

NEW TECH

# New Technology: The Projected Total Economic Impact™ Of Windows 11

Cost Savings And Business Benefits  
Enabled By Windows 11

JULY 2022

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## Executive Summary

More and more companies are allowing employees to work from anywhere to improve the employee experience. Recent Forrester research found that about 70% of US companies will choose either a fully remote or an office + anywhere hybrid model. Almost one in six organizations will embrace an anywhere-first model, and more than six in 10 global leaders anticipate a permanently higher rate of full-time remote employees.<sup>1</sup> These trends reestablish the centrality of the PC in the future of work and digital life.

Windows 11 is the latest release of Microsoft's Windows operating system (OS). Positioned as the OS for hybrid work, the new features introduced focus on: 1) productivity and collaboration, 2) IT management efficiency, and 3) security. On the back end, Windows 11 is built on the same code base as Windows 10, making backward compatibility robust and upgrading enterprise PCs easier.

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 Windows 11.<sup>2</sup> The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Windows 11 on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed eight representatives at six organizations with experience using Windows 11. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization that is an organization with \$1 billion in annual revenue and 2,000 employees.

All interviewees noted how their organizations are migrating Windows 10 devices to Windows 11. In sharing their interest in Windows 11, interviewees stated that wanting to explore new features introduced, needing to adapt to a more hybrid work environment, and realizing that future developments will likely happen on Windows 11 were reasons to

### KEY STATISTICS



Projected return on investment (PROI)  
**109% - 394%**



Projected net present value (PNPV)  
**\$710.5K - \$2.6M**

migrate sooner rather than later. Specifically, interviewees were interested in the security and performance improvements, the integration and compatibility with modern architecture such as cloud services and microservices, and operational efficiency they could realize from investing in Windows 11.

After the investment in Windows 11, the interviewees shared the various improvements they have seen in their business environment. Key results from the investment include improved end-user productivity, a more secure OS environment, as well as operational efficiency in their security and IT management.

### KEY FINDINGS

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

- **Improvement in end-user productivity.** Using Windows 11 allowed the average end user to be

5% to 15% more productive. This increased productivity is rooted in Windows 11 giving users the ability to customize their workspaces, which allows them to quickly access their most-used applications. Additionally, Windows 11's processing time is faster than the previous OS. For certain activities, such as application development, Windows 11 also means software developers can build mobile or browser-based applications without needing to access emulators, which is something that was not possible in their previous OS.

- **Enhanced security of the OS environment.** By using Windows 11, the composite organization's OS environment is more secure from malware and ransomware threats. Windows 11 has specifically introduced security features targeting users that work in a hybrid or remote manner. Additionally, many security features that users had to toggle on in the previous OS are now on by default on Windows 11. Over three years, the composite organization has been able to improve the risk profile of its OS by 20% to 30% per year.
- **Operational efficiency in the IT organization.** The composite organization also realizes certain operational efficiency gains in their IT organization after migrating to Windows 11. As Windows 11 comes with several self-service features, the composite saw the number of OS-related help desk requests its IT organization receives decrease by as much as 90% per year after a period of adjustment. Additionally, the improvements in the OS environment security introduced by Windows 11 allowed the composite organization to reduce its spending on third-party security software licensing. This 2% to 10% cost savings per year represents recouped resources that can be reallocated elsewhere.

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

- **Ease of use and employee satisfaction.** Microsoft built Windows 11 on the same code as Windows 10, making backward compatibility robust and upgrading enterprise PCs easier. As a result, the IT team managing the composite organization's migration from Windows 10 to Windows 11 requires no significant user training. The update is meant to be a seamless process that should not be intrusive to the user utilizing the OS.
- **Better compatibility with other solutions.** The composite organization sees that Windows 11 has better compatibility with some of the legacy products and vendor products it uses, especially as those products continue to develop their newer versions. They believe vendors will shift to offer additional functionality that they can only use with Windows 11.
- **Better integration within the Microsoft ecosystem.** The composite organization also believes Windows 11 integrates better with other tools and solutions offered within the Microsoft ecosystem. For example, in organizations with Microsoft 365 E5 licensing, users can request different type of application licenses. These will automatically be embedded into their desktop ecosystems, making the integration seamless.
- **Impact on organizational brand.** By adopting the newest and latest OS in Windows 11, the composite organization believes it is building its brand as a modern company. The previously mentioned integration benefits with all the other modernized technology puts the composite organization in a great position to continue building this brand.

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

- **Initial planning and implementation costs.** Most organizations that already use Windows 10 do not pay to upgrade into Windows 11.<sup>3</sup> For the

composite organization, some of the initial implementation costs it has to consider include the cost to replace a portion of its hardware, desktops, and laptops, to ensure they meet the technology requirements, particularly the need for hardware with Trusted Platform Module (TPM) 2.0, needed to install Windows 11. Additionally, some time and effort are required for the composite organization's IT team to plan out the most effective and efficient migration schedule. This must take into account the hardware upgrade cost and additional testing, like application and peripheral compatibility testing, that needs to be done before the upgrade can be safely released into the IT environment.

- **Future implementation costs.** Once Windows 11 is set up, the composite organization needs time to manage and test the monthly and yearly updates that Microsoft will introduce. That being said, this effort will be the exact same the composite organization would make using Windows 10. As the adoption rate of Windows 11 increases year over year, there will also be additional costs for hardware upgrades to ensure they all meet Windows 11's technology requirement. This can follow the composite organization's usual device refresh schedule or can push it to upgrade a percentage of its devices outside the usual refresh schedule. Depending on the capability and availability of its IT environment, additional planning and implementation effort may be needed until there is close to full adoption of Windows 11.

Forrester modeled a range of projected low-, medium-, and high-impact outcomes based on evaluated risk. This financial analysis projects that the composite organization accrues the following three-year net present value (NPV) for each scenario by enabling Windows 11:

- Projected high impact of a \$2.6 million NPV and projected ROI of 394%.
- Projected medium impact of a \$1.6 million NPV and projected ROI of 250%.
- Projected low impact of a \$710,500 NPV and projected ROI of 109%.



PROJECTED  
ROI  
**109%-394%**



PROJECTED  
BENEFITS PV  
**\$1.4M-\$3.2M**

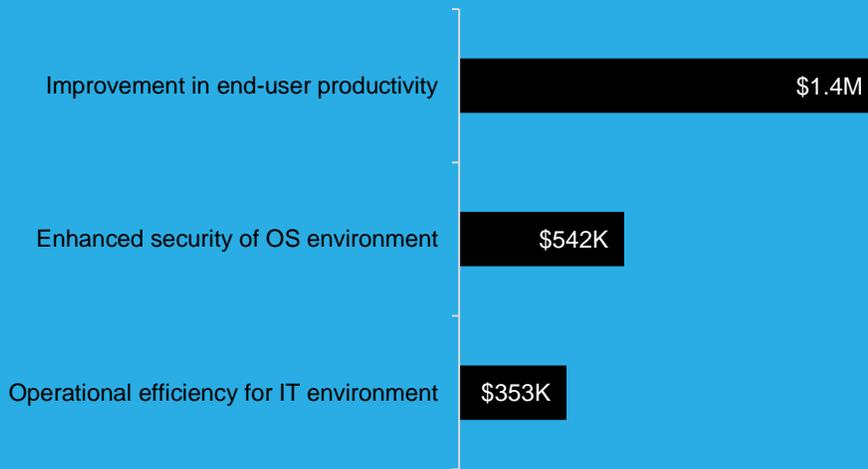


PROJECTED NPV  
**\$710.5K-  
\$2.6M**



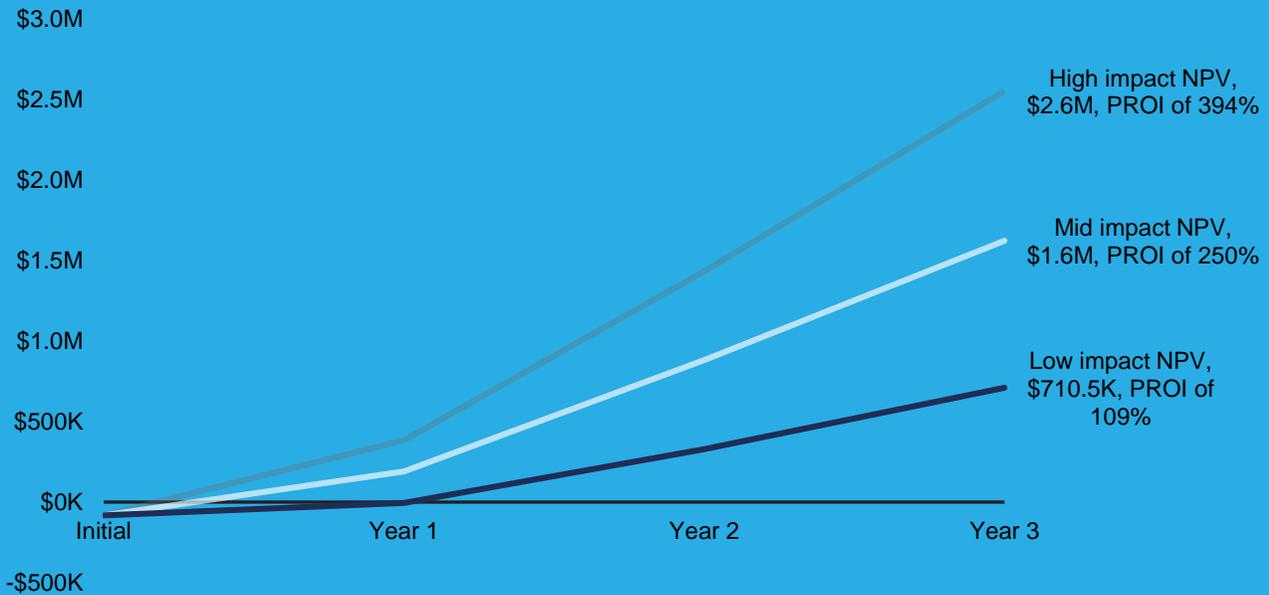
TOTAL  
COSTS  
**\$648K**

### Projected Benefits



*Figures in chart are projections for the mid-case scenario*

### Three-Year Projected Financial Analysis For The Composite Organization



## NEW TECH TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a New Technology: Projected Total Economic Impact™ (New Tech TEI) framework for those organizations considering an investment in Windows 11.

The objective of the framework is to identify the potential cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the projected impact that Windows 11 can have on an organization.

Forrester Consulting also conducted an online survey of 351 cybersecurity leaders at global enterprises in the US, the UK, Canada, Germany, and Australia. Survey participants included managers, directors, VPs, and C-level executives who are responsible for cybersecurity decision-making, operations, and reporting. Questions provided to the participants sought to evaluate leaders' cybersecurity strategies and any breaches that have occurred within their organizations. Respondents opted into the survey via a third-party research panel, which fielded the survey

### DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Microsoft and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Windows 11.

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

on behalf of Forrester in November 2020. Data referenced in this study is based on a subset of data for organizations with 5,000 or more employees.



### DUE DILIGENCE

Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Windows 11.



### EARLY-IMPLEMENTATION INTERVIEWS

Interviewed eight representatives at six organizations using Windows 11 in a pilot or beta stage to obtain data with respect to projected costs, benefits, and risks.



### COMPOSITE ORGANIZATION

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



### PROJECTED FINANCIAL MODEL FRAMEWORK

Constructed a projected financial model representative of the interviews using the New Tech TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewees.



### CASE STUDY

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

# The Windows 11 Customer Journey

## ■ Drivers leading to the Windows 11 investment

Interviews			
Role	Industry	Region	Total Employees (% of Windows users)
CIO	Investment management	Global	750 (90%)
CIO	E-commerce	US	5,000 (95%)
Head of IT	Insurance	Global	750 (100%)
Security operations (SecOps) manager	Insurance	Global	750 (100%)
Technical lead	Insurance	Global	750 (100%)
CISO	IT Services	Global	3,200 (90%)
Sr. Director of IT Architecture	Financial trading	Global	4,000 (60%)
CIO	Investment management	US	900 (75%)

## KEY CHALLENGES

Prior to migrating to Windows 11, interviewees' organizations mostly used Windows 10. While a number of organizations had a form of mixed environment between Windows and a non-Windows OS, the focus of the migration to Windows 11 is on users that previously used Windows 10.

The interviewees noted some of the reasons they were interested in migrating away from Windows 10, including:

- **Wanting to explore new product features and design enhancements.** Interviewees shared that they were interested in some of the new features and enhancements that were available on Windows 11. Security features and customizations to boost the user experience were two features that interviewees were most interested in exploring further. A CIO in investment management noted, "We heard and wanted to see the improvements in user experience in Windows 11, especially since we

**"We had to accelerate people working from home on a permanent basis. Businesses needed to be more flexible, so we moved away from desktops to laptops."**

*SecOps manager, insurance*

didn't have to pay Microsoft to upgrade from Windows 10 to Windows 11."

A CISO in IT services added: "We were excited to explore the security enhancements made on Windows 11. In past years, we have seen some vulnerabilities impacting OS. It seems like Windows 11 is focused on tackling them with

improvements in security controls and automation capabilities.”

- **Adapting to a hybrid and remote work environment.** Interviewees were also interested in the positioning of Windows 11 as the OS for remote and hybrid work. As companies everywhere embrace hybrid and remote work models, interviewees wanted to explore the enhancements that focus specifically on that experience. A CIO in e-commerce said: “With the rise of cybercrime, the ramifications of COVID-19, and [the rise of] work from home (WFH), security is always top of mind. Windows 11 was introducing features that would work well for organizations that are adapting their business to be more cloud friendly and introduce remote or hybrid work.” For example, Windows 11 integrates Teams connections directly into the Taskbar in order to make hybrid and remote work easier.
- **Planning ahead to anticipate future developments that focus on Windows 11.** Interviewees also shared that they anticipate Microsoft and its partners to focus future product and feature development on Windows 11. As migration would take time, they decided to plan ahead and gradually migrate users away from Windows 10. A senior director of IT architecture in financial trading shared: “Rollout [and OS migration] can take several years, especially as hardware needs to be refreshed. We know eventually manufacturers will start pushing only the new OS [i.e., Windows 11], so it is better for us to start as soon as possible.” A CIO in investment management added: “We needed to start user migration because it won’t happen all at once. There is a learning curve to adoption that needs to be considered.”

## SOLUTION REQUIREMENTS

The interviewees’ organizations were specifically interested in Windows 11 because it could:

- **Introduce OS security features.** With security being a big driver for OS migration, interviewees were interested in Windows 11’s security features. A CIO in e-commerce said, “The fact that some of the security features are always on by default, as opposed to us having to turn it on or off, was another factor [in us deciding to try Windows 11].”
- **Enable better customization.** Interviewees were also interested in how customizable Windows 11 is when compared to other operating systems. A CIO in investment management shared: “Windows 11 allows better customization than Windows 10, which makes some of our user workflows easier to process and more streamlined. Some of the user experience around obtaining information is better.”
- **Enhance application development process.** Some interviewees shared specific interest from their technical workers in how Windows 11 could better support activities like application development. A CISO in IT services shared, “Windows 11 comes with the ability to do development and testing of applications faster.” A senior director of IT architecture in financial trading added: “We were not able to run [phone or browser-based] applications with our previous OS without an emulator. Now we can with Windows 11.”
- **Improve integration with modern technology.** Some interviewees shared that Windows 11 was better positioned for integration with the other more modern technology that their organizations were using or planning to use in the near future. A CIO in investment management explained, “Windows 11 works so much better on some of the later, more modern architectures, such as microservices or cloud services.”
- **Provide better OS processing performance.** For interviewees that required a high-performance computing environment, they noted

needing an OS with high processing performance. A CIO in investment management said: “Windows 11 is better optimized from a performance perspective, in terms of latency and performance load. A lot of our strategy depends on high-performance computing, so [migrating to Windows 11] was desirable.”

### COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the six 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.** A global organization with \$1 billion in annual revenue and 2,000 total employees. The composite organization is migrating from Windows 10 for all its desktops and laptops.

**Deployment characteristics.** The composite organization started its adoption of Windows 11 with 5% of its total employees involved in a pilot. In Year 1, the adoption rate increases to 40%. This then further increases to 80% and 90% in Year 2 and Year 3, respectively. All its hardware devices follow a four-year depreciation cycle, and thus are replaced every four years. The migration to Windows 11 forces the composite organization to upgrade 30% of its hardware devices outside the usual refresh cycle.

### Key Assumptions

- **\$1 billion in annual revenue**
- **2,000 total employees**
- **Device and hardware refresh cycle every four years**
- **Migrating from Windows 10**

# Analysis Of Benefits

■ Quantified benefit data as applied to the composite

Total Projected Benefits					
Benefit	Year 1	Year 2	Year 3	Total	Present Value
Total projected benefits - Low	\$316,448	\$635,056	\$728,000	\$1,679,504	\$1,359,477
Total projected benefits - Mid	\$530,172	\$1,068,264	\$1,208,083	\$2,806,519	\$2,272,487
Total projected benefits - High	\$743,896	\$1,500,032	\$1,712,950	\$3,956,878	\$3,202,930

## IMPROVEMENT IN END-USER PRODUCTIVITY

**Evidence and data.** Interviewees shared that Windows 11's improvements from a user experience (UX) and user interface (UI) perspective meant that users could access information and applications faster, which in turn allowed for better collaboration and productivity.

Interviewees also shared that Windows 11 better integrated with some of the more modern architecture, such as cloud and microservices. Based on their early implementation, interviewees projected that their organizations would realize further time savings on activities such as application development from not having to use an emulator and because processing time is faster for Windows 11 than Windows 10.

- A CIO in investment management said, "There are a lot of soft benefits around improved user experience [such as] the ability for a user to customize their workspace and ... have multiple workspaces catered to their particular need."
- A senior director of IT architecture in financial trading explained: "For software developers building applications for [mobile devices], they don't have to use emulators on Windows 11. This means they are saving time. In the longer term, the time savings mean they can do activities faster and more frequently. Our developers use

**"With the high-end capabilities added at the OS level, Windows 11 supports development of applications that require low latency and high-performance capabilities."**

*CISO, IT services*

to roll out new software every two weeks. Now they can do one every week. This also means they can do new activities they didn't have time to do before, which allows space for innovation."

- A CIO in investment management added: "The UI interface and dashboard improvements allow users to collaborate better, which improves productivity as well. With the time savings, we can process more transactions, test more data sets, and do better analysis of the environment, which results in improvements to our prediction models, execution models, etc."

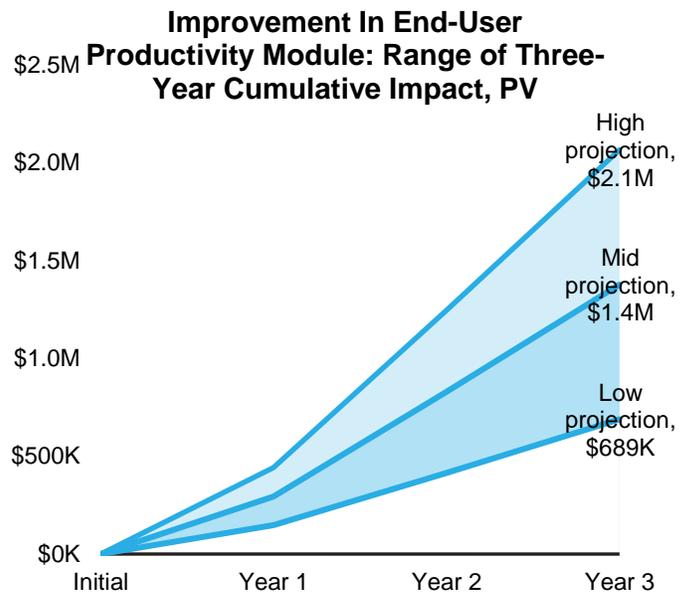
**“[Comparing Windows 10 and 11], we found that our standard processing time is 8% to 10% faster. When doing load testing, we even see 10% to 12% improvements.”**

*CIO, investment management*

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

- Windows 11 directly impacts the productivity of 30% of employees. The assumption is that Windows 11 is the OS used by all employees, but only a subset of employees realize significant productivity improvement from migrating to Windows 11, such as power users or remote workers.
- The percentage of each end user’s tasks that Windows 11 could impact likely differs depending on the specific end user’s role and activity, and so is assumed to average at 20%.
- The average fully burdened annual salary of an end user is assumed to be \$135,000.<sup>4</sup>
- Using Windows 11 allows end users to improve their productivity by 5% per year in the low case scenario, 10% per year in the mid case scenario, and 15% per year in the high case scenario.
- A 50% productivity recapture is introduced. The assumption is that not 100% of time savings are reintroduced as further productivity.

**Results.** This yields a three-year projected PV ranging from \$689,000 (low) to \$2,100,000 (high).



Improvement In End-User Productivity						
Ref.	Metric	Source	Year 1	Year 2	Year 3	
A1	Total employees	Composite	2,000	2,000	2,000	
A2	Percentage of users whose productivity is directly impacted by Windows 11	Assumption	30%	30%	30%	
A3	Percentage of users that fully adopted Windows 11	Composite	40%	80%	90%	
A4	Number of end-users impacted	$A1 * A3 * A2$	240	480	540	
A5	Percentage of tasks that could be impacted by Windows 11	Assumption	20%	20%	20%	
A6	Average fully burdened annual salary of end-user	Assumption	\$135,000	\$135,000	\$135,000	
A7 <sub>Low</sub>			5%	5%	5%	
A7 <sub>Mid</sub>	Percentage faster with Windows 11	Interview	10%	10%	10%	
A7 <sub>High</sub>			15%	15%	15%	
A8	Productivity recapture	Assumption	50%	50%	50%	
At <sub>Low</sub>			\$162,000	\$324,000	\$364,500	
At <sub>Mid</sub>	Improvement in end-user productivity	$A4 * A6 * A5 * A7 * A8$	\$324,000	\$648,000	\$729,000	
At <sub>High</sub>			\$486,000	\$972,000	\$1,093,500	
Three-year projected total: \$850,500 to \$2,551,500			Three-year projected present value: \$688,896 to \$2,066,687			

### ENHANCED SECURITY OF OS ENVIRONMENT

**Evidence and data.** Interviewees shared that some security features that were previously part of Defender were on by default on Windows 11. Some of the security enhancements introduced on Windows 11 also allowed better protection at the OS and hardware level.

- A SecOps manager in insurance shared: “We put our machines through external control testing, producing a risk profile for each of our devices. With security features that are on by default, rather than needing to be turned on in the previous OS, we expect the risk profile of our devices to improve.”

**“A lot of the security improvements around Windows 11 are taking some of the things they have in Defender and making them default settings and policies. They are now an inherent part of the OS.”**

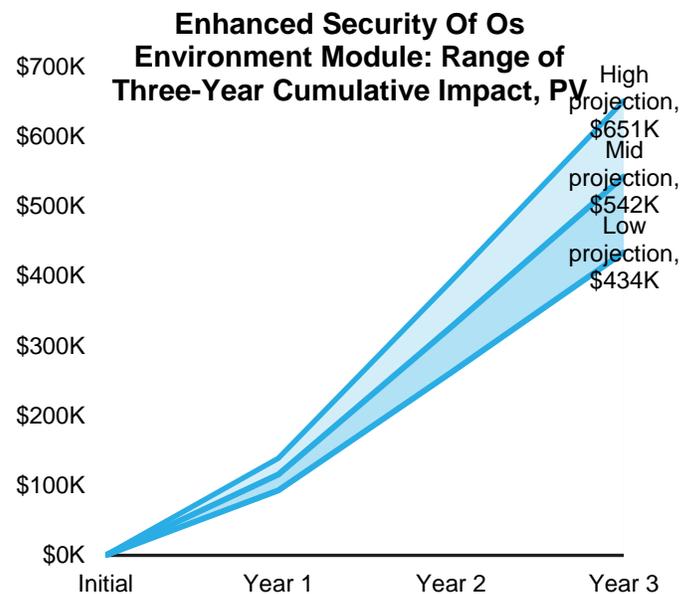
*CIO, investment management*

- A technical lead in insurance added: “Windows 11 adapts to modern threats. It actively develops and improves. By staying on a modern OS, [it is more likely] that the systems [can] protect you from any new threat.”
- A CIO in e-commerce said: “Microsoft has made advances to make this a more secure platform. Without these measures, ransomware could steal confidential information, malware could shut us down, or low-level non-compliance with GDPR could be up to \$11 million or 2% of revenue, whichever is greater. With the shift to hybrid and remote work, the more important Windows 11 is to our security posture.”
- A CISO in IT services said: “On a monthly basis, we get five million threats come through our environment. After blocking suspicious malicious threats, we are still looking at one million coming through. Our success barometer for Windows 11 is how [many] of that one million they can help us identify. If good enough, it could translate to real cost savings because we could evaluate discontinuing certain third-party security software that we have.”

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

- This company will experience an average of 1.7 material breaches per year, based on internal Forrester research.<sup>5</sup>
- A breach of board and committee materials would constitute a catastrophic loss for the composite organization, based on the highly confidential nature of the contents. According to a **Cybersecurity and Infrastructure Security Agency (CISA)** report, eight of the 12 largest breaches in recent reports resulted in financial losses of less than or equal to 0.5% of a company’s annual revenue.<sup>6</sup>
- Using Windows 11 improves the risk profile of the OS environment by 20% per year in the low-case scenario, 25% per year in the mid-case scenario, and 30% per year in the best-case scenario.
- Windows 11 is assumed to constitute 15% of the overall security posture.

**Results.** This yields a three-year projected PV ranging from \$434,000 (low) to \$651,000 (high).



**“Windows 11 has advanced encryption and data protection capabilities. They have added robust network and system security control sets and safeguards that would at least prevent a large number of viruses and malware that we see.”**

*CISO, IT services*

Enhanced Security Of OS Environment					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of breaches resulting in exposure or loss of data experienced annually	Forrester research	1.7	1.7	1.7
B2	Average cost of a mega data breach as percentage of annual revenue	CISA report	0.5%	0.5%	0.5%
B3	Annual revenue	Composite	\$1,000,000,000	\$1,000,000,000	\$1,000,000,000
B4	Average cost of breach	B1*B2*B3	\$8,500,000	\$8,500,000	\$8,500,000
B5 <sub>Low</sub>			20%	20%	20%
B5 <sub>Mid</sub>	Improvement in risk profile after using Windows 11	Interview	25%	25%	25%
B5 <sub>High</sub>			30%	30%	30%
B6			Percentage attribution to Windows 11	Interview	15%
B7	Percentage of users that fully adopted Windows 11	A3	40%	80%	90%
<b>Bt<sub>Low</sub></b>			<b>\$102,000</b>	<b>\$204,000</b>	<b>\$229,500</b>
<b>Bt<sub>Mid</sub></b>	<b>Enhanced security of OS environment</b>	<b>B4*B5*B6*B7</b>	<b>\$127,500</b>	<b>\$255,000</b>	<b>\$286,875</b>
<b>Bt<sub>High</sub></b>			<b>\$153,000</b>	<b>\$306,000</b>	<b>\$344,250</b>
<b>Three-year projected total: \$535,500 to \$803,250</b>			<b>Three-year projected present value: \$433,749 to \$650,624</b>		

### OPERATIONAL EFFICIENCY FOR IT ENVIRONMENT

**Evidence and data.** Interviewees shared that Windows 11 created opportunities for their IT environment to be more efficient. First, interviewees noted that Windows 11 comes with a more robust self-service feature that should help users address any issue they may have, which should reduce the number of help desk requests its IT organization receives in the long run.

Related to the previous benefit of Windows 11 enhancing the security of its OS environment, interviewees also noted that depending on how much more secure their environment is could encourage

them to discontinue any third-party security software licensing it currently has. This would result in cost savings that could be reallocated elsewhere in the organization.

- A head of IT in insurance said: “There are time savings related to [users] contacting the help desk because there are a lot more self-serve help features [with Windows 11]. Each month, we receive 600 to 900 help desk requests. Ten percent to 15% are related to the workstation or workplace. With Windows 11, the minimum I expect is 10% reduction. In the best-case scenario, we could see a 90% reduction.”

- However, interviewees noted that any reduction in help desk tickets would not be an immediate benefit. A CIO in e-commerce said: “Once fully migrated and adopted, [Windows 11] could reduce help desk overhead. However, this will be a process because some users are less tech savvy.”
- A CIO at investment management added: “The transition period before full adoption would likely be 1 to 1.5 years. After that, we expect the number of help desk requests to go down because more things can be handled automatically.”
- Related to cost savings, a CIO at investment management said: “The hope is that the combination of Windows 11 and Defender can allow us to retire some third-party tools that we currently use. We can only do that if the security enhancement is on par with what we have today.”

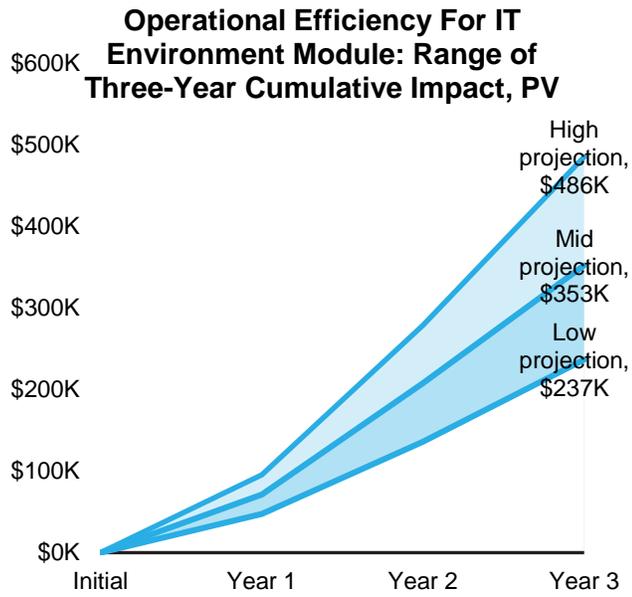
**“If [Windows 11] can block 40% to 50% of threats that still go through, then I won’t need to invest on the state of the art, multiyear tool that I have today.”**

*CISO, IT services*

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

- The composite organization receives 24,000 help desk requests per year.
- Ten percent of the requests are related to OS/desktop/laptop.
- There is no reduction in the number of help desk requests in Year 1.
- In Year 2, Windows 11 allows the number of OS-related help desk requests per year to be reduced by 15% in the low-case scenario, 55% in the mid-case scenario, and 85% in the best-case scenario.
- This amount slightly increases in Year 3 to 20% in the low-case scenario, 60% in the mid-case scenario, and 90% in the best-case scenario.
- The average cost per ticket is \$6.<sup>7</sup>
- IT spend is 3.8% of the annual revenue.<sup>8</sup>
- The percentage of IT budget spent on security is 35.39%.<sup>9</sup>
- The percentage of security spend that is devoted to software is 19.5%.<sup>10</sup>
- In the low-case scenario, the percentage of cost savings per year due to enhanced security introduced by Windows 11 is 2% in Year 1, which gradually increases to 4% and 5% in Year 2 and 3, respectively, as the adoption rate of Windows 11 increases.
- In the mid-case scenario, the percentage of cost savings is 3% in Year 1, which gradually increases to 6% and 7% in Year 2 and 3.
- In the high-case scenario, the percentage of cost savings is 4% in Year 1, which gradually increases to 8% and 10% in Year 2 and 3.

**Results.** This yields a three-year projected PV ranging from \$237,000 (low) to \$486,000 (high).



Operational Efficiency For IT Environment					
Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of help desk requests per year	Composite	24,000	24,000	24,000
C2	Percentage related to OS/desktop/laptop	Assumption	10%	10%	10%
C3	Adoption rate of Windows 11	A3	40%	80%	90%
C4 <sub>Low</sub>	Reduction in OS-related help desk requests due to Windows 11	Interview	0%	15%	20%
C4 <sub>Mid</sub>			0%	55%	60%
C4 <sub>High</sub>			0%	85%	90%
C5	Average cost per ticket	Forrester research	\$6	\$6	\$6
C6 <sub>Low</sub>	Subtotal: Operational efficiency in IT help desk	C1*C2*C3*D4	\$0	\$2,160	\$2,880
C6 <sub>Mid</sub>			\$0	\$7,920	\$8,640
C6 <sub>High</sub>			\$0	\$12,240	\$12,960
C7	Percentage of IT spend of revenue	Forrester research	3.8%	3.8%	3.8%
C8	Percentage of IT budget spent on security	Forrester research	35.39%	35.39%	35.39%
C9	Percentage of spend that is software	Forrester research	19.5%	19.5%	19.5%
C10	Total security and productivity application licensing costs	B3*C7*C8*C9	\$2,622,399	\$2,622,399	\$2,622,399
C11 <sub>Low</sub>	Percentage of cost savings due to Windows 11	Interview	2%	4%	5%
C11 <sub>Mid</sub>			3%	6%	7%
C11 <sub>High</sub>			4%	8%	10%
C12 <sub>Low</sub>	Subtotal: Cost savings from retiring software and applications	C10*C11	\$52,448	\$104,896	\$131,120
C12 <sub>Mid</sub>			\$78,672	\$157,344	\$183,568
C12 <sub>High</sub>			\$104,896	\$209,792	\$262,240
Ct <sub>Low</sub>	Operational efficiency for IT environment	C6 + C12	\$52,448	\$107,056	\$134,000
Ct <sub>Mid</sub>			\$78,672	\$165,264	\$192,208
Ct <sub>High</sub>			\$104,896	\$222,032	\$275,200
Three-year projected total: \$293,504 to \$602,128			Three-year projected present value: \$236,832 to \$485,619		

## UNQUANTIFIED BENEFITS

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

- **Ease of use and employee satisfaction.** Interviewees shared that since Windows 11 is built upon the same foundation as Windows 10 there were no need for significant user training that would be associated with other OS migrations. From an IT perspective, the code and structure of Windows 11 is meant to very familiar, so the implementing IT organization would not have to relearn new processes or do significant user training. A CISO in IT services said: “The time avoidance in user training can be quite sizable. If it was a significant uptake to upgrade [to] a totally new OS that requires us to learn [it] from scratch, we might have chosen not to do upgrade. Part of the reason we are doing the upgrade is it is the same look and feel.”

**“We have received positive feedback from people who have upgraded [to Windows 11]. It was a simple upgrade, a smooth and unintrusive process. People expected a huge learning curve and were pleasantly surprised that there weren’t much.”**

*Technical lead, insurance*

- **Better compatibility with other solutions.** Interviewees shared that Windows 11 was more compatible and better integrated with some of the vendor and legacy solutions they currently use in their environment when compared to their previous OS. A CIO at an investment

management firm said: “Windows 11 has better compatibility with some of our other legacy or vendor products. They have better adaptability and compatibility with the general products that are built for Windows. So, vendors start to offer additional functionality that can only be used with Windows 11.”

Additionally, interviewees shared that Windows 11 also integrated better with some of their more modern technology, such as cloud services. A CISO at IT services said: “As an enterprise, we have a sizable population who have migrated towards cloud. Windows 11 has a more seamless integration with cloud services, and the migration process is a lot easier [compared to what it would have been with the previous OS].”

- **Better integration within the Microsoft ecosystem.** Interviewees expressed that using Windows 11 better positioned them to access applications developed by Microsoft within its ecosystem, as well as its partners. Windows 11 being the latest OS, they understand future development will happen on top of it. A CISO at IT services stated: “As E5 users, we can automatically request different types of licenses needed for individual applications. Those applications will automatically get embedded into [the laptops’] ecosystem. It’s a very seamless addition compared to in the past.”

## FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Windows 11 and later realize additional uses and business opportunities, including:

- **Impact on organizational brand.** In the long run, interviewees shared that adopting Windows 11 can play a role on how others perceive their organization. Using the latest and most modern OS, which better integrates with most of the latest technology, allows organizations to position themselves as a more modern, forward-looking

company. A SecOps manager in insurance said: “[By adopting Windows 11], we have gone from a very traditional, static, old-school way of using technology to now using a new platform that enables people to work in a hybrid world. We are transforming our core platform to be more modernized and integrated.”

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

**“A future benefit [from using Windows 11 is that] a lot of features will be released on it. By upgrading to Windows 11 today, we are improving our position to receive those new products and features in the future.”**

*Head of IT, insurance*

# 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
Etr	Initial planning and implementation costs	\$82,500	\$0	\$0	\$0	\$82,500	\$82,500
Ftr	Future implementation cost	\$0	\$230,670	\$230,670	\$221,100	\$682,440	\$566,452
	Total costs (risk-adjusted)	\$82,500	\$230,670	\$230,670	\$221,100	\$764,940	\$648,952

## INITIAL PLANNING AND IMPLEMENTATION COSTS

**Evidence and data.** Interviewees shared that initial planning and implementation mostly involved the cost and time spent to set up the first group of users that migrated to Windows 11. Interviewees already owned Windows 11 licenses as part of their existing agreements with Microsoft, thus there was no additional money paid to Microsoft to upgrade from Windows 10 to Windows 11. The main cost was the expenditure to upgrade a number of laptops and desktops to meet the technology requirements of Windows 11, specifically to TPM 2.0-based hardware required for security. While most organizations had a set hardware refresh schedule of three to four years, the timeline of starting Windows 11 did not always align with this schedule and forced upgrade efforts outside the usual refresh schedule. Additionally, the IT organization dedicated staff to planning the pilot, determining the number of users involved, and assessing the current IT environment to see what adjustments needed to be made.

- A CIO in investment management said: “We had 4% to 5% of our total employees involved in the pilot of Windows 11. We needed one week to record an end-user training video that will then be part of our onboarding process. We also had a quick 45-minute admin training for our IT staff.”

- A CIO in e-commerce shared: “About 2% of employees were involved in testing Windows 11. The proof of concept (POC) took five to six months. To manage the POC, we had a number of people working part time for about a month, and then full time for another month. Analyzing the environment took one month worth [of time] of two FTE.”
- A technical lead in insurance said: “We had maybe 4% of our employees be part of the POC. About three to four people managed the process. Validation of the environment took a couple weeks, and then one month of users actually using Windows 11.”
- A CISO in IT services added: “We had 25 to 30 people involved in the POC, mostly from IT and security infrastructure. Those involved dedicated about 50% to 60% of their time. We also leveraged a third-party tool to deploy Windows 11 to all users.”
- A senior director of IT architecture in financial trading said: “About 30% of our devices had to be upgraded outside the usual hardware refresh cycle.”

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

- Five percent of employees are involved in the pilot, with 30% of them requiring a new device to be purchased to meet the technology requirement of Windows 11.
- The average cost of a new hardware is \$1,200.
- Each hardware requires 4 hours to be upgraded, including the internal testing to be done before being integrated into the IT environment.
- The average fully burdened IT admin hourly salary is \$35.<sup>11</sup>
- Planning and implementation include analyzing the IT environment to determine hardware that needs to be upgraded and deciding which 100 users are included as part of the pilot. This effort requires involvement from four full-time employees (FTEs).
- Planning and implementation take 6 weeks.
- The average fully burdened salary of employees involved in the planning and implementation

effort is \$145,000, incorporating roles like managers, directors, software developers.<sup>12</sup>

- IT employees dedicate 50% of their time to the effort.

**Risks.** The exact costs incurred by an organization related to initial planning and implementation will depend on:

- The number of users that are involved in the pilot.
- The number of hardware that has to be upgraded to meet Windows 11's technological requirement.
- The skills and capability of the IT team to plan the migration and implementation of Windows 11.
- The geography where the implementing organization is located, which impacts the assumed annual salary of its employees.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$82,500.

Initial Planning And Implementation Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
D1	New desktops, laptops, or Windows tablets purchased	Composite	30	0	0	0
D2	Average cost per new device	Assumption	\$1,200	\$0	\$0	\$0
D3	Hardware upgrade time (hours)	Interview	120	0	0	0
D4	IT admin hourly salary	Assumption	\$35	\$0	\$0	\$0
D5	Subtotal: Total cost related to upgrading hardware	$D1 \times D2 + D3 \times D4$	\$40,200	\$0	\$0	\$0
D6	Planning and implementation FTE	Interview	4	0	0	0
D7	Planning and implementation time (years)	Composite	0.12	0	0	0
D8	Planning and implementation FTE annual fully burdened salary	Assumption	\$145,000	\$0	\$0	\$0
D9	Percentage of time dedicated	Interview	50%	0	0	0
Dt	Initial planning and implementation costs	$D5 + D6 \times D7 \times D8 \times D9$	\$75,000	\$0	\$0	\$0
	Risk adjustment	↑10%				
Dtr	Initial planning and implementation costs (risk-adjusted)		\$82,500	\$0	\$0	\$0
<b>Three-year total: \$82,500</b>			<b>Three-year present value: \$82,500</b>			

### FUTURE IMPLEMENTATION COST

**Evidence and data.** The migration of users from Windows 10 to Windows 11 is unlikely to happen immediately. Interviewees shared that it would be a gradual process that takes place over several years before they reach full adoption. During the gradual migration, more desktops and laptops would have to be upgraded to meet the Windows 11 technology requirements. While some would be replaced in the usual refresh cycle, a percentage would have to be upgraded outside the usual cycle. In terms of time dedicated to planning and implementation, the majority of the planning took place in the initial phase. However, some more planning and implementation was needed every year before the company reached full adoption (or as close to it).

Additionally, there will be annual and monthly updates introduced by Microsoft. Organizations would typically have to test these updates before releasing them to their environment. However, this effort is no different between Windows 11 and Windows 10 users.

- A CIO in investment management shared: “Right now, we are at 15% adoption rate after nine months of use. We transition users to Windows 11 on a weekly basis. Between new employees and refresh, we should be close to 30% to 40% by the end of 2022, and hopefully close to full adoption by mid or end of 2023. The update efforts should be no different between Windows 10 and 11.”
- A CIO in e-commerce said: “After starting production in end of 2021, early 2022, we are

now at 65% to 70% adoption. We should get full adoption by end of 2022. Whenever a new push or software comes from Microsoft, it will go through testing in-house before we push it out onto everybody's desktop or servers."

- A CISO in IT services said: "We haven't had any requests from users to do user training. Most have had a seamless transition from Windows 10 to 11. The relatively sizeable investment that enterprises need to keep in mind is to upgrade their machines for the OS to work seamlessly. It needs faster CPUs, graphics, better RAM. We spent as much as \$2,000 for each of our additional hardware upgrades."
- A senior director of IT infrastructure in financial trading said: "In terms of how long it took to upgrade, when people were in office, the plain update took 2 hours, with another 6 hours for all the extra configuration to be set up. It took probably one FTE."
- A CIO in investment management said: "On an ongoing basis, we have three to four people spending 25% to 30% of their time assisting users, but we expect this to go down as people get used to Windows 11. For user training, the IT team provides handouts that explain the main differences between Windows 10 and 11."

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

- The usual device refresh cycle is four years, which means that every year, the organization upgrades 25% of its hardware. Thirty percent of that device upgrade pool must be upgraded outside the usual cycle each year.
- The average cost of a new hardware is \$1,200.
- Each hardware requires 4 hours to be upgraded, including the internal testing it needs before being integrated into the IT environment.

- The average fully burdened IT admin hourly salary is \$35.<sup>13</sup>
- The same planning and implementation effort is done. However, since the majority of the work is done in the initial phase, the effort required in Year 1 and Year 2 is 50% of the FTEs and time.
- In Year 3, as the composite has achieved close to full adoption, no further planning and implementation effort is needed.
- The average fully burdened salary of employees involved is \$145,000, incorporating roles like managers, directors, software developers.<sup>14</sup>
- Employees involved dedicate 50% of their time to the effort.
- As the ongoing effort to manage and test updates is no different between Windows 10 and 11, it is assumed there is no net new effort specific to Windows 11 implementation, and thus is not considered part of this financial model.

**Risks.** The exact costs incurred by an organization related to future implementation will depend on:

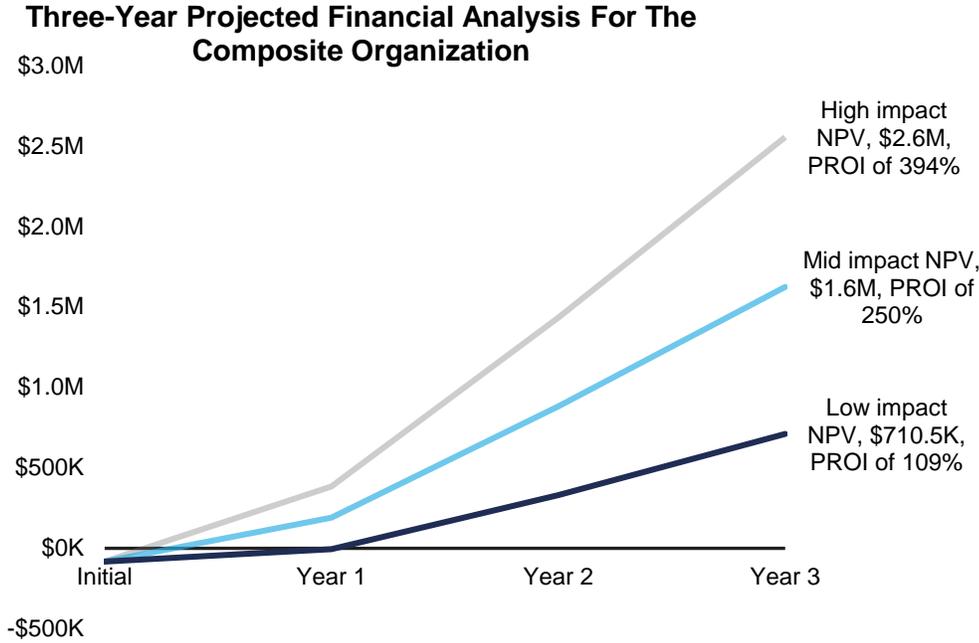
- The migration schedule and adoption rate of Windows 11 that the organization is able to accomplish each year.
- The amount of hardware the organization has to upgrade each year to meet the technological requirement of Windows 11.
- The skills and capability of the IT team to plan the migration and implementation of Windows 11.
- The geography where the implementing organization is located, which impacts the assumed annual salary of its employees.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$566,000.

<b>Future Implementation Cost</b>						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
E1	New desktops, laptops, or Windows tablets purchased	Composite	0	150	150	150
E2	Average cost per new device	Forrester assumption	\$0	\$1,200	\$1,200	\$1,200
E3	Hardware upgrade time (hours)	Interview	0	600	600	600
E4	IT admin hourly salary	Forrester assumption	\$0	\$35	\$35	\$35
E5	Subtotal: Total cost related to upgrading hardware	$E1 * E2 * E3 * E4$	\$0	\$201,000	\$201,000	\$201,000
E6	Planning and implementation FTE	$50% * D6$ , None in Year 3	0	2	2	0
E7	Planning and implementation time (years)	$50% * D7$ , None in Year 3	0	0.06	0.06	0
E8	Planning and implementation FTE annual fully burdened salary	Forrester assumption	\$0	\$145,000	\$145,000	\$0
E9	Percentage of time dedicated	Interview	0	50%	50%	50%
E10	Subtotal: Total cost related to planning and implementation	$E6 * E7 * E8 * E9$	\$0	\$8,700	\$8,700	\$0
Et	Future implementation cost	$E5 + E10$	\$0	\$209,700	\$209,700	\$201,000
	Risk adjustment	↑10%				
Etr	Future implementation cost (risk-adjusted)		\$0	\$230,670	\$230,670	\$221,100
<b>Three-year total: \$682,440</b>			<b>Three-year present value: \$566,452</b>			

# Financial Summary

## CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS



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

**These risk-adjusted PROI and projected 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	(\$82,500)	(\$230,670)	(\$230,670)	(\$221,100)	(\$764,940)	(\$648,952)
Total benefits (low)	\$0	\$316,448	\$635,056	\$728,000	\$1,679,504	\$1,359,477
Total benefits (mid)	\$0	\$530,172	\$1,068,264	\$1,208,083	\$2,806,519	\$2,272,487
Total benefits (high)	\$0	\$743,896	\$1,500,032	\$1,712,950	\$3,956,878	\$3,202,930
PROI (low)						109%
PROI (mid)						250%
PROI (high)						394%

# Appendix A: New Technology: Projected Total Economic Impact

New Technology: Projected Total Economic Impact (New Tech TEI) is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value of their products and services to clients. The New Tech TEI methodology helps companies demonstrate and justify the projected tangible value of IT initiatives to senior management and key business stakeholders.

## TOTAL ECONOMIC IMPACT APPROACH

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

**Projected Costs** consider all expenses necessary to deliver the proposed value of the product. The projected cost category within New Tech TEI captures incremental ongoing costs over the existing environment that are 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.



## PROJECTED NET PRESENT VALUE (PNPV)

The projected 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.



## PROJECTED RETURN ON INVESTMENT (PROI)

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%.

## Appendix B: Supplemental Material

*Related Forrester Research*

“Windows 11 Aims To Delight Users But Needs To Establish Its Purpose,” Forrester Research, Inc., June 24, 2021.

## Appendix C: Endnotes

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<sup>1</sup> Source: “The Anywhere-Work Preflight Checklist,” Forrester Research, Inc., April 22, 2022.

<sup>2</sup> 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.

<sup>3</sup> Customers with Windows 10 Home or Pro edition can upgrade to Windows 11 for free. Customers with a Volume Licensing agreement for Windows Enterprise edition that includes Software Assurance or a Windows 10/11 Enterprise E3 or higher subscription always have free upgrade rights.

<sup>4</sup> Fully burdened salary includes both the direct wages and indirect costs of hiring and employment. Burden rate refers to indirect costs of employment beyond direct compensation, including, but not limited to: hiring costs, training costs, financial services, paid time off, sick leave, expenses, retirement contributions, payroll taxes, and incremental technology and workplace costs for the employee.

<sup>5</sup> Data represented is based on a data subset of organizations with 5,000 or more employees, taken from Forrester Consulting’s “Q4 2020 Cost of a Cybersecurity Breach Survey.”

<sup>6</sup> Source: “Cost of a Cyber Incident: Systematic Review and Cross-Validation,” Cybersecurity & Infrastructure Security Agency, October 2020.

<sup>7</sup> Source: “The UX ROI For B2B Tech Vendors,” Forrester Research, Inc., December 10, 2021.

<sup>8</sup> Source: “2022 IT And Digital Budget Benchmarks, North America,” Forrester Research, Inc., March 16, 2022.

<sup>9</sup> Source: Forrester Analytics Business Technographics Security Survey, 2021.

<sup>10</sup> Source: “2022 IT And Digital Budget Benchmarks, North America,” Forrester Research, Inc., March 16, 2022.

<sup>11</sup> Fully burdened salary includes both the direct wages and indirect costs of hiring and employment. Burden rate refers to indirect costs of employment beyond direct compensation, including, but not limited to hiring costs, training costs, financial services, paid time off, sick leave, expenses, retirement contributions, payroll taxes, and incremental technology and workplace costs for the employee.

<sup>12</sup> Source: Ibid.

<sup>13</sup> Source: Ibid.

<sup>14</sup> Source: Ibid.



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