FORRESTER®

The Total Economic Impact™ Of Microsoft Edge
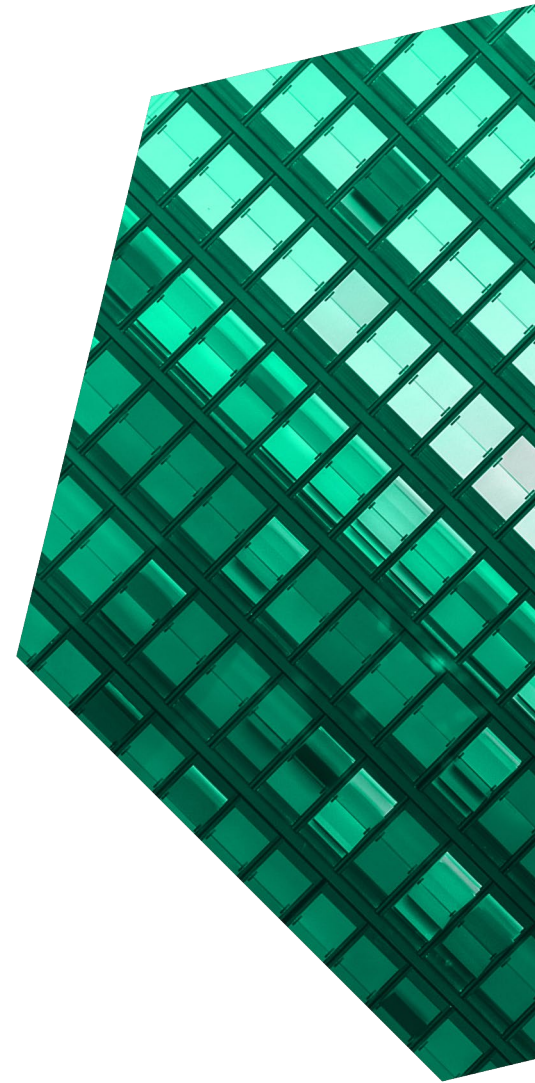
Cost Savings And Business Benefits Enabled By Microsoft Edge

MAY 2021

Table Of Contents

Consulting Team: *Julia Fadzeyeva*
Sanitra Desai

Executive Summary

> "The new Edge is a modern browser with the Chromium-based engine and IE mode that provides both compatibility and performance. It gave us that privacy or that confidence that our data wasn't going someplace that we didn't want to go. And then, the icing on the cake for us, is that it provides a continuity of the Microsoft experience, connecting all our channels to create a full Microsoft ecosystem." — *Executive, enterprise services, professional services*

Microsoft Edge is a web browser from Microsoft with a Chromium open-source base and added benefits of Microsoft innovations and security.

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 Microsoft Edge. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Microsoft Edge on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed eight customers with experience using Microsoft Edge and surveyed 40 enterprises who went through an application modernization process. For the purposes of this study, Forrester aggregated the experiences of the interviewed and surveyed customers and combined the results into a single composite organization.

Today, many enterprises offer a large portfolio of older web applications, known as legacy applications, to their employees. This portfolio typically requires end users to use a legacy browser, which is often slow and doesn't work well with modern sites. To supplement for the legacy browsers' shortcomings, employees typically take it upon themselves to download and adopt more modern browser alternatives that IT does not manage, threatening enterprise governance and security.

KEY STATISTICS

Return on investment (ROI)
22x implementation and management costs

Implementation and management costs
$198K

Companies often look to provide a more optimal browsing experience for employees but do not always have the resources to modernize legacy applications. Therefore, they stay tied to legacy browsers for economic reasons. The size of the legacy web app portfolio, accrued over many years, may be surprisingly large. Forrester's survey of 40 enterprise decision-makers found that organizations had, on average, 1,678 proprietary legacy web apps.[1] The average cost to modernize a legacy app was estimated at $335K.[2]

Prior to using Microsoft Edge, the customers allowed modern and legacy browsers to coexist to avoid costly modernization, and experienced productivity loss and end-user dissatisfaction as users had to switch between browsers to use different websites. As a result, IT weighed the costs of modernization, governance, security, and productivity when choosing an optimal browser solution.

Legacy Apps At Enterprises

1,678	**$335,000**
Average number of internal custom-built or proprietary web applications requiring Internet Explorer	Average cost of app modernization project

Source: A commissioned survey of 40 enterprise decision-makers conducted by Forrester Consulting on behalf of Microsoft, February 2021.

After Microsoft announced the new Edge browser, which is a Chromium-based browser that offers Internet Explorer (IE) mode, decision-makers decided utilizing it could help solve their organization's legacy issues. Deployment of Edge eliminated the need to rebuild existing work-critical applications, reduced burden on developers to ensure compatibility with the legacy technology, and improved organizational security and employee productivity — all at no additional license costs to the enterprise.

KEY FINDINGS

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

- **Increased productivity due to the Microsoft Edge browser, leading to over $2.2M in labor cost savings over three years.** Customers found that the new Edge browser improved performance, reduced page loading times, and enabled continuity through new enterprise features and integration with Microsoft 365. The customers reported that employees throughout the organization saw at least 3 minutes of daily

> **"As an IT organization, we want to provide the best user experience to our users. So, we wanted to have a browser that could do both Internet Explorer 11 and Chromium-based rendering. And then we piloted [the new Edge] and saw that the simplicity of the IE mode was a winner for the end users."**
>
> *Service architect, pharmaceuticals*

productivity savings due to better browser performance and enhanced enterprise features.

- **Avoided cost of legacy application modernization from using IE mode, leading to almost $1.2M total savings.** Decision-makers relied on IE mode in the Microsoft Edge browser to provide seamless access to their legacy IE applications, avoiding the need to redesign

critical legacy applications for modern browsers. For the purposes of the study, Forrester assumes that five legacy applications were due for modernization over the next three years. This best reflects the experience of customers at the time of interviews. This assumption would be different if Internet Explorer is retired. To better understand scenarios in that case, please see the "Flexibility" section. You may also want to run a custom analysis for your organization with this calculator.

> **"[With Edge] we got performance and compatibility. We got the data that we wanted to stay where we wanted to it to stay, and our users got a great single sign-on experience. Edge is a better option for our end users."**
>
> *Executive, enterprise services, professional services*

- **Increased productivity due to IE mode, leading to $604.2K in labor cost savings over three years.** In addition to faster speed and useful enterprise features, the new Edge eliminated the need for the end users to switch between legacy and modern browsers for different tasks, making workflows more seamless and streamlined. Reduction in browser switching resulted saved each employee 10 minutes of productive time per week.

- **Decreased chance of major security breach due to stronger organizational security, leading to $218.9K in savings.** When

organizations used legacy browsers as default, end users frequently downloaded unsupported modern browsers to improve their web experience. These presented a security loophole for IT. With the new Edge, IT could stop the use of unauthorized browsers and take advantage of Microsoft Edge's advanced built-in security capabilities and faster security updates.

- **Reduced demands on developers, leading to $161K in savings.** Prior to using Edge, interviewees had to ensure that the products they developed could function on both modern and legacy browsers. Post-Edge deployment, developers build, test, and deploy business applications for modern technology only.

- **Reduced quantity of browser support tickets by 20%.** Prior to new Microsoft Edge, employees periodically contacted help desk for guidance on browser-related issues. With the new Edge's simple and seamless experience, organizations saw a reduction in browser-related support tickets.

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

- **Maximized ROI for Microsoft 365.** Knowledge workers interact with a browser daily, and organizations used Edge's capabilities to take advantage of its synergy with other Microsoft technologies, including Microsoft management, security, and compliance, productivity tools, and support agreements.

- **Synced data across devices.** Edge delivers seamless transfer of user settings, history, favorites, extensions, and open tabs when resetting or switching devices. Both users and IT professionals enjoy this benefit.

- **Improved employee experience.** Prior to the new Edge browser, employee experience was limited because web app capabilities were constrained to older web standards. The new

Edge is compatible with modern web standards due to its Chromium base and also has new capabilities built in, such as single sign-on, to make it easy and effortless to work with multiple web apps.

Costs. Risk-adjusted PV costs include:

- **Implementation and testing.** Internal team members planned for and deployed Edge over the course of three months. This cost equates to a risk-adjusted present value of $132K.

- **Change management.** Interviewees dedicated resources to employee education about the new Edge's capabilities and advantages. Their time sums to a risk-adjusted three-year present value of $46K.

- **Ongoing management.** Interviewees dedicated resources to manage browser enterprise settings, policies, security, compliance, and enabling new features. This cost equates to a risk-adjusted present value of $19K.

The customer interviews and financial analysis found that a composite organization experiences benefits of $4.5M over three years versus costs of $198K, adding up to a net present value (NPV) of $4.3M.

BENEFITS PV

$4.5M

NPV

$4.3M

IMPLEMENTATION TIME

3 months

IMPLEMENTATION AND MANAGEMENT COSTS

$198K

Benefits (Three-Year)

Productivity savings from using Microsoft Edge	$2.2M
Avoided application modernization from using IE mode in Edge	$1.2M
Productivity savings from using IE mode in Edge	$604.2K
Stronger organizational security	$218.9K
Developer resource savings	$161.1K
Savings from reducing burden on the help desk	$159.2K

There are additional productivity benefits when Microsoft Search is used as a default search in the new Edge browser. To learn more, please refer to the Forrester Microsoft Search in Bing TEI study.

Many organizations have a large legacy web app portfolio. To calculate benefits that reflect the size and shape of your organization, please use this calculator. The calculator also has the option to assess the additive impact of Microsoft Edge when used with Microsoft Search.

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews and survey, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Microsoft Edge.

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 Microsoft Edge 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 report to determine the appropriateness of an investment in Microsoft Edge.

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.

Forrester fielded the double-blind survey using a third-party survey partner.

DUE DILIGENCE
Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Microsoft Edge.

CUSTOMER INTERVIEWS AND SURVEY
Interviewed eight business and technical decision-makers and surveyed 40 decision-makers at organizations using the Edge browser to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed and surveyed decision-makers' organizations.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interviews and survey 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.

KEY CHALLENGES

Forrester interviewed eight organizations and surveyed 40 organizations with experience using Microsoft Edge. For more details on the organizations that participated in this survey, see Appendix B.

Interviewees' organizations had a significant number of work-critical applications that could only be opened from legacy browsers, such as Internet Explorer 11 (IE11). For any other sites and applications, the old browsers did not work well — they were slow, and the sites did not render properly. "We couldn't view our own website, which was, of course, a little bit embarrassing," said one interviewee.

The interviewees' organizations struggled with common challenges, including:

- **Legacy browsers' speed and performance.** Many of the interviewees reported that employees were frustrated with constant browser switching. Employees had to use legacy browsers to access internal sites and applications and modern browsers to work with external products. In addition to losing time in the process, in some cases, employees had to work with IT to resolve compatibility issues, which slowed them down even further.

> **"In our previous setup, some things would launch in one browser, while other applications would launch in a different browser. This would confuse end users and hinder their productivity flow. None of them liked the experience."**
>
> *Desktop deployment architect, pharmaceuticals*

- **A lack of resources to modernize legacy applications.** Interviewees understood the need to eventually sunset their legacy applications and migrate to a modern browser, but they did not have the budget and the resources to rebuild the existing internal tools to make them compatible with modern browsers.

> **"My concern was that we were not properly controlling [other browsers]. We did not want to limit the users, but we had to be able to manage what they used."**
>
> *Senior technical lead, healthcare*

- **Threats to enterprise governance and security.** To gain access to external tools and websites, employees started downloading modern browsers that offered the desired functionality. But the organizations' IT departments did not properly secure, manage, or support these modern browsers. Organizations were concerned about the increasing levels of risk for companies' data security.

SOLUTION REQUIREMENTS

The interviewees searched for a solution that could:

- Provide a single browser that would allow employees to access both new and legacy applications without compromising speed, security, and performance.

- Give IT enterprise-level control to centrally deploy custom rules and policies across devices.

- Keep IT teams' effort low with automated upgrades and security updates, and included vendor support at no additional cost.

- Eliminate the need to ensure product compatibility with legacy browsers, reducing the burden on developers.

- Improve employee experience with syncing preferences from bookmarks, settings, extensions, open tabs, and browsing history across all devices.

Key assumptions
- **$10 billion in annual revenue**
- **50,000 employees**
- **40% of employees are knowledge workers**
- **Worldwide operations**
- **Microsoft 365 customer**

COMPOSITE ORGANIZATION

Based on the interviews and survey, Forrester constructed a TEI framework, a composite company, and a ROI analysis that illustrates the areas financially affected. The composite organization is representative of the eight companies that Forrester interviewed and the 40 companies that Forrester surveyed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The composite organization is a large global company with $10 billion in annual revenue and 50,000 employees. The organization recently introduced the new Edge browser to replace its former Internet Explorer 11 browser. Sixty percent of the employees adopt the new Microsoft Edge in the first year, and adoption continues to grow as the organization educates users about the advantages of the new browser. The organization does not support other browsers but does not block users from accessing them if they choose to do so.

Deployment characteristics. The organization is a Microsoft 365 customer. It had previously been using IE11 as the legacy browser, although employees could choose their preferred platform based on their needs. The organization knew that this lack of a unified browser for apps, tools, and solutions hindered end-user productivity while frustrating IT. Therefore, the organization transitions to Microsoft Edge to provide a modern browser with compatibility, performance, security and compliance, while remaining in the Microsoft ecosystem and improving employee experience.

The organization takes a phased approach to deploying Microsoft Edge across the entire organization with 60% of employees adopting it in the first year. Initial implementation and testing lasted approximately three months and required 4 FTEs.

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	Productivity savings from using Microsoft Edge	$680,400	$1,020,600	$1,020,600	$2,721,600	$2,228,808
Btr	Avoided application modernization from using IE mode in Edge	$284,750	$569,500	$569,500	$1,423,750	$1,157,399
Ctr	Productivity savings from using IE mode in Edge	$136,080	$272,160	$340,200	$748,440	$604,232
Dtr	Stronger organizational security	$75,970	$94,962	$94,962	$265,894	$218,891
Etr	Developer resource savings	$64,800	$64,800	$64,800	$194,400	$161,148
Ftr	Savings from reducing burden on the help desk	$48,600	$72,900	$72,900	$194,400	$159,201
	Total benefits (risk-adjusted)	$1,290,600	$2,094,922	$2,162,962	$5,548,484	$4,529,679

PRODUCTIVITY SAVINGS FROM USING MICROSOFT EDGE

Evidence and data. For employees in the interviewees' organizations, a browser was one of the major tools used to complete their daily work. Having a default browser that lacked speed, performance, and compatibility with modern web applications served as a hurdle to employee productivity, rather than an empowering instrument. With the Edge browser, organizations provided their employees with seamless access to sites and applications, reduced downtime, enabled continuity through new enterprise features, and provided tight integration with Microsoft 365.

- All interviewees' organizations experienced an increase in user productivity from faster speed or better enterprise features, as compared to their legacy browsers.

- A financial services company that transitioned from IE11 observed a daily time savings of 5 to 10 minutes per user. They attributed this to the new Edge features, such as the Microsoft Graph-powered enterprise landing page and default use of Microsoft Search in Bing for work-related searches, in addition to faster browser speed.

> **"It's really helping my efficiency because almost all of my content is in Office 365. I can click on any one of those documents and I'm right in that document and already working."**
>
> *Head of enterprise services team, professional services*

- For a professional services organization that previously primarily relied on a competitive modern browser, the new landing page was a major factor contributing to user productivity. The

head of enterprise services team at this company stated: "When you open a new tab, what shows up are the Office 365 documents that you've most recently been working on. It allows me to quickly find what I'm likely to be looking for because I need to continue working on a deck, or a document, or a spreadsheet."

Modeling and assumptions. For the composite organization, Forrester assumes:

- Forty percent of the 50,000 employees are knowledge workers. Sixty percent adopt the Edge browser once it becomes available. The organization allows multiple browsers, and some users choose to use alternative browsers. In the second and third year, as the word-of-mouth spreads about the benefits of Edge, the adoption rate goes up to 90%.

- The average time savings per user per day with Edge is 3 minutes.

- An average business user's hourly burdened rate is $35.

- Fifteen percent of the total time saved per user is applied directly back to revenue-generating tasks and is included in the benefit calculation. Individual users may apply additional time savings toward professional development, networking, and work-life activities, which are not included in the benefit.

Risks. This time savings, productivity recapture rate, and adoption will vary with:

- The organization's commitment to educating employees about the features and capabilities of the Edge browser.

- The degree to which employees adopt these new features and utilize them in a productive manner.

- Employees' roles and salaries.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $2.2 million.

Productivity Savings From Using Microsoft Edge					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
A1	Number of employees		50,000	50,000	50,000
A2	Percentage of employees who are knowledge workers		40%	40%	40%
A3	Percentage of employees who adopt Microsoft Edge		60%	90%	90%
A4	Average time saved per day from using Microsoft Edge (minutes)		3	3	3
A5	Hours saved per employee with Microsoft Edge	A4/60*240 days	12	12	12
A6	Average business-user hourly burdened rate		$35	$35	$35
A7	Productivity recapture		15%	15%	15%
At	Productivity savings from using Microsoft Edge	A1*A2*A3*A5*A6*A7	$756,000	$1,134,000	$1,134,000
	Risk adjustment	↓10%			
Atr	Productivity savings from using Microsoft Edge (risk-adjusted)		$680,400	$1,020,600	$1,020,600
	Three-year total: $2,721,600		**Three-year present value: $2,228,808**		

AVOIDED APPLICATION MODERNIZATION FROM USING IE MODE IN EDGE

Evidence and data. Interviewees' organizations understood the need to eventually transition to a modern browser due to security and access functionality available through today's web standards. But rebuilding the existing portfolio of critical applications to make them compatible with modern browsers was costly and required additional resources. With the new Edge browser's IE mode, organizations could continue relying on their legacy applications in a seamless manner and avoid the need to rearchitect applications for use with modern browsers, thus saving organizations hundreds of labor hours in migration work per application.

Modeling and assumptions. Forrester conducted a survey of 40 decision-makers responsible for migration and modernization of applications for

Average number of legacy internal custom-built or proprietary applications requiring Internet Explorer: **1,678 applications**

modern browsers. The survey helped us conclude that:

- The composite organization takes a gradual approach to modernizing applications, and only focuses on the most critical tools, eventually finding replacements and retiring less critical ones over time. For the purposes of the study, Forrester assumes the modernization of five applications. This best reflects the customers' experience at the time of the interviews. The

survey completed with this study shows that the number of applications can be in the thousands for organizations heavily relying on IE.

- The cost of rearchitecting an application varies based on the size of a project and ranges from $171,000 to $565,000. The average time to modernize a legacy application was seven months. For the composite organization, Forrester is using the cost for an average modernization project of $335,000.

In the case of Internet Explorer's retirement, you may want to consider the size of your entire legacy web app portfolio to understand the economic impact of IE mode. Please see the "Flexibility" section to consider scenarios appropriate to you and/or use this calculator to run a custom analysis for your organization.

Risks. The avoided cost of application modernization would vary based on:

- The size, scope, and complexity of an organization's legacy application portfolio.

- Organization's urgency for application modernization.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1.16 million.

Avoided Application Modernization From Using IE Mode In Edge					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
B1	Initial number of applications/sites for modernization	Assumption	1	2	2
B2	Cost of one site/application migration	Survey	$335,000	$335,000	$335,000
Bt	Avoided application modernization from using IE mode in Edge	B1*B2	$335,000	$670,000	$670,000
	Risk adjustment	↓15%			
Btr	Avoided application modernization from using IE mode in Edge (risk-adjusted)		$284,750	$569,500	$569,500
	Three-year total: $1,423,750		**Three-year present value: $1,157,399**		

PRODUCTIVITY SAVINGS FROM USING IE MODE IN EDGE

Evidence and data. Most interviewees' organizations used multiple sites and applications that were created for IE and did not work on modern browsers. As a result, end users were required to access those sites and applications using legacy browsers. If they continued to use default browsers with modern websites, they had to settle for lower speed and limited performance. Many users chose to switch between legacy and modern browsers throughout their day, which resulted in disruptions to workflow.

- Frustratingly slow speeds of the legacy browsers and browser-switching disruptions impacted employee productivity. To address this issue, the new Edge browser offers IE mode, the functionality that allows users to access legacy work-critical sites and external sites in a single browser. It uses the integrated Chromium engine for modern sites, and it uses the Trident MSHTML engine from IE11 for legacy sites.

- Microsoft Edge eliminated the need for end users to switch browsers between tasks, making the work process more seamless and streamlined.

- As the architect engineer for desktop development from a pharmaceuticals company explained, using IE mode is seamless for end users and does not require any extra actions: "They just click on the link and it goes through. It appears to them that they are running it in Edge, even though it is actually using the IE mode." said the architect/engineer for desktop deployment.

Modeling and assumptions. For the composite organization, Forrester assumes:

- 60% of knowledge workers adopt the new Edge once it becomes available. In Years 2 and 3, the adoption rate increases to 90%.

> **"Our user community is reaching the understanding that [Microsoft Edge with IE mode] is going to work for them and it's going to work with all the sites. It's going to perform."**
>
> *Manager, device engineering, healthcare*

- Initially, 30% of the new Edge users use IE mode. This number goes up to 50% with time.

- The average time savings from IE mode per user per day is 2 minutes.

- An average business user's hourly burdened rate is $35.

- Fifteen percent of the total time saved per user is applied directly back to revenue-generating tasks and is included in the benefit calculation. Individual users may apply additional time

> **"Our previous setup in which you could only access certain sites from certain browsers was technically complex and a nightmare for IT to manage. End users were also annoyed because they had to switch [browsers] all the time. We wanted a better experience and came across IE mode. When we tested it internally with a handful of people, the simplicity and continuity factor of the IE mode integration was so good that from a user standpoint, it was an immediate winner."**
>
> *Advanced service manager, healthcare*

savings toward professional development, networking, and work-life activities, which are not included in the benefit.

Risks. Productivity savings will vary based on:

- The organization's commitment to educating employees about the features and capabilities of the Edge browser and IT's dedication to setting up IE mode for the end users.

- The degree to which employees use legacy sites and applications that require IE.

- Employees' roles and salaries.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $604K.

Productivity Savings From Using IE Mode In Edge				
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
C1	Number of employees		50,000	50,000	50,000
C2	Percentage of employees who are knowledge workers		40%	40%	40%
C3	Percentage of employees who adopt Microsoft Edge		60%	90%	90%
C4	Percent of employees using IE mode regularly		30%	40%	50%
C5	Average time saved per day from using IE mode in Microsoft Edge (minutes)		2	2	2
C6	Hours saved per employee with IE mode in Microsoft Edge	C5/60*240 days	8	8	8
C7	Average business-user hourly burdened rate		$35	$35	$35
C8	Productivity recapture		15%	15%	15%
Ct	Productivity savings from using IE mode in Edge	C1*C2*C3*C4*C6*C7*C8	$151,200	$302,400	$378,000
	Risk adjustment	↓10%			
Ctr	Productivity savings from using IE mode in Edge (risk-adjusted)		$136,080	$272,160	$340,200
	Three-year total: $748,440		**Three-year present value: $604,232**		

STRONGER ORGANIZATIONAL SECURITY

Evidence and data. In a 2019 Forrester survey, 57% of enterprise respondents reported that their organization suffered at least one data breach in the past 12 months.[3] The interviewees in our study listed ensuring browser security as one of their organization's top priorities. Similarly, it was recognized as the number one reason for legacy app modernization in our survey of 40 decision-makers responsible for migration and modernization of

applications for modern browsers. While organizations used legacy browsers as default, end users frequently downloaded unsupported modern browser to improve their web experience. IT saw these modern browsers as security loopholes.

- Organizations could stop the use of unauthorized browsers with the Edge browser and take advantage of its built-in security and compliance capabilities such as Azure AD Conditional

Access, Microsoft Information Protection, and Microsoft Endpoint Data Loss Prevention (DLP) without additional software. The associate

> **["Edge has a significant difference compared to [other modern browsers] with regards to privacy, and this should be a major advantage for enterprises since more and more applications are browser based. Edge provides the assurance that your [organization's] browser activity is not being tracked and used for advertising."**
>
> *Head of enterprise services team, professional services*

manager on a collaboration applications team at a financial services company stated: "Our transition to Edge gave us confidence that our data wasn't going someplace where we didn't want it to go. And then the icing on the cake for us was Azure AD as the authentication technique."

- The interviewee at a professional services company explained the additional benefit of using Edge when remote working is more prevalent: "The built-in SmartScreen production with Edge is important for any situation where employees are working outside the corporate network. Since Microsoft sees a huge amount of internet threat traffic, they are able to offer high-quality protection from malicious sites."

- Interviewees found the new Edge's assurance that enterprise users' browser activity was not shared with advertisers advantageous.

Modeling and assumptions. For the composite organization, Forrester assumes:

- The average cost of a security breach is $3.92 million according to the Ponemon Institute. [4]

- The risk of a breach is 57%.

- The use of the new Edge browser provides better enterprise security, privacy, and enhanced management capabilities, decreasing the probability of a breach by 4% to 5%, depending on level of adoption.

Risks. The benefits will vary based on:

- The organization's previous security posture and measures taken to protect users from risks connected with browser use.

- Industry and geography.

To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $218.9K

Stronger Organizational Security

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Average cost of a data breach		$3,920,000	$3,920,000	$3,920,000
D2	Risk of experiencing a data breach		57%	57%	57%
D3	Decrease in data breach risk with the Microsoft Edge		4%	5%	5%
Dt	Stronger organizational security	D1*D2*D3	$89,376	$111,720	$111,720
	Risk adjustment	↓15%			
Dtr	Stronger organizational security (risk-adjusted)		$75,970	$94,962	$94,962
	Three-year total: $265,894		**Three-year present value: $218,891**		

DEVELOPER RESOURCE SAVINGS

Evidence and data. Prior to using Edge, interviewees' organizations had to ensure that developed products could be opened internally on a default legacy browser. The associate manager on a collaboration applications team at a financial services company stated: "We had so many problems where we built something — primarily doing all of our testing in a modern browser — and then we start doing UI testing and the business is only using IE11. Now, we have to go back. We have to fix so many things for it to just to work in IE11. It was a big waste of time and it was expensive." Once organizations transitioned to the new Edge, developers no longer had to build websites and applications, then test the performance of them on different browsers.

- With Edge, developers saved time and felt confident that applications and site designed for modern browsers wouldn't cause issues during testing. The head of the enterprise services at a pharma company remarked: "If you're using the new Edge, you don't have to worry that the application you develop is going to look different than what it was supposed to look like. It's just all based on Chromium. The developers now have a really high level of confidence that any tool set or

Percentage of improved efficiency for developers with Microsoft Edge browser
10%

framework they want to use in the modern web is going to work with Edge."

Modeling and assumptions. For the composite organization, Forrester assumes:

- Twelve developers are responsible for developing and deploying business applications and websites that are compatible with the browser.

- After implementing Edge, the composite organization realizes 10% productivity efficiencies across these 12 developers.

- Fifty percent of the productivity savings can be attributed to the bottom line of organizations.

- Average annual fully burdened rate of a developer resource is $120,000 per year.

Risks. The benefits will vary based on:

- The geographic markets where developer teams reside.

- The number of new applications and websites an organization creates and launches each year.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $161K.

Developer Resource Savings					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Number of developers with responsibilities of building and deploying applications		12	12	12
E2	Percentage of improved efficiency for developers with Microsoft Edge		10%	10%	10%
E3	Annual fully burden rate of a developer resource		$120,000	$120,000	$120,000
E4	Percent productivity captured by organization		50%	50%	50%
Et	Developer resource savings	E1*E2*E3*E4	$72,000	$72,000	$72,000
	Risk adjustment	↓10%			
Etr	Developer resource savings (risk-adjusted)		$64,800	$64,800	$64,800
	Three-year total: $194,400		**Three-year present value: $161,148**		

SAVINGS FROM REDUCING BURDEN ON THE HELP DESK

Evidence and data. Prior to the new Edge, it was not uncommon for users to experience browser performance issues, such as sites not rendering correctly or not working as expected. For those who used legacy browsers, modern sites and applications frequently presented challenges; for those who relied on modern browsers, the traditional apps written for IE11 appeared broken. In some cases, employees reached out to help desk to resolve these issues. With the new Edge's simple and seamless experience, organizations saw a reduction in browser-related support tickets.

- A financial services organization saw a 20% decline in the number of browser-related tickets submitted to help desk. "We are getting quite a reduction in our ticket volume based purely on [employees] using the latest browser," said the principal engineer.

- An education organization experienced a reduction in the number of support tickets both from educators and students. This reduction was due to the improved compatibility of their apps and tools with the new Edge, as compared to their legacy browser.

Decrease in browser-related help desk tickets since implementing Microsoft Edge
20%
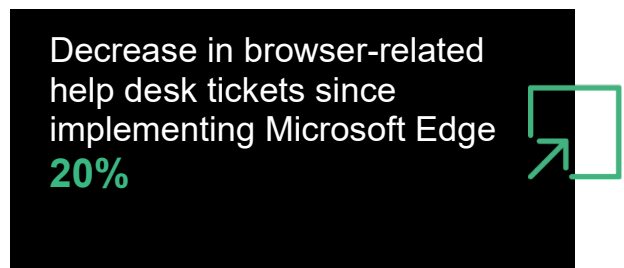
Modeling and assumptions. For the composite organization, Forrester assumes:

- The average employee submits one browser-related help desk ticket per year.

- With Microsoft Edge, users experience fewer technical issues when accessing work sites and applications, which eliminates 20% of the browser-related help desk tickets.

- The average time it takes to resolve one ticket is 30 minutes.

- An average help desk engineer's hourly burdened rate is $45.

Risks. Savings from reduction in number of email support tickets will vary with:

- The level of support provided for employees' use of the browsers.

- An organization's commitment to setting up IE mode for the end users to ensure seamless access to sites and applications.

- Support engineers' annual compensation.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $159K.

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
**Savings From Reducing Burden On The Help Desk**					
F1	Number of employees		50,000	50,000	50,000
F2	Percentage of employees who are knowledge workers		40%	40%	40%
F3	Percentage of employees who adopt Microsoft Edge		60%	90%	90%
F4	Number of times an average employee contacts the help desk for a browser-related issue		1	1	1
F5	Reduction to the number of times employees contact the help desk due to Microsoft Edge		20%	20%	20%
F6	*Subtotal: number of tickets to the help desk eliminated with Microsoft Edge*	*F1*F2*F3*F4* F5*	*2,400*	*3,600*	*3,600*
F7	Average time to resolve a browser-related ticket (hours)		0.50	0.50	0.50
F8	Average hourly rate for a helpdesk engineer		$45	$45	$45
Ft	Savings from reducing burden on the help desk	F6*F7*F8	$54,000	$81,000	$81,000
	Risk adjustment	↓10%			
Ftr	Savings from reducing burden on the help desk (risk-adjusted)		$48,600	$72,900	$72,900
\multicolumn{3}{c}{**Three-year total: $194,400**}		\multicolumn{3}{c}{**Three-year present value: $159,201**}		

UNQUANTIFIED BENEFITS

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

- **Maximized ROI for Microsoft 365.** Knowledge workers interact with a browser daily. Edge has the power to bring together the other Microsoft 365 (M365) capabilities and deliver them to end users' fingertips. For example, Microsoft Search is built into Edge to enable high-quality, work-related search results, and the new tab page connects to a user's Office 365 account to pull up recent and shared files and pinned sites. IT can also use Microsoft Intune to manage the browser, consistent with how IT manages other parts of M365. These capabilities are integrated into Edge with no additional license costs. Customers can also rely on an existing support agreement with Microsoft to resolve any issues. The principal engineer at a financial services company stated: "We are a Microsoft shop. So, whatever Microsoft brings out, we want to leverage that on the browser. It allows us to get the best value from the dollars we're spending as the tenant."

- **Synced data across devices.** For users and IT professionals alike, one of the most unpleasant outcomes from resetting or switching devices is a loss of one's browser settings, history, and bookmarks. "With Edge, people using multiple devices or somebody who needs their device reprovisioned can seamlessly transfer all of their settings and favorites, a capability we don't have in [other modern browsers]," said the architect/engineer for desktop deployment at a pharma company.

- **Improved employee experience.** Interacting with web apps has become a necessity for modern employees. Legacy apps may limit employee experience because legacy app capabilities are constrained to older web standards. The new Edge is compatible with

> **"As an enterprise, we have a vested interest in making sure that we are protecting our data and our client's data as appropriate. We go to a lot of internal URLs and sites within our company, things that are not public that we wouldn't want to be put on the public internet. With the new Edge, it allowed us to have that level of confidence that there was nothing being sent to third parties we do not already have a trusted relationship with."**
>
> *Head of enterprise services team, professional services*

today's web standards due to its Chromium base, and also has new capabilities built in, making it easy and effortless to work with multiple web apps. As a head of enterprise services team at a professional services company remarked: "[Edge] gave our users that really, really seamless single sign-on that makes their work life easy when they're working with multiple web applications. You have that compatibility with web standards that the application teams are writing to. And you also have efficiency."
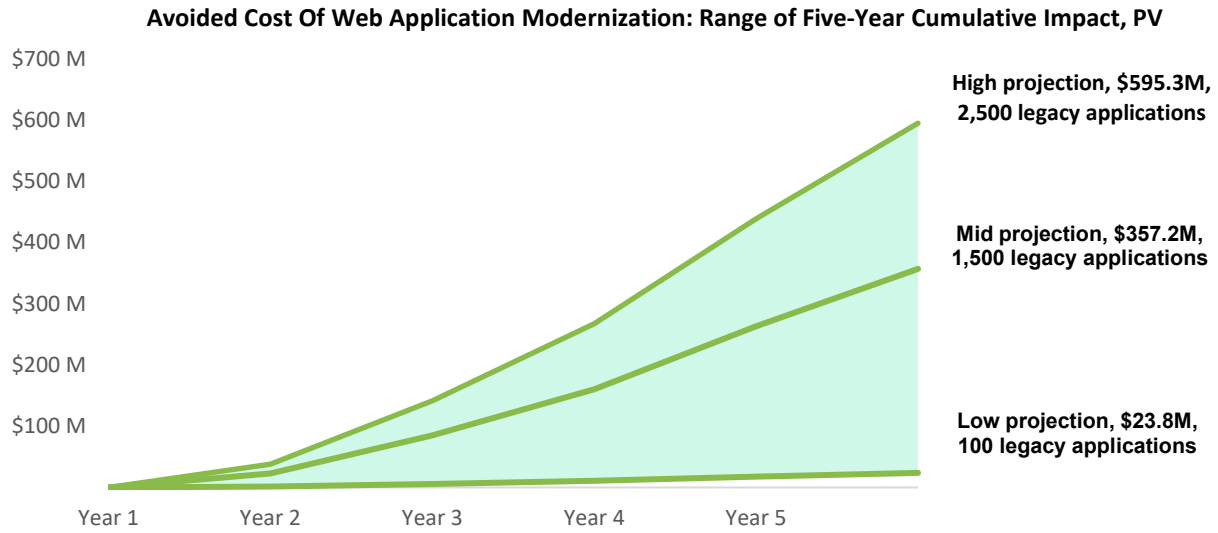
FLEXIBILITY

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

- **Further employee adoption and engagement.** Interviewees note that high adoption levels are key to seeing the full potential of Microsoft Edge for the organization. Some interviewees' companies already made the new Edge a default browser and prohibited the use of the alternatives. Others have embarked on more gradual journey of converting users of other browsers into Edge supporters. Organizations need to continuously keep up with and educate users on the capabilities and benefits of the new browser.

- **Simpler developer hiring.** As organizations stop ensuring compatibility with IE, they will no longer look for relatively scarce IE developer talent and can focus on modern web technology.

- **Further savings from avoiding modernization of the legacy application portfolio when considering IE retirement.** For the purposes of the analysis, Forrester assumes that the composite organization chooses to modernize five legacy applications in the next three years. This best reflects the experience of customers at

the time of interviews for this study. In case of Internet Explorer retirement, organizations may want to consider modernizing a significant portion of their legacy web app portfolio. Our survey of 40 enterprises found that enterprises have accrued a large-scale legacy web app portfolio over many years. Survey respondents' organizations had, on average, 1,678 proprietary web apps. The average cost to modernize a legacy app was estimated at $335K.The average time to modernize a legacy web application was seven months. This is why, by deploying Microsoft Edge with IE mode, organizations could see millions of dollars in savings, since IE mode eliminates the need to modernize legacy application portfolios. In effect, IE mode extends the life of legacy web applications past the point of Internet Explorer retirement. The table and charts below show three scenarios, for a small (100), medium (1,000), or large (2,500) legacy app portfolio, and the present value (PV) of avoiding modernization costs over five years by using IE mode. To run a custom analysis for your organization, please use this calculator.

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

Application Modernization Costs Avoided							
Ref.	Cost	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
FL1	Cost of modernization per legacy web application		$335,000	$335,000	$335,000	$335,000	$335,000
$FL2_{Low}$	Number of web applications requiring modernization after Internet Explorer retirement	100	5	15	20	30	30
$FL2_{Mid}$		1,500	75	225	300	450	450
$FL2_{High}$		2,500	125	375	500	750	750
FLt_{Low}	**Avoided cost of web application modernization by using Microsoft Edge with IE mode**		$1,675,000	$5,025,000	$6,700,000	$10,050,000	$10,050,000
FLt_{Mid}		FL1*FL2	$25,125,000	$75,375,000	$100,500,000	$150,750,000	$150,750,000
FLt_{High}			$41,875,000	$125,625,000	$167,500,000	$251,250,000	$251,250,000

Avoided Cost Of Web Application Modernization: Range of Five-Year Cumulative Impact, PV

High projection, $595.3M, 2,500 legacy applications

Mid projection, $357.2M, 1,500 legacy applications

Low projection, $23.8M, 100 legacy applications

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
Gtr	Implementation and testing costs	$132,449	$0	$0	$0	$132,449	$132,449
Htr	Change management costs	$20,890	$27,853	$0	$0	$48,743	$46,211
Itr	Edge browser management cost	$0	$7,656	$7,656	$7,656	$22,968	$19,039
	Total costs (risk-adjusted)	$153,339	$35,509	$7,656	$7,656	$204,160	$197,699

IMPLEMENTATION AND TESTING COSTS

Evidence and data. While Microsoft Edge does not have a license fee, there are some implementation and testing costs that need to be planned for.

- A technical support analyst at an educational organization remarked: "Initially we spent time finding out what to expect and to plan the deployment out. Then, we sat down and looked at the policies, and we invested the time into deciding which ones we should implement and which ones we shouldn't."

- As the next step, interviewees' organizations went through an extensive testing for websites and applications to ensure compatibility with the new Edge.

Modeling and assumptions. For the composite organization, Forrester assumes:

- Four full-time IT employees implemented and tested Edge for three months.

- An average hourly burdened rate for IT resources is $58.

Risks. With any implementation comes risk. The implementation risk for organizations depends on the following:

- The scope of the business and complexity of the policies and settings.

- Internal IT resources and their compensation.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $132K.

Implementation And Testing Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
G1	FTEs required for implementation and testing		4			
G2	Months required for testing and implementation		3			
G3	Average FTE hours per month	2,080/12 months	173			
G4	Average fully loaded FTE hourly rate		$58			
Gt	Implementation and testing costs	G1*G2*G3*G4	$120,408	$0	$0	$0
	Risk adjustment	↑10%				
Gtr	Implementation and testing costs (risk-adjusted)		$132,449	$0	$0	$0
	Three-year total: $132,449		Three-year present value: $132,449			

CHANGE MANAGEMENT COSTS

Evidence and data. Several interviewees indicated that their organizations taught users about the browser's capabilities post-implementation, allowing employees to build their confidence in using the new Edge and improve their productivity.

- For many users, a browser is a highly personal affair. Employees rely on bookmarks carefully accumulated over the years, and often have a strong preference for the browser's look and feel. Switching to a new browser is uncomfortable and requires a change in behavior. Many interviewees anticipated users' sensitivity and objections, and prepared communication to alleviate concerns and explain the benefits of the new browser.

- Companies created intranet posts, informational emails, mentions in company newsletters, training sessions, videos and how-to articles, and sometimes dedicated landing pages as a common hub for browser information and feedback.

> **"With our change management team, we had different approaches in order to reach out to users about the new browser and its features. We are starting with a site, knowledge articles, how-tos, and building up our webpage to support exposure to Edge."**
>
> *Head of enterprise services team, professional services*

Modeling and assumptions. For the composite organization, Forrester assumes:

- The organization has a dedicated employee who focuses primarily on leading internal employee education and driving adoption for Edge.

- In the first year following Edge implementation, the employee spends four months on engaging

and educating users about Edge capabilities. As technology becomes more familiar, the organization relies on word of mouth for further Edge adoption.

Risks. Costs for change management will vary based on:

- The number of professionals managing end-user education and engagement and their involvement.

- The fully loaded salaries of all FTEs involved.

To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV of $46K.

Change Management Costs						
Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
H1	Number of change management FTEs involved in Microsoft Edge adoption effort		1	1		
H2	Months required for change management		3	4		
H3	Average FTE hours per month	2,080/12 month	173	173	173	173
H4	Average fully loaded FTE hourly rate	$73,000/2,080	$35	$35	$35	$35
Ht	Change management costs	H1*H2*H3*H4	$18,165	$24,220	$0	$0
	Risk adjustment	↑15%				
Htr	Change management costs (risk-adjusted)		$20,890	$27,853	$0	$0
	Three-year total: $48,743		Three-year present value: $46,211			

EDGE BROWSER MANAGEMENT COST

Evidence and data. Interviewees identified a small portion of IT admin time was required on an ongoing basis to support the Edge browser:

- Primarily, IT needed to manage IE mode, monitor updates, and ensure that desired policies and features were in place and working as expected.

- The head of enterprise services team at a professional services organization stated: "We don't really manage [Edge] even though Microsoft offers us the control to do that if we want to. When Microsoft pushes the update, you get the feature, everyone gets it. Our focus is now on what's new. Now, we can look at more things to either make people more productive or the browser more secure."

Modeling and assumptions. For the composite organization, these ongoing costs were modeled as:

- IT dedicates 10 hours per month to manage the new Edge browser.

- An average hourly burdened rate for IT resource is $58.

Risks. These costs may vary due to:

- The number of IT admins and the support that is required across the organization.

- The fully loaded salaries of all FTEs involved.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $19K.

	Edge Browser Management Cost						
Ref.	**Metric**	**Calculation**	**Initial**	**Year 1**	**Year 2**	**Year 3**
I1	IT time dedicated to managing Edge browser and policies	10 hours*12 months		120	120	120
I2	Average fully loaded FTE hourly rate			$58	$58	$58
It	Edge browser management cost	I1*I2	$0	$6,960	$6,960	$6,960
	Risk adjustment	↑10%				
Itr	Edge browser management cost (risk-adjusted)		$0	$7,656	$7,656	$7,656
	Three-year total: $22,968			**Three-year present value: $19,039**		

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

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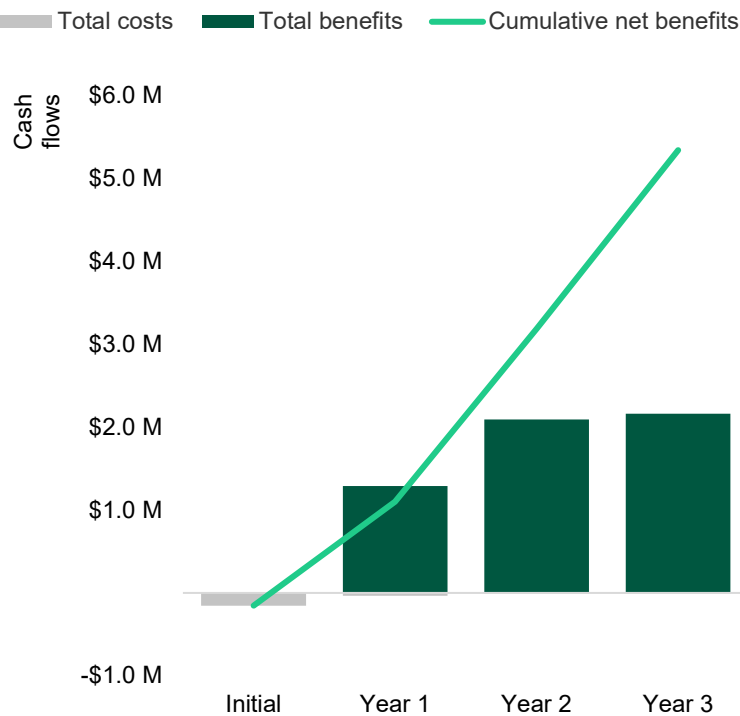
The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted NPV 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	($153,339)	($35,509)	($7,656)	($7,656)	($204,160)	($197,699)
Total benefits	$0	$1,290,600	$2,094,922	$2,162,962	$5,548,484	$4,529,679
Net benefits	($153,339)	$1,255,091	$2,087,266	$2,155,306	$5,344,324	$4,331,980
ROI						2,191%

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: Interview And Survey Demographics

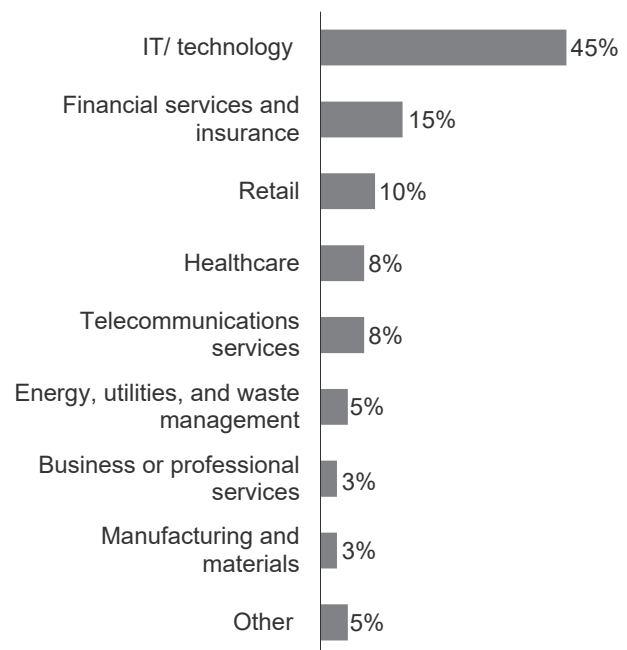| Interviewed Organizations			
Industry	**Headquarters**	**Interviewee**	**Revenue and number of employees**
Financial services	North America	-IT associate manager -Principal infrastructure engineer	$6 billion; 10,000 employees
Healthcare	Europe	-Advanced service manager	$19 billion; 40,000 employees
Pharmaceuticals	North America	-Desktop deployment architect	$50 billion; 90,000 employees
Professional services	North America	-Executive, enterprise services -Architect, workstation engineering	$3 billion; 13,000 employees
Technology	North America	-VP platform engineering -Platform product manager -Senior director service platform -Platform product manager	$6 billion; 30,000 employees
Oil	APAC	-IT infrastructure manager	$50 billion; 5,000 employees
Education	North America	-Desktop support technician	$130 million; 30,000 employees
Healthcare	North America	-Manager, device engineering -Director, client support -Senior technical analyst	$2 billion; 11,000 employees

Survey Demographics

"Using your best estimate, how many employees work for your firm / organization worldwide?"

ac 20,000 or more employees, 20%

10,000 to 19,999 employees, 15%

5,000 to 9,999 employees, 65%
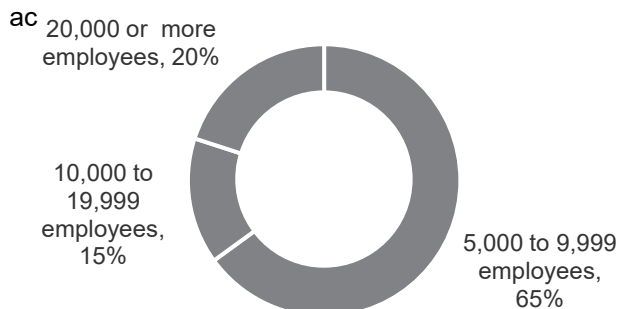
"Which of the following best describes your current position/department?"

97% IT

3% Engineering

"Which of the following best describes the industry to which your company belongs?"

IT/ technology	45%
Financial services and insurance	15%
Retail	10%
Healthcare	8%
Telecommunications services	8%
Energy, utilities, and waste management	5%
Business or professional services	3%
Manufacturing and materials	3%
Other	5%

Base: 40 decision-makers responsible for application modernization
Note: Percentages may not total 100 because of rounding.
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, February 2021

Appendix C: Endnotes

[1] Source: A commissioned survey of 40 enterprise decision-makers conducted by Forrester Consulting on behalf of Microsoft, February 2021.

[2] Source: A commissioned survey of 40 enterprise decision-makers conducted by Forrester Consulting on behalf of Microsoft, February 2021.

[3] Source: Forrester Analytics Global Business Technographics® Security Survey, 2019.

[4] "Cost of a Data Breach 2019," Ponemon Institute, 2019.