar value against a specific breach. He also said that the security team was saving 10% to 15% of their time with Azure Advisor.
- The head of global IT at an IT services organization explained that a lot of analysis needed to go into understanding the security recommendations made by Azure Advisor, and they typically implement 60% of the recommendations. The IT team saved approximately 5% of their time.
- The VP at a pharmaceutical company said that their self-service approach to rolling out Azure meant that proper access controls were not in place. Azure Advisor helped them a lot in the area of identity and access management (IdAM).

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- The security benefit for reduction in successful breaches is not included because the likelihood and cost of a breach varies greatly across organizations. Additionally, the recommendations presented in Azure Advisor are also included in Defender for Cloud, so if an organization is acting on recommendations there, it may not further reduce the likelihood of a breach. Nonetheless, the reader should take this into consideration when considering the total economic impact on their organization.
- There are 10 FTEs on the security team responsible for cloud security, and their effort is reduced by 7.5% because Azure Advisor recommendations help them identify potential vulnerabilities and correct them faster. This time can be used to perform other IT security activities.
- The fully burdened cost of an IT security resource, including salary, benefit, and payroll taxes, is $120,000 per year.
- Because not all time saved results in additional work being completed, a 50% productivity realization factor was applied.
- A standard work year is assumed to comprise 2,080 hours.

Risks. The following risks may result in this benefit being lower than that achieved at the composite organization.

- Whether an organization is following the recommendations in Defender for Cloud.

"Azure Advisor helped us put in place preventative measures and detect vulnerabilities. The number of successful attacks has decreased."

CEO, professional services

- If the Azure environment is smaller and less complex, creating fewer security threats.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $101,000.

Improved Security

Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of security team resources (FTEs)	Composite	10	10	10
B2	Time savings per FTE (hours)	2,080*7.5%	156	156	156
B3	Average fully burdened hourly rate for a security team FTE	TEI standard	$57.69	$57.69	$57.69
B4	Productivity realization factor	TEI standard	50%	50%	50%
Bt	Improved security	B1*B2*B3*B4	$45,000	$45,000	$45,000
	Risk adjustment	↓10%			
Btr	Improved security (risk-adjusted)		$40,500	$40,500	$40,500
	Three-year total: $121,500			**Three-year present value: $100,718**	

IMPROVED RELIABILITY

Evidence and data. Interviewees said that Azure Advisor helped with reliability both in terms of total uptime and meeting service-level agreements (SLAs). Right-scaling Azure services, removing unnecessary complexity, and identifying performance problems before they rise to the level of an outage all contribute to this benefit. Interviewees shared the following examples:

- The CEO at the professional services organization reported that uptime increased from 97.8% to 98.3%. This meant that the organization could better meet SLAs, saving it $150,000 per year in penalties.
- The head of global IT at an IT services organization said that they experienced less downtime because developers can spot problems before they become an outage. They estimated that Azure Advisor increased the SLA success rate from 99.5% to 99.9%.
- The chief technology lead at a technology company pointed out that in addition to improving uptime, Azure Advisor helped with backup and disaster recovery performance.

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- Uptime improves from 97.8% to 98.3%. Half of this benefit is realized in Year 1 as more Azure Advisor recommendations are implemented.
- The services for which Azure Advisor is making recommendations have a planned availability of Monday through Friday (260 workdays) and 18 hours per day.
- The cost of unplanned downtime is $100,000 per hour, based on one interviewee's estimate. The cost of downtime can vary greatly depending on the affected systems' purpose, industry, company size, etc. Therefore, readers should take into consideration what their organizations' cost of downtime is when evaluating the value of Azure Advisor.

Risks. The following risks may result in this benefit being lower than achieved at the composite organization:

- Reliability is already being fully optimized.
- The cost of downtime being lower than the $100,000 used in the financial analysis.

Results. To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV of $3.8 million.

> **"Uptime has improved by using Azure Advisor. That is important because state and federal regulations have uptime requirements in the healthcare industry, and patients' lives can be at risk."**
>
> *CEO, professional services*

Improved Reliability

Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Uptime improvement	Interviews	0.25%	0.50%	0.50%
C2	Reduction in unplanned outage (hours)	A1*260*18	11.7	23.4	23.4
C3	Hourly cost of unplanned downtime	Interviews	$100,000	$100,000	$100,000
Ct	Improved reliability	C1*C2*C3	$1,170,000	$2,340,000	$2,340,000
	Risk adjustment	↓20%			
Ctr	Improved reliability (risk-adjusted)		$936,000	$1,872,000	$1,872,000
	Three-year total: $4,680,000			**Three-year present value: $3,804,478**	

IMPROVED PERFORMANCE

Evidence and data. Improved performance is similar to improved reliability but looks at speed and impacts before they reach the level of a full outage. All interviewees reported improved performance across a wide range of Azure services. The effects of performance problems varied based on the service and the user population. Interviewees shared the following examples:

- The director of IT at a healthcare organization said that they received many complaints about slow performance. The total hours of performance problems were reduced by one-third with Azure Advisor. A system performance issue could affect 500 business users. The director also said that the mean time to remediation improved by 30%, which improved customer satisfaction and reduced the number of help desk tickets.
- The CEO of a professional services organization said that they were able to improve application speeds, which meant projects were completed 20% faster.
- The head of IT at an IT services organization said that Azure Advisor database-tuning recommendations improved performance by 10% to 20%.
- The VP at a pharmaceutical organization reported that Azure Advisor recommendations to improve the finance department analytics engines cut month-end close from eight days to four.

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- To avoid double-counting, this benefit looks at the impact on business users. IT time savings resolving performance and reliability issues is included in the Operational Excellence section.

> **"We had performance problems with business-critical applications, which could delay business processes by 1.5 hours. Azure Advisor helped fix this."**
>
> *Director of IT, healthcare*

- Implementing Azure Advisor recommendations reduces the hours of application performance problems by one-third. The remaining problems are not Azure-specific.
- Half the benefit is realized in Year 1 as more recommendations are implemented.
- Any given application performance event affects 250 business users, on average.
- The average fully burdened cost of a business user, including salary, benefits, and taxes, is $40 per hour.
- Because not all time saved results in more work being accomplished, a 50% productivity factor is applied.

Risks. The following risks may result in this benefit being lower than that achieved at the composite organization:

- Applications are already optimized to avoid Azure-related performance problems.
- Performance problems impact fewer uses, or their fully burdened cost is lower.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $329,000.

Improved Performance

Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Reduction in application performance problems (hours)	9*33%*12	18	36	36
D2	Number of affected business users	Composite	250	250	250
D3	Averaged fully burdened hourly rate for a business user	TEI standard	$40	$40	$40
D4	Productivity realization factor	TEI standard	50%	50%	50%
Dt	Improved performance	D1*D2*D3*D4	$90,000	$180,000	$180,000
	Risk adjustment	↓10%			
Dtr	Improved performance (risk-adjusted)		$81,000	$162,000	$162,000
	Three-year total: $405,000			**Three-year present value: $329,234**	

OPERATIONAL EXCELLENCE

Evidence and data. Operational excellence recommendations are about process and workflow efficiency, resource manageability, and deployment best practices. Interviewees reported that different IT groups saved time by following prescribed best practices and because less time was spent troubleshooting the reliability and performance issues discussed earlier. Interviewees shared the following operational excellence examples:

- The director of IT at a healthcare organization said that optimizing services and systems saved the cloud operations team upward of 80 hours per month.
- The CEO of a professional services organization reported that workflow efficiencies saved people time across many different IT departments. He estimated that people in the operations team each saved 2 to 3 hours per week.
- The head of global IT at an IT services organization estimated that 150 developers and DevOps workers save 1 hour per month. He also said that they avoided hiring an external contractor who would have cost $100,000 per year.
- The VP at a pharmaceutical organization reported achieving operational efficiencies in two areas. First, the overseas operations staff previously would try to resolve failed workloads without doing root cause analysis to avoid the problems from recurring. They were able to reduce this by 20%. Second, scaling the environment became more routinized, which saved significant time. The VP estimated that the relevant parts of the operations team saved 30% of their time.
- The chief technology lead at a technology organization explained that being able to access Azure Advisor using the portal, APIs, and/or graph was more efficient than creating custom code, which saved people time.

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- Each of the 10 people on the cloud operations team saves 2 hours per week. Half of this benefit is realized in Year 1 as more recommendations and best practices are implemented.
- Two hundred developers save 15 minutes per week by not having to do their own troubleshooting and waiting on Azure resources to become available. This benefit also phases in during the first year.
- The fully burdened hourly cost is based on an annual cost of $120,000.
- As with the other productivity benefits, a 50% realization factor is applied.

Risks. The following risks may result in this benefit being lower than that achieved at the composite organization:

- Operational systems and processes have already been optimized, reducing the opportunity for improvement.
- The fully burdened cost is lower.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $192,000.

> **“Azure Advisor facilitates Azure efficiencies, which translates into time savings for a lot of people in IT.”**
>
> *Chief technology lead, technology*

Operational Excellence					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
E1	Number of cloud operations FTEs	Composite	10	10	10
E2	Operations team savings (hours)	E1*2 hours*52 weeks [50% realized in Year 1]	520	1,040	1,040
E3	Number of developer FTEs	Composite	200	200	200
E4	Developer savings (hours)	E3*0.25 hours*52 weeks [50% realized in Year 1]	1,300	2,600	2,600
E5	Average fully burdened cost (hourly)	TEI standard	$57.69	$57.69	$57.69
E6	Productivity realization factor	TEI standard	50%	50%	50%
Et	Operational excellence	(E2+E4)*E5*E6	$52,500	$105,000	$105,000
	Risk adjustment	↓10%			
Etr	Operational excellence (risk-adjusted)		$47,250	$94,500	$94,500
	Three-year total: $236,250			**Three-year present value: $192,053**	

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Azure Advisor and later realize additional uses and business opportunities. These can include expanding Azure Advisor use to cover added Azure services, focusing on different benefit categories, and rolling out to other lines of business and geographies.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A). None of these future opportunities is included in the financial analysis.

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	Internal effort	$124,731	$40,338	$40,338	$40,338	$245,746	$225,047
	Total costs (risk-adjusted)	$124,731	$40,338	$40,338	$40,338	$245,746	$225,047

INTERNAL EFFORT

Evidence and data. Azure Advisor is provided at no cost to organizations with Azure subscriptions, and it starts making recommendations from the very first time it is accessed, with no user effort required. That said, interviewees reported that there was internal effort necessary to fully take advantage of Azure Advisor. These efforts include the initially configuring tags and alerts, training the team who will be interacting the most with Azure Advisor, analyzing and implementing the recommendations, and creating configurations as new Azure services are added on an ongoing basis.

"Compared to other technology implementations in healthcare, this was a piece of cake."

CEO, professional services

Modeling and assumptions. Forrester made the following assumptions for the financial analysis:

- Two FTEs spend two weeks setting up tags and alerts and generally configuring Azure Advisor.
- Each member of the cloud operations team receives two days of training.
- There is an initial eight-month period in which Azure Advisor makes many recommendations. This creates a backlog of recommendations that need to be prioritized, researched, and, if appropriate, acted upon.
- The use of Azure Advisor then becomes business as usual, and there is much less remediation effort required in the subsequent three years.
- Ongoing configuration efforts, such as setting up new tags and alerts for new and changed Azure services, take two person-days (16 hours) per month.
- A $120,000 annual fully burdened cost is used.

Risks. The following risks may result in this cost being higher than realized at the composite organization:

- A more complex Azure environment creates more recommendations, which results in more remediation effort.
- The fully burdened cost is higher.

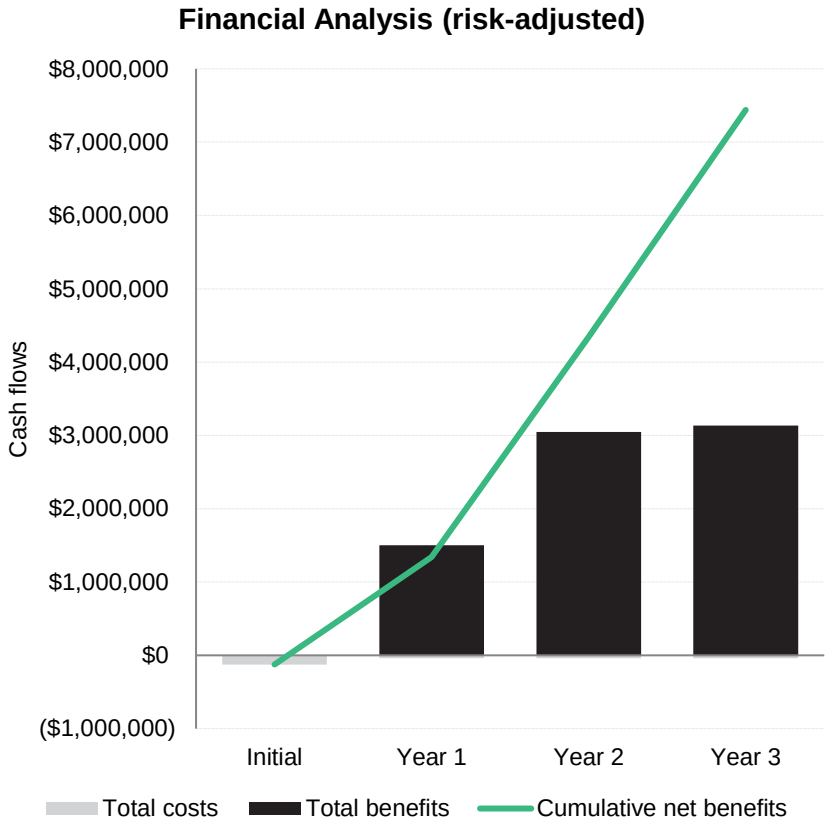
Results. To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $225,000.

Internal Effort

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
F1	FTEs required to set up tags and alerts	Composite	2			
F2	Time required for initial setup (hours)	Composite	80			
F3	Average fully burdened hourly rate for IT FTE	TEI standard	$57.69			
F4	Azure Advisor initial configuration	F1*F2*F3	$9,231			
F5	FTEs receiving training	Composite	10			
F6	Azure Advisor training	F3*16 hours*F5	$9,231			
F7	Remediation effort	Initial: 39 weeks*40*F3 Y1 through Y3: 52*8 *F3	$90,000	$24,000	$24,000	$24,000
F8	Ongoing Azure Advisor configuration	12*16*F3		$11,077	$11,077	$11,077
Ft	Internal effort	F4+F6+F7+F8	$108,462	$35,077	$35,077	$35,077
	Risk adjustment	↑15%				
Ftr	Internal effort (risk-adjusted)		$124,731	$40,338	$40,338	$40,338
	Three-year total: $245,746			**Three-year present value: $225,047**		

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS



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

These risk-adjusted 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	($124,731)	($40,338)	($40,338)	($40,338)	($245,746)	($225,047)
Total benefits	$0	$1,503,750	$3,046,800	$3,134,580	$7,685,130	$6,240,119
Net benefits	($124,731)	$1,463,412	$3,006,462	$3,094,242	$7,439,384	$6,015,072

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.

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.

[2] Source: "The Total Economic Impact™ Of Microsoft Azure Cost Management And Billing," a commissioned study conducted by Forrester Consulting on behalf of Microsoft, February 2021.

[3] Source: Forrester's Security Survey, 2022. Base: 490 security decision-makers with network, data center, app security, or security ops responsibilities who experienced an external attack when their company was breached.

[4] Source: Forrester's Security Survey, 2022. Base: 108 security decision-makers with network, data center, app security, or security ops responsibilities who have experienced a breach in the past 12 months.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