

FORRESTER®

The Total Economic Impact™ Of The Intel vPro® Platform As An Endpoint Standard

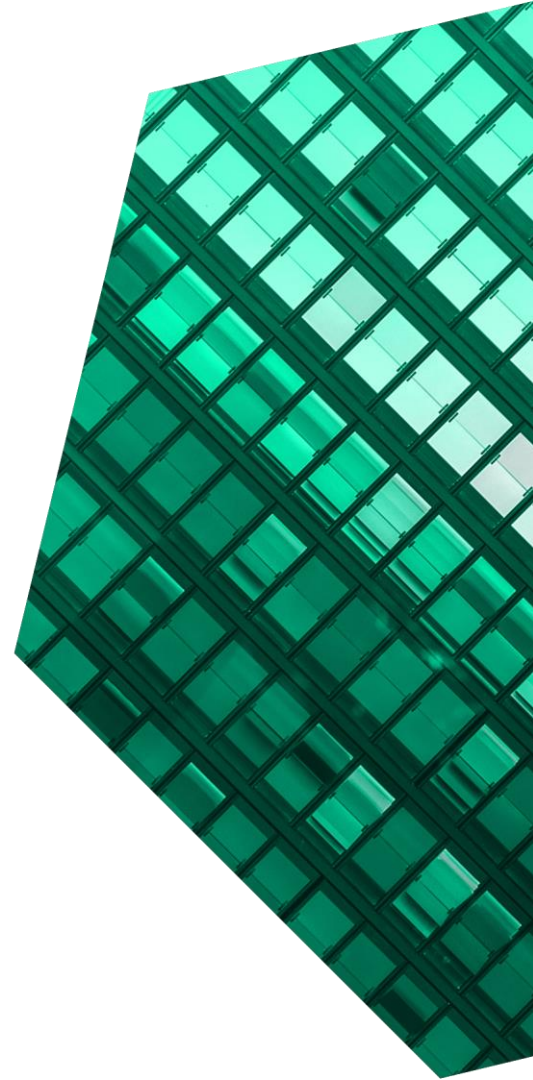
Cost Savings And Business Benefits
Enabled By The Intel vPro® Platform
As An Endpoint Standard

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Executive Summary

IT leaders are under growing pressure to provide endpoint devices that enable employee productivity and can be supported with small IT teams and budgets. Interviewed and surveyed IT decision-makers who maintained Intel vPro® as their endpoint standard improved employee experience, reduced IT and help desk labor, avoided onsite visits, enhanced hardware security, lowered energy usage, reduced greenhouse gases, and provided greater organizational flexibility.

The [Intel vPro platform](#) is a set of technologies in business-class laptops and desktops that provide fast processors, advanced BIOS-level remote management capabilities, hardware validation and support, and built-in endpoint hardware-enabled security. This functionality is enabled by several technologies built into Intel vPro-based devices and included with the Intel vPro platform such as Intel® Active Management Technology (Intel® AMT), Intel® Endpoint Management Assistant (Intel® EMA), Intel® Stable Image Platform Program (Intel® SIPP), and Intel® Hardware Shield. These technologies scale with IT groups and organizations and are especially effective when the majority of endpoint devices in an environment are Intel vPro-based devices.

Intel commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Intel vPro as their standard endpoint platform.¹ The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Intel vPro as an endpoint standard on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed seven representatives from five organizations and surveyed 500 respondents with experience using Intel vPro as their endpoint standard.² For the purposes of this study, Forrester aggregated the experiences of the interviewees and survey respondents and combined the results into a single

KEY STATISTICS



Return on investment (ROI)

213%



Net present value (NPV)

\$2.94M

[composite organization](#) that is an organization with 10,000 employees and revenue of \$1 billion per year.

Prior to using Intel vPro, these interviewees noted how their organizations struggled to maintain employee and IT productivity, avoid security vulnerabilities, and reduce IT overhead associated with maintaining and deploying multivendor endpoint devices. However, prior attempts yielded limited success and left them with significant IT costs, wasted employee time, and difficulty maintaining a secure environment.

By choosing to maintain Intel vPro as their endpoint standard, the interviewees' organizations freed up IT and non-IT employee time, allowed for greater simplicity of endpoint management, reduced onsite visits, and avoided security breaches and costs.

KEY FINDINGS

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

- **Easier endpoint device setup and ongoing management.** IT staff within the composite organization can deploy Intel vPro-based devices 30% faster than non-Intel devices. In addition, they save 65% of their time spent on ongoing endpoint device management because Intel vPro-based devices have fewer hardware issues and technology that accelerates resolution. This saved IT labor provides \$1.7 million in value to the composite organization over three years.
- **Fewer help desk support tickets.** Like IT staff, the help desk of the composite organization saves time with 40% fewer endpoint hardware-related tickets. The reduced tickets save the composite organization \$776,000 over three years.
- **Reduced need for onsite support.** Employees have fewer escalated issues with Intel vPro-based devices, which avoids 90% of endpoint hardware-related onsite visits from IT staff. The reduction in travel and IT staff time is worth \$1 million over three years to the composite organization.
- **Improved employee effectiveness from improved hardware stability.** The composite organization receives value from its end-user employees having fewer hardware-related issues

“Any configuration of laptop, desktop, or tablet needs [Intel] vPro. It’s really paid off over the years because it’s given us a superior technology with the extra features and functionality we need.”

Front-end support manager,

and being able to resolve remaining issues faster. This provides the composite organization with \$189,000 of value over three years.

- **Reduced energy costs.** Intel vPro-based devices use 15% less energy than comparable non-Intel vPro-based devices, which saves \$70,000 in energy costs to the composite organization over three years.
- **Hardware-enabled security.** The composite organization has 23% fewer breaches and spends 35% less time on breach investigation, with 10% to 12% of this improvement attributable to Intel vPro’s hardware-enabled security in addition to other security practices enabled by Intel vPro technologies. The portion of this savings attributable to Intel vPro over three years is worth \$338,000 to the composite organization.
- **Saved cost of third-party software and services.** Technologies included with Intel vPro allow the composite organization to avoid buying or expanding third-party software for remote management, telemetry, and hardware security, saving \$224,000 over three years.
- **Reduced carbon emissions.** The composite organization leverages its Intel vPro-based environment to avoid additional carbon

Hardware-related onsite visits avoided

90%



emissions. This is accomplished with lower energy usage per endpoint device and fewer onsite visits, allowing the composite organization to avoid 368,000 kgs of carbon emissions over a three-year period.

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

- **Protected core business revenue.** IT staff can remotely access remote devices that require specialized knowledge or clearance and reduce operational downtime of individuals sites.
- **Improved employee experience.** Employees experience fewer interruptions and greater device performance, which allows them to be more productive and to have a better working experience.
- **Yielded higher device resale value.** The composite organization resells its Intel vPro-based Windows devices for more than it could sell non-Intel vPro Windows devices, increasing its cashflow.

“When we first saw what [Intel] vPro could do, we said, ‘We’ve found a silver bullet!’ It was extremely exciting.”

Front-end support manager, government

- **Enabled more efficient partnerships.** Managed service providers (MSPs) are also able to access Intel vPro technologies once granted access by the composite organization. This allows the MSPs to service the composite organization more efficiently.
- **Retained customers.** The composite organization can retain more customers as it has fewer material breaches. It also benefits from a faster recovery time that helps protect customer trust.
- **Protected ecosystem trust.** Like customer trust, the composite organization can better protect the trust of ecosystem partners with Intel vPro’s hardware-enabled security. This provides the organization with long-term benefits of better working relationships and security reputation throughout the supply chain and industry.

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

- **Incremental cost of Intel vPro-based devices.** Intel vPro-based devices initially cost more on a per device basis, requiring an additional investment as they are refreshed. The aggregated device premium over a three-year period results in \$1.2 million additional cost for the composite organization.

“We originally went with [Intel] vPro because it defines a set of hardware standards inside the device. We knew what we were getting, and that the OEMs didn’t mess around midstream and change out any hardware. We used [Intel vPro] as a lever to make sure we knew exactly what we were getting from our OEMs.”

Senior systems engineer, airline

- **Labor for additional security tickets.** Intel vPro's hardware-enabled security results in additional security tickets from flagged threats. This requires additional time for IT staff to investigate and costs \$19,000 in labor over a three-year period.
- **Labor to train IT staff on Intel vPro technologies.** IT staff need an initial three to five days for training on Intel vPro technologies to use them effectively. The cost of this initial labor, as well as labor for new IT hires, equals \$168,000 over a three-year period for the composite organization.

The financial analysis which is based on the interviews and survey found that a composite organization experiences benefits of \$4.32 million over three years versus costs of \$1.38 million, adding up to a net present value (NPV) of \$2.94 million and an ROI of 213%.



ROI
213%



BENEFITS PV
\$4.32M

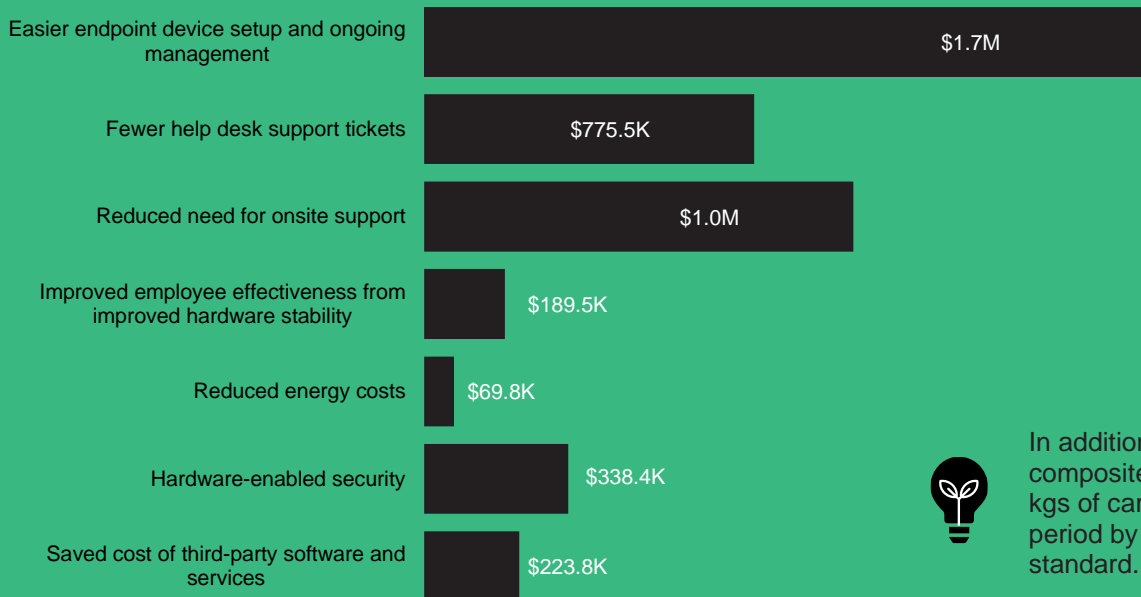


TIME TO MANAGE
DEVICES
65% Reduction



HARDWARE-RELATED ONSITE
VISITS
90% Reduction

Benefits (Three-Year)



In addition to these financial benefits, the composite organization avoids 368,000 kgs of carbon emissions over a three-year period by using Intel vPro as its endpoint standard.

“[Intel] vPro devices are a little more expensive than regular devices, but we see a lot of financial and nonfinancial benefits. All this accounts to a better ROI if you spend on [Intel vPro] devices.”

— Chief information officer, education

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 Intel vPro.

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 Intel vPro can have on an organization.

Forrester Consulting 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 on behalf of Forrester in November 2020.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Intel 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 Intel vPro.

Intel 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.

Intel 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 Intel stakeholders and Forrester analysts to gather data relative to Intel vPro.



INTERVIEWS AND SURVEY

Interviewed seven representatives from five organizations and surveyed 500 respondents at organizations using Intel vPro to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewees and survey respondents.



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 and survey respondents.



CASE STUDY

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

The Intel vPro Customer Journey

■ Drivers leading to the Intel vPro investment as an endpoint standard

KEY CHALLENGES

Forrester interviewed seven representatives from five organizations and surveyed 500 respondents with experience using Intel vPro as an endpoint standard. For more details on these individuals and the organizations they represent, see [Appendix B](#).

Prior to using Intel vPro as an endpoint standard, organizations had fragmented environments with a variety of chipsets and devices. To address this complexity, organizations had larger device support teams. Additionally, these devices did not include BIOS-level remote support technologies, so leaders planned for frequent onsite visits to service devices that were not fixable remotely with their current technology.

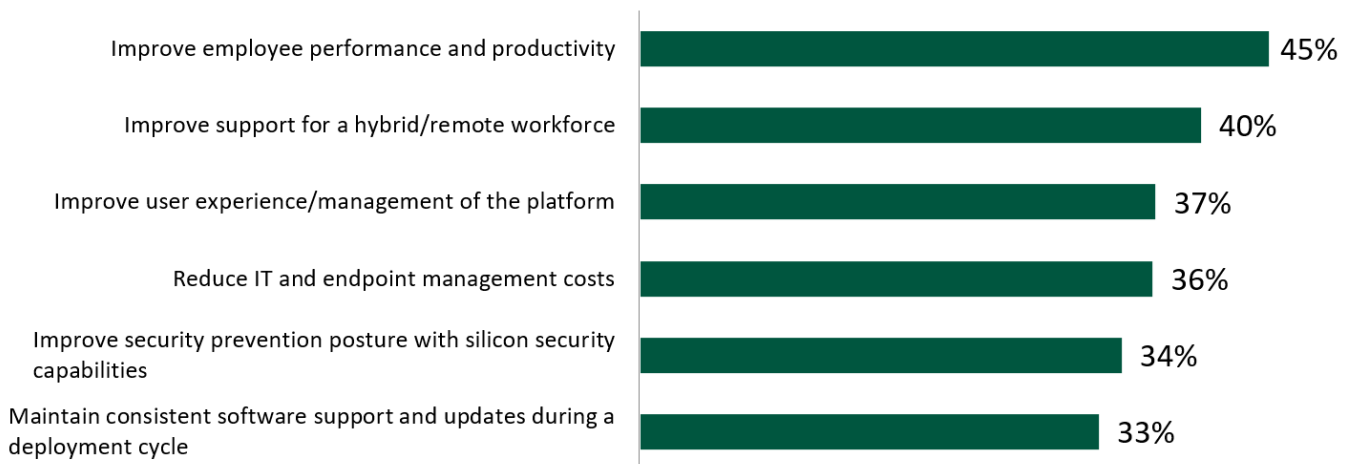
Both interviewees and survey respondents noted how their organizations struggled with common challenges, including:

- **Desire to improve employee performance and productivity.** The primary concern for the IT decision-makers was providing employees with

stable hardware that their organizations could easily support and manage regardless of where an employee was located. “Improve employee performance and productivity” was the most frequently cited goal among surveyed IT decision-makers when asked why they chose Intel vPro as an endpoint standard.³ Interviewees also discussed the business impact of employees losing productivity due to issues with their endpoint devices and IT struggling with remote management.

- **Complexity and difficulty imaging and deploying in a fragmented device ecosystem.** The presence of so many types of non-Intel vPro chipsets and hardware configurations required dozens of images to be created, validated, and maintained on an ongoing basis. As many devices were non-Intel vPro, hardware configurations varied greatly and needed to be recreated often, which further increased the burden on IT to provide employees with working and stable endpoint devices. A total of 36% of

"What challenges or organizational goals did you hope to address by selecting Intel vPro® as your standard platform?"



Base: 500 Global IT decision-makers and Intel vPro® Customers

Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023

survey respondents chose Intel vPro to reduce IT and endpoint management costs.⁴

- **Regular challenges with ongoing device management.** Even after initial deployment of non-Intel vPro-based devices, teams struggled with employee and remote devices breaking and having hardware failures that required escalated levels of support. This not only further increased the burden on IT groups, but it also reduced employee efficiency when endpoint devices were inoperable.

“[Intel] vPro is about using the right technology to improve efficiency and reduce error rates.”

Chief information officer, education

- **Difficulty supporting a remote or hybrid workforce.** Interviewed and surveyed IT decision-makers struggled with sizeable groups of employees working outside of offices and corporate networks on an either full-time or hybrid basis. This required IT groups to remotely manage a larger number of endpoint machines and created concerns about employees being able to work effectively. “Improve support for a hybrid/remote workforce” was another frequent goal among surveyed IT decision-makers, with 40% citing it when asked why they chose Intel vPro as an endpoint standard.⁵
- **Concerns around endpoint security and protection of company assets.** Protecting endpoint devices became significantly more difficult for organizations after the number of

employees working remotely grew and began accessing a larger variety of networks. In addition, ransomware and other cyberattacks had become more frequent, which required IT groups to invest more in prevention efforts, including hardware-enabled security.⁶ Approximately one third of survey respondents selected Intel vPro as their standard platform to improve their security posture.⁷

- **Disruptions to business operations.** As organizations expanded across geographies, IT staff were tasked with maintaining endpoint devices across locations that were crucial to business operations, such as customer kiosks or other terminals. A major concern for interviewed IT decision-makers was reducing the time to resolution for any issues facing these remote devices and mitigating operational disruption to the business.

“I have used Intel [vPro] for many years, and in my experience — with few minor exceptions — [non-Intel Windows] has never competed with Intel.”

SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

The interviewees and survey respondents searched for a solution that could:

- Provide BIOS-level remote management functionality that did not require endpoint devices to be powered on or even for the device users to be involved in the resolution process.

- Improve employee effectiveness by having fewer endpoint device breakdowns and faster resolution.
- Standardize architecture and hardware configurations to significantly reduce the number of images IT groups were responsible for creating and maintaining.

After a request for proposal (RFP) and business case process that evaluated multiple vendors, the interviewees chose Intel vPro and began deployment.

Interviewees typically deployed Intel vPro-based devices in a phased approach, refreshing old non-Intel vPro-based devices over a three-to-four-year period.

COMPOSITE ORGANIZATION

Based on the interviews and survey, 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 five interviewees and the 500 survey respondents, and it is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The global, billion-dollar B2C organization has a workforce of 10,000 employees distributed across the world. To service its customers the composite organization uses 1,000 remote kiosks in its major markets. Employees work in a mixture of hybrid and remote environments, and all employees perform primary work tasks on their Windows-based Intel vPro laptops and desktop endpoint devices (each employee has one endpoint device). IT groups are centrally located and leverage Intel vPro technologies to manage endpoint devices and remote kiosks remotely.

Deployment characteristics. The composite organization has maintained Intel vPro as its endpoint standard for 15 years, and refreshes endpoint devices on an average of once every 3.5 years.

Key Assumptions

- **10,000 employees**
- **1,000 additional remote customer-facing devices**
- **100% of endpoint devices are Intel vPro-based**

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	Easier endpoint device setup and ongoing management	\$690,570	\$690,570	\$690,570	\$2,071,710	\$1,717,345
Btr	Fewer help desk support tickets	\$311,850	\$311,850	\$311,850	\$935,550	\$775,525
Ctr	Reduced need for onsite support	\$405,603	\$405,603	\$405,603	\$1,216,809	\$1,008,675
Dtr	Improved employee effectiveness from improved hardware stability	\$76,194	\$76,194	\$76,194	\$228,582	\$189,483
Etr	Reduced energy costs	\$28,050	\$28,050	\$28,050	\$84,150	\$69,756
Ftr	Hardware-enabled security	\$136,063	\$136,063	\$136,063	\$408,189	\$338,368
Gtr	Saved cost of third-party software and services	\$90,000	\$90,000	\$90,000	\$270,000	\$223,817
	Total benefits (risk-adjusted)	\$1,738,330	\$1,738,330	\$1,738,330	\$5,214,990	\$4,322,969

EASIER ENDPOINT DEVICE SETUP AND ONGOING MANAGEMENT

Evidence and data. Interviewees shared that Intel vPro included many technologies that enabled their IT teams to deploy and manage Intel vPro laptops and desktops more efficiently. For example, Intel SIPP reduced the number of corporate images IT groups needed to maintain by assuring consistency of hardware and endpoint devices. Intel Active Management Technology (Intel AMT) allowed IT groups to address problems below the software level with hardware-based management of Intel vPro-based devices. In addition, Intel EMA allowed administrators to remotely manage Intel Active Management Technology (Intel AMT) even if a device is not on a known Wi-Fi network or beyond a corporate firewall.

- After moving to Intel vPro as their endpoint standard, a government organization was able to

“We are now almost three times faster with imaging and deploying Intel vPro.”

Chief information officer, education

build images for their endpoint devices just once a year instead of four times a year. This saved their IT group approximately three weeks of labor each year.

- A financial services organization’s IT department avoided 250 escalated incidents in a month due to images not needing to be rebuilt as frequently. Over the course of a year, the reduced number of imaging issues saved the organization approximately \$250,000 as each escalated incident cost an average of \$85.

- An educational organization found that after moving to Intel vPro as an endpoint standard, that the number of devices requiring support fell from 3% to 5% each month to just 1%, or the equivalent of a 67% to 80% reduction in the number of hardware-related support tickets.
- An educational organization was able to reduce its time to resolution of escalated calls by 40% due to Intel vPro allowing it to address issues at the hardware level rather than the software level.
- A financial organization was able to reduce the size of its endpoint management team from 20 FTEs down to just 10 FTEs after moving to Intel vPro as an endpoint standard. The company and number of endpoint devices continued to grow, but the total labor required for overall endpoint device management fell by more than 50%, or more than 20 hours per FTE per week.

“We used to run this department [of endpoint management] with 20 people, but with Intel vPro we now only need 10.”

Director of hardware, financial services

- Out of all survey respondents whose organizations used Intel vPro as their endpoint standard, 87% said it allowed for faster device qualification and deployment and 86% said it improved patching efficiency.⁸
- A total of 89% of survey respondents reported that their company has experienced “easier IT management and support” by using Intel vPro as a standard.⁹ The same respondents reported that their IT staff spent an average of 54% less time

“We had 250 incidents in a 30-day period that were resolved without going to build support. All that was because we could remote into the machine using [Intel vPro] without VPN.”

IT architecture executive advisor, financial services

managing Intel vPro-based endpoint devices as compared to non-Intel vPro-based devices.¹⁰

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization maintains 11,000 devices, with 10,000 endpoint laptops and desktops for its 10,000 employees. In addition, 1,000 remote kiosk devices are deployed with Intel vPro for customer usage. Devices are refreshed an average of every 3.5 years.
- It takes IT staff 30% less time to deploy an Intel vPro-based device as compared to a non-Intel vPro-based device. This saves half an hour for each device that is deployed.
- It takes 65% less time to manage Intel vPro-based devices as compared to non-Intel vPro devices. Before Intel vPro, the 70 IT staff spent an average of 12 hours each week managing endpoint devices. With Intel vPro as an endpoint standard, this is reduced by an average of 8 hours per FTE per week.
- IT staff are paid an average of \$50 per hour in fully burdened salary.

- Of all time that is saved, IT staff can reallocate 50% towards higher-value tasks. While it is likely greater value would be derived from these tasks, this analysis conservatively quantifies the value of the saved time at \$50 per hour.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Organizations may not achieve the same improvement in deployment efficiency with Intel vPro if they have already invested in additional tools and programs to improve efficiency of image creation and management.
- Similarly, organizations that have already built out advanced management capabilities may not see the same magnitude of improvement with Intel vPro as an endpoint standard. However, functionality included with Intel vPro may render third-party services obsolete and directly reduce costs.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$1.7 million.

Easier Endpoint Device Setup And Ongoing Management

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of Intel vPro-based devices	Composite	11,000	11,000	11,000
A2	Device refresh rate (years)	Composite	3.5	3.5	3.5
A3	Number of Intel vPro-based devices deployed per year	A1/A2	3,143	3,143	3,143
A4	Hours to deploy a non-Intel vPro-based device	Survey	1.7	1.7	1.7
A5	Reduction in time to deploy an Intel vPro-based device	Survey and Interviews	30%	30%	30%
A6	Hours saved deploying one Intel vPro-based device	A4*A5	0.5	0.5	0.5
A7	Subtotal: Total hours saved from faster Intel vPro deployment	A3*A6	1,572	1,572	1,572
A8	Number of IT FTEs managing endpoint devices	Composite	70	70	70
A9	Hours per IT FTE per week managing non-Intel vPro-based devices	Survey	12	12	12
A10	Reduction in time to manage Intel vPro-based devices	Survey and interviews	65%	65%	65%
A11	Hours saved per IT FTE per week managing Intel vPro-based devices (rounded)	A9*A10	8	8	8
A12	Subtotal: Total hours saved managing Intel vPro-based devices	A8*A11*52 weeks	29,120	29,120	29,120
A13	Hourly wage for IT FTE (fully burdened)	Composite	\$50	\$50	\$50
A14	Time recaptured	Composite	50%	50%	50%
At	Easier endpoint device setup and ongoing management	(A7+A12)*A13*A14	\$767,300	\$767,300	\$767,300
	Risk adjustment	↓10%			
Atr	Easier endpoint device setup and ongoing management (risk-adjusted)		\$690,570	\$690,570	\$690,570
Three-year total: \$2,071,710			Three-year present value: \$1,717,345		

FEWER HELP DESK SUPPORT TICKETS

Evidence and data. In addition to fewer escalated issues with Intel vPro laptops, interviewees also found that their organizations' help desk centers received fewer calls and support tickets related to endpoint hardware issues after moving to Intel vPro as an endpoint standard.

- The decline in help desk support tickets was slightly less than the decline in escalated tickets across the experiences of the interviewees. This was because many issues that would have needed to be escalated before could now be resolved at the help desk level using Intel EMA to remotely fix common issues. Before using Intel vPro, these common issues required an IT staff member to use different tools.
- By giving their help desk employees access to Intel EMA, a financial services organization found that Intel vPro allowed them to route many support requests to their help desk as a level one ticket instead of a level two. Each time this happened, the organization saved about \$75 as level one tickets each cost about \$10 to resolve, whereas level two tickets cost closer to \$85.
- Of all survey respondents who used Intel vPro as their endpoint standard, 80% found it resulted in fewer support tickets.¹¹

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization maintains its 11,000 Intel vPro-based devices as its endpoint standard, with 10,000 endpoint laptops and desktops for its 10,000 employees. In addition, 1,000 Intel vPro-based remote kiosk devices are deployed for customer usage. Devices are refreshed every 3.5 years.
- Device management-related help desk tickets are reduced by 40% with Intel vPro as devices are

“We see financial benefits with [Intel] vPro that all quantify into ROI of [Intel] vPro. We are saving two field support FTEs yearly for IT support. We are saving another three FTEs with our service desk. And then, we can solve more issues more efficiently.”

Chief information officer, education

more stable. This reduces the average number of help desk tickets per device per year by 0.7.

- Support desk tickets are answered and resolved by employees in a call center and are separate from escalated issues resolved by IT staff. This has [already been quantified](#) in this analysis.
- To be conservative, this analysis assumes that device management-related help desk tickets take the same time to resolve for Intel vPro as for non-Intel vPro-based devices. This is due to more complex issues being able to be resolved at the initial help desk stage with Intel vPro, rather than being escalated to IT staff as they were without Intel vPro.
- Help desk employees are paid an average of \$30 per hour with a fully burdened salary.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Interviewees shared that Intel vPro enabled their help desk employees to resolve issues on their own rather than needing to escalate as often. Depending on the abilities of help desk employees, some IT leaders may find that help

desk employees spend more time resolving endpoint hardware problems with Intel vPro. While this would free IT staff and reduce the net support costs, there is potential that help desk labor in isolation would increase, not decrease.

- Organizations that struggle more with hardware issues may receive greater benefit from Intel vPro to their help desk employees as compared to organizations where hardware issues are rare.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$776,000.

“Having [Intel] vPro is the highest standard for manufacturers. So, you buy higher quality equipment, and you have much fewer breakdowns and failures than others.”

Director of hardware, financial services

Fewer Help Desk Support Tickets					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of Intel vPro-based devices	Composite	11,000	11,000	11,000
B2	Number of device management-related support incidents per device per year without Intel vPro platform	Survey	1.7	1.7	1.7
B3	Percentage of device management-related support tickets avoided with Intel vPro platform	Survey and Interviews	40%	40%	40%
B4	Number of device management-related support incidents per device per year avoided with Intel vPro platform	B2*B3	0.7	0.7	0.7
B5	Number of device management-related support incidents avoided each year due to Intel vPro	B1*B4	7,700	7,700	7,700
B6	Hours spent per device management support related	Interviews	1.5	1.5	1.5
B7	Total hours saved from supporting Intel vPro-based devices	B5*B6	11,550	11,550	11,550
B8	Hourly wage for help desk FTE (fully burdened)	Composite	\$30	\$30	\$30
Bt	Fewer help desk support tickets	B7*B8	\$346,500	\$346,500	\$346,500
	Risk adjustment	↓10%			
Btr	Fewer help desk support tickets (risk-adjusted)		\$311,850	\$311,850	\$311,850
Three-year total: \$935,550			Three-year present value: \$775,525		

REDUCED NEED FOR ONSITE SUPPORT

Evidence and data. Interviewees' and survey respondents' organizations consistently reduced their number of onsite support visits related to hardware issues after they invested in Intel vPro as their endpoint standard, often virtually eliminating these trips altogether.

- In their internal analysis, an airline found that using Intel vPro as their endpoint standard allowed them to avoid almost all onsite visits for IT to resolve hardware issues with customer service kiosks. These trips were eliminated as hardware issues could now be resolved remotely and were also less likely to occur with Intel vPro-based hardware. This eliminated approximately 4,000 trips each year and provided an estimated \$1 million in cost savings in labor alone. Its senior systems engineer said, "Quite frankly, the biggest win for us is remotely rebooting hung machines."
- The airline was also able to reduce hardware issues on approximately 2% of its endpoint devices each year. As each issue would have cost between \$150 to \$200, this was worth an additional \$165,000 to \$220,000 to the airline each year.
- An educational organization found that its overall IT onsite visits reduced by 23% after moving just 50% of its endpoint Windows devices to Intel vPro hardware. Its interviewed chief information officer expected this number to reduce even further over the next two years as the remaining 50% of Windows devices are refreshed with Intel vPro hardware.
- A government organization found that the vast majority of its onsite IT visits were no longer required as its patch success rate had improved from 50% to 90% immediately after deploying Intel vPro.

"...How many trips has the average IT support employee been able to avoid each month, and how many miles are traveled in a typical round-trip visit?"

Average number of **truck rolls or IT support trips avoided** per IT support employee per month due to Intel vPro® **29.7 trips**

Average typical **round-trip length** of a truck roll or IT support trip **261 miles**

Base: 38 global IT decision-makers and Intel vPro customers who indicated their organization reduced truck rolls or IT support trips
Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, August 2023

- Of all survey respondents whose organizations used Intel vPro as their endpoint standard, 85% said it allowed for more efficient remote and hybrid working and 80% said it resulted in fewer onsite visits.¹²

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization maintains its 11,000 devices as its endpoint standard, with 10,000 endpoint laptops and desktops for its 10,000 employees. In addition, 1,000 remote kiosk devices are deployed with Intel vPro for customer usage.
- IT staff need to make one onsite visit each year for ten percent of the endpoint devices the team manages. This figure accounts for remote kiosk devices potentially requiring onsite support more frequently than employee endpoint devices.
- IT staff can leverage Intel vPro tools, such as Intel Active Management Technology (Intel AMT), to remotely resolve 90% of endpoint issues which would have previously required an onsite visit.

- Of all onsite visits avoided, 80% would have been travelling in a vehicle and the remaining 20% would have required air travel. The weighted average cost per roundtrip is \$82 for tickets, fuel, and maintenance.
- Each onsite visit requires one IT staff to spend 8 hours traveling. This time is fully recovered as IT staff can fully reallocate that day towards higher value tasks.
- IT staff are paid an average of \$50 per hour in fully burdened salary.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Organizations will likely use multiple methods to reduce onsite visits, such as investing in

additional endpoint spares to ship overnight in the case of remote issues. As more methods are used to reduce the number of onsite visits, the benefit of Intel vPro reducing onsite visits may be reduced.

- The travel and labor costs of an onsite visit will vary between organizations, and the benefit of reducing these visits will vary as well. Organizations with broader global operations across dispersed sites may find greater benefit in reducing their onsite visits than those where offices are relatively close, and the cost of travel is low.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$1.0 million.

Reduced Need For Onsite Support					
Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of Intel vPro-based devices	Interviews	11,000	11,000	11,000
C2	Percentage of non-Intel vPro-based devices requiring onsite support related to hardware issues each year	Interviews and survey	10%	10%	10%
C3	Onsite support trips required each year for non-Intel vPro-based devices	C1*C2	1,100	1,100	1,100
C4	Percentage of onsite support trips related to hardware issues avoided with Intel vPro-based devices	Interviews and survey	90%	90%	90%
C5	Avoided onsite support trips required each year	C3*C4	990	990	990
C6	Resource time to resolve an escalated onsite incident	Interviews	8	8	8
C7	Hourly wage for IT FTE (fully burdened)	Composite	\$50	\$50	\$50
C8	Additional travel cost per trip	Interviews	\$82	\$82	\$82
Ct	Reduced need for onsite support	C5*((C6*C7)+C8)	\$477,180	\$477,180	\$477,180
	Risk adjustment	↓15%			
Ctr	Reduced need for onsite support (risk-adjusted)		\$405,603	\$405,603	\$405,603
Three-year total: \$1,216,809			Three-year present value: \$1,008,675		

IMPROVED EMPLOYEE EFFECTIVENESS FROM IMPROVED HARDWARE STABILITY

Evidence and data. While fewer support tickets and onsite visits saved IT groups time, it also allowed end users to be more efficient and have an improved working experience. Organizations that leveraged Intel vPro as their endpoint standard received this additional business value in the form of improved employee effectiveness.

- Interviewees noted that as they saw IT efficiency improve from fewer support tickets and faster time to resolution, that employees also became more efficient and saved time from fewer hardware issues.
- An educational organization estimated that employees saved over an hour each time they experienced a significant hardware issue with their laptop or desktop. This is because issues could be resolved faster and remotely using Intel vPro technologies.
- Interviewees also found that by providing help desk employees with access to Intel vPro management tools, such as Intel EMA,

employees did not need to wait as long for their issues to be resolved and could return to work sooner.

- A total of 91% of survey respondents reported that their company experienced “improved employee performance and productivity” by using Intel vPro as a standard. In addition, 86% said Intel vPro improved collaboration as well as reduced downtime.¹³

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization has 10,000 employees, each with an Intel vPro-based endpoint device.
- Prior to investing in Intel vPro as an endpoint standard, an average of 4% of employees each month would suffer from a significant hardware-related issue that would take 1.5 hours to resolve.
- After the composite organization invests in Intel vPro-based devices as an endpoint standard, the number of employees who experience significant hardware-related issues falls by three quarters to 1% per month.
- Similarly, hardware-related issues are resolved 83% faster with Intel vPro-based devices as the

“Employee time is essential because if their device goes bad, and you take an hour or two to fix it, we’re not efficient. The idea is to bring them quickly back to life. It’s thanks to vPro that we can do this all remotely.”

Chief information officer, education

“We save an hour and a half per employee [with Intel vPro] every time there is PC downtime.”

Chief information officer, education

most common issues can be identified and corrected with less effort.

- Employees are paid an average of \$40 per hour in fully burdened salary.
- Half of the time employees save from improved hardware stability is reallocated towards higher value work.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Employee effectiveness is impacted by many aspects of endpoint hardware and software. Employees who struggle with issues beyond those alleviated with Intel vPro may not see the same improvement in efficiency until their other issues are also resolved.
- Employees who do not reinvest as much of their recovered time will not provide the same value back to their organization. The amount of time reinvested, and therefore the benefit of Intel vPro, will vary depending on employee type, work structure, company culture, and many other factors.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of almost \$190,000.

“Much of our time savings are in employee time. We can update their machines at night, even if they are turned off. During the day, users can devote all their time to work without waiting for updates to the operating system, an application, the architecture, security, or whatever.”

Director of hardware, financial services

Improved Employee Effectiveness From Improved Hardware Stability					
Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Employees with Intel vPro-based devices	Composite	10,000	10,000	10,000
D2	Percentage of employees significantly impacted by PC or performance issues with non-Intel vPro-based devices (monthly)	Interviews and survey	4%	4%	4%
D3	Average time to resolution for non-Intel vPro-based devices (hours)	Survey	1.5	1.5	1.5
D4	Hours spent addressing escalated issues for non-Intel vPro-based devices	D1*D2*D3*12 months	7,200	7,200	7,200
D5	Reduction in employees significantly impacted by PC or performance issues due to Intel vPro	Survey and Interviews	75%	75%	75%
D6	Reduction in time to resolution for Intel vPro-based devices	Interviews	83%	83%	83%
D7	Hours of employee time saved due to Intel vPro remote management capabilities	D4*D5*D6	4,482	4,482	4,482
D8	Employee average salary (fully burdened)	Composite	\$40	\$40	\$40
D9	Time recaptured	Composite	50%	50%	50%
Dt	Improved employee effectiveness from improved hardware stability	D7*D8*D9	\$89,640	\$89,640	\$89,640
	Risk adjustment	↓15%			
Dtr	Improved employee effectiveness from improved hardware stability (risk-adjusted)		\$76,194	\$76,194	\$76,194
Three-year total: \$228,582			Three-year present value: \$189,483		

REDUCED ENERGY COSTS

Evidence and data. Interviewees' organizations that tracked their energy usage before and after using Intel vPro as an endpoint standard found that they were able to reduce their electricity consumption on a per device level as well as for entire offices.

- An educational organization tracked energy usage by site and by endpoint device before and after moving to Intel vPro and found that sites with all Intel vPro-based devices used an average of 15% less electricity than the sites with non-Intel vPro-based devices. This reduction was also observed in a device-level analysis.
- A financial organization was able to reduce its energy usage by using Intel vPro technologies, such as Intel EMA, to automatically shut down and start up endpoint devices that were not needed during nonwork hours.

- The cost of one kWh is \$0.15.
- This analysis conservatively assumes that remote kiosk devices use similar amounts of electricity, regardless of if they leverage the Intel vPro platform as their energy needs are likely different than endpoint devices.

“We’ve always had a sustainability team, and one of the first things we used [Intel] vPro for is to power off unused equipment at the end of the day. We then power equipment back on 15 or 20 minutes before the user gets back to their workstation.”

Director of hardware, financial services

Energy savings from Intel vPro endpoint devices

15%



Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization has 10,000 employees, each with an Intel vPro-based device.
- Non-Intel vPro Employee endpoint devices would use 150 kilowatt hours (kWh) per year.
- Employee endpoint devices with Intel vPro use 15% less electricity than non-Intel vPro-based devices, or 128 kWh per year.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Not every interviewee expected significant energy savings from Intel vPro environments, although these interviewees had not measured the energy consumption of their environments or the difference with moving to Intel vPro as an endpoint standard.
- Energy savings could differ across organizational type, processing needs, and industry as well as computer model and local energy costs.
- Endpoint energy usage is determined by more than just the hardware related to Intel vPro. Readers should carefully evaluate all hardware and energy usage in their own environments

while considering where Intel vPro would be maintained or incorporated.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$70,000

“We’ve seen better energy consumption from [Intel] vPro at different offices. Basically, it has better power management features.”

Chief information officer, education

Reduced Energy Costs					
Ref.	Metric	Source	Year 1	Year 2	Year 3
E1	Number of employees with Intel vPro-based devices	Composite	10,000	10,000	10,000
E2	Electricity used per non-Intel vPro-based employee device per year (kWh)	Composite	150	150	150
E3	Reduction in electricity used per Intel vPro-based employee device per year	Interviews	15%	15%	15%
E4	Electricity used per Intel vPro-based employee device per year (kWh)	$E2*(1-E3)$	128	128	128
E5	Total kWh reduced with Intel vPro-based devices	$E1*(E2-E4)$	220,000	220,000	220,000
E6	Cost per kWh	Composite	\$0.15	\$0.15	\$0.15
Et	Reduced energy costs	$E5*E6$	\$33,000	\$33,000	\$33,000
	Risk adjustment	↓15%			
Etr	Reduced energy costs (risk-adjusted)		\$28,050	\$28,050	\$28,050
Three-year total: \$84,150			Three-year present value: \$69,756		

HARDWARE-ENABLED SECURITY

Evidence and data. Survey respondents from organizations with more than 5,000 employees and primarily Intel vPro-based endpoint devices reported fewer breaches per year, on average, compared to their non-Intel counterparts. They also reported faster recovery from material breaches, reducing the total cost and the impact on employees.

- Non-Intel vPro organizations reported an average of 3.9 material breaches per year, compared to 2.8 material breaches for Intel vPro organizations.¹⁴
- After accounting for other differences between the two groups, including other security measures in place, regression analysis showed that the choice of processor in endpoint devices and improvements enabled by that hardware explained approximately 10% of the total variance in the difference in number of material breaches.¹⁵
- Intel organizations were also less likely to experience breaches because of external attacks, internal incidents, attacks, or incidents involving third-party suppliers, and lost or stolen assets.¹⁶
- Organizations with mostly an Intel vPro environment were able to recover from material breaches 15% faster than non-Intel organizations.¹⁷
- After accounting for other differences between the two groups, 15% of the total, weighted benefit of reducing the number of material breaches and recovering faster from material breaches is explainable by Intel vPro hardware-enabled security.
- Forrester research found that employees affected by material security breaches lose an average of 3.6 hours of productivity.¹⁸

“There has been a lot added to [Intel] vPro over the years. For instance, if a PC has a virus, we can now investigate it while the PC is booting up.”

Front-end support manager, government

- Out all of survey respondents who used Intel vPro as an endpoint standard, 84% said it resulted in fewer security incidents and breaches as well as reduced risk of personal data being stolen. In addition, 83% said it improved stakeholder confidence due to hardware-enabled security.¹⁹

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization spends a little over \$3.0 million each year on nonlabor costs resolving security breaches in endpoint devices. An additional approximate \$1.5 million is spent on labor costs resolving security breaches.
- After adopting Intel vPro as an endpoint standard, in addition to other security improvements, the number of security breaches the composite org experiences falls by 23%. A relative 10% of this improvement is directly related to hardware-enabled security from Intel vPro and security improvements enabled by Intel vPro.
- Similarly, the time to resolve security breaches falls by 35%. This is in part due to 23% fewer security breaches needing to be resolved, as well

as resolution taking 15% less time for the remaining security breaches. Of this 35% improvement, a relative 12% of the improvement is directly enabled by the composite organization investing in Intel vPro as an endpoint standard.

- Of the 10,000 employees in the composite organization, 2,000 would have been impacted by a security breach each year but are not impacted due to fewer security breaches and faster resolution enabled by Intel vPro.
- Employees are paid an average of \$40 per hour in fully burdened salary.
- Half of the time employees save from improved hardware stability is reallocated towards higher value work.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- This analysis found that much of the variance in the number of security breaches and the time to resolve those breaches was in factors other than hardware-enabled security. While Intel vPro did correlate to a statistically significant portion of the reduction in these metrics, readers should carefully consider their own security practices and endpoint environment.
- This analysis found significant variation in the number of security breaches, and the cost of those breaches, experienced by organizations both with Intel vPro as an endpoint standard, and organizations with other endpoint environments. Rather than wholly relying on the security breach cost assumptions used in this analysis, readers should incorporate their own costs and recalculate their potential benefit.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of just under \$339,000.

Hardware-Enabled Security					
Ref.	Metric	Source	Year 1	Year 2	Year 3
F1	Annual cost of material breaches for organizations using non-Intel vPro-based devices (excluding labor)	Composite	\$3,066,008	\$3,066,008	\$3,066,008
F2	Reduction in material breaches for organizations using Intel vPro-based devices	Survey	23%	23%	23%
F3	Variation in number of material breaches attributable to Intel vPro	Survey	10%	10%	10%
F4	Subtotal: Impact of Intel vPro on avoided security breach costs (excluding labor)	$F1 \times F2 \times F3$	\$70,518	\$70,518	\$70,518
F5	Annual labor cost of material breaches for organizations using non-Intel vPro endpoint devices	Composite	\$1,463,400	\$1,463,400	\$1,463,400
F6	Reduced labor to investigate breaches for organizations using Intel vPro endpoint devices	Survey	35%	35%	35%
F7	Variation in the labor to investigate breaches attributable to Intel vPro	Survey	12%	12%	12%
F8	Subtotal: Impact of Intel vPro on avoided security breach labor costs	$F5 \times F6 \times F7$	\$61,463	\$61,463	\$61,463
F9	Number of employees directly impacted by material breach each year	Composite	2,000	2,000	2,000
F10	Hours saved per employee	Survey	4.0	4.0	4.0
F11	Employee average salary (fully burdened)	Composite	\$40	\$40	\$40
F12	Variation in employee time impacted by material breaches attributable to Intel vPro	Survey	12%	12%	12%
F13	Time recaptured	Composite	50%	50%	50%
F14	Subtotal: Impact of Intel vPro on employee time with avoided security breaches	$F9 \times F10 \times F11 \times F12 \times F13$	\$19,200	\$19,200	\$19,200
Ft	Hardware-enabled security	$F4 + F8 + F14$	\$151,181	\$151,181	\$151,181
	Risk adjustment	↓10%			
Ftr	Hardware-enabled security (risk-adjusted)		\$136,063	\$136,063	\$136,063
Three-year total: \$408,189			Three-year present value: \$338,368		

SAVED COST OF THIRD-PARTY SOFTWARE AND SERVICES

Evidence and data. Intel vPro provided access to many additional technologies and functionalities and allowed IT decision-makers to reduce or consolidate existing third-party license costs.

- An airline avoided a cost of \$3 per employee for telemetry software as capabilities included with Intel vPro, such as Intel EMA, made that software redundant. This saved the airline approximately \$150,000 per year. The airline's senior systems engineer said, "Intel vPro can do as well, if not better, than other systems and lets us depreciate our other tools."
- A financial services organization saved between \$150,00 and \$200,000 per year with Intel vPro as it no longer required a third-party remote management tool.
- Out all of survey respondents who used Intel vPro as an endpoint standard, 79% said it allowed their organizations to reduce third-party software and services.²⁰

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization can reduce reliance on some third-party tools and services by fully leveraging functionality included with Intel vPro when used as an endpoint standard.
- The aggregated total reduction in third-party software and services is \$100,000 each year for the composite organization.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Interviewees and survey respondents reported a wide range of the amount they saved by

"Intel has added capabilities in vPro for free that we had been paying [another provider] \$100,000 a year for."

*IT architecture executive advisor,
financial services*

replacing third-party software and services with Intel vPro functionality.

- Readers should carefully evaluate Intel vPro functionalities and features such as EMA, Intel Active Management Technology (Intel AMT), Intel SIPP, and others to identify potential redundancies in their current solution set.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$224,000.

Saved Cost Of Third-Party Software And Services					
Ref.	Metric	Source	Year 1	Year 2	Year 3
G1	Saved third-party software and services cost due to Intel vPro	Survey and interviews	\$100,000	\$100,000	\$100,000
Gt	Saved cost of third-party software and services	G1	\$100,000	\$100,000	\$100,000
	Risk adjustment	↓10%			
Gtr	Saved cost of third-party software and services (risk-adjusted)		\$90,000	\$90,000	\$90,000
Three-year total: \$270,000			Three-year present value: \$223,817		

**NONFINANCIAL QUANTIFIED BENEFIT:
REDUCED GREENHOUSE GAS EMISSIONS**

Evidence and data. In addition to providing the financial benefits already explored, Intel vPro enabled organizations to reduce their greenhouse gas emissions through lower energy usage and fewer onsite visits.

- As discussed in the section for the [reduced need for onsite support](#) benefit, an airline was able to eliminate 4,000 trips for its IT staff each year by instead using Intel vPro’s remote management capabilities.
- Also discussed in the [reduced need for onsite support](#) benefit section was a government organization’s ability to eliminate a significant number of onsite visits by using Intel vPro to improve its patch rate from 50% to 90%. Similarly, an educational organization was able to reduce onsite visits by 23% with just 50% deployment of Intel vPro-based devices and expected that number to continue to decline.
- As discussed in the benefit about [reduced energy costs](#), an educational organization found that Intel vPro-based devices used 15% less energy than non-Intel vPro-based devices.

- Also as discussed in the [reduced energy costs](#) section, was the financial organization that further reduced its energy usage by using Intel vPro to automatically shut down some endpoint devices during non-work hours.

Modeling and assumptions. Forrester leveraged interview and survey data to model the carbon emissions impact for the composite organization and assumes the following:

- The composite organization reduced its energy usage for endpoint devices by 225,000 kWh per year as calculated in the benefit pertaining to the [reduced need for onsite support](#).
- The composite organization can avoid 990 on site visits as calculated in the benefit pertaining to [reduced need for onsite support](#). Of these, 80% would have been completed using a vehicle driving 40 miles roundtrip. The remaining 20% would have been flights traveling 1,000 miles roundtrip.
- This analysis uses research from the US Environmental Protection Agency (EPA) to calculate the equivalent greenhouse gas reduction associated with energy and vehicle travel reduction enabled by Intel vPro.²¹
- This analysis uses research from the US Department of Transportation and BlueSkyModel to calculate the equivalent greenhouse gas emission reduction associated with air travel reduction enabled by Intel vPro.²²
- While interviewees and survey respondents indicated that Intel vPro helped to enable their organizations’ workforces to work remotely or in a hybrid model, they also indicated that several other efforts and technologies were required in addition to Intel vPro. To be conservative, this analysis does not include the greenhouse gas reduction associated with a remote workforce, even though this was in part enabled by Intel vPro technologies.

“We did a study on powering off equipment in the afternoon and back on in the morning with [Intel vPro] and found that we reduced energy hours quite a bit.”

Director of hardware, financial services

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- Not every interviewee expected significant energy savings from Intel vPro environments, although these other interviewees had not measured the energy consumption of their environments or the difference with moving to Intel vPro as an endpoint standard.
- Endpoint energy usage is determined by more than just the hardware related to Intel vPro. Readers should carefully evaluate all hardware and energy usage in their own environments while considering where Intel vPro would be maintained or incorporated.
- Organizations will likely use multiple methods to reduce onsite visits, such as investing in additional endpoint spares to ship overnight in the case of remote issues. As more methods are used to reduce the number of onsite visits, the benefit specifically from Intel vPro as an endpoint standard may be reduced.

Results. To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year risk-adjusted total of 368,000 kgs of carbon dioxide emissions avoided.

Nonfinancial Quantified Benefit: Reduced Greenhouse Gas Emissions					
Ref.	Metric	Source	Year 1	Year 2	Year 3
X1	Total kWh reduced with Intel vPro	E5	225,000	225,000	225,000
X2	Kgs of carbon avoided per kWh reduced	US EPA	0.43	0.43	0.43
X3	Subtotal: Total kgs of carbon reduced from lower energy usage of Intel vPro-based employee devices	X1*X2	96,750	96,750	96,750
X4	Avoided onsite support trips required each year	C5	990	990	990
X5	Percentage of onsite support trips that would have been flights	Composite	20%	20%	20%
X6	Avoided flights per year	X4*X5	198	198	198
X7	Average flight length (miles flown roundtrip)	Composite	1,000	1,000	1,000
X8	Kgs of carbon avoided per passenger per mile not flown	US Department of Transportation, BlueSkyModel	0.24	0.24	0.24
X9	Subtotal: Total kgs of carbon reduced from fewer flights	X6*X7*X8	47,520	47,520	47,520
X10	Percentage of onsite support trips that would have been driven	Composite	80%	80%	80%
X11	Avoided trips driven per year	X4*X10	792	792	792
X12	Average trip length (miles driven roundtrip)	Composite	40	40	40
X13	Fuel efficiency (miles/gallon of unleaded gasoline)	Composite	25	25	25
X14	Total gallons of gasoline consumed	X11*X12/X13	1,267	1,267	1,267
X15	Kgs of carbon avoided per gallon of unleaded gasoline	US EPA	8.9	8.9	8.9
X16	Subtotal: Total kgs of carbon reduced from fewer driven trips	X11*X12/X13*X14	11,276	11,276	11,276
Xt	Reduced greenhouse gas emissions (kgs)	X3+X9+X15	155,546	155,546	155,546
	Risk adjustment	↓20%			
Xtr	Reduced greenhouse gas emissions (kgs) (risk-adjusted)		124,437	124,437	124,437
Three-year total carbon emissions avoided: 368,151 kgs					

This potential benefit depends on the number and types of endpoint devices and workloads, the number of onsite support trips required, and the energy source profile, among other factors. This calculation is for approximation purposes only and should not be used for formal emissions analysis.

ADDITIONAL UNQUANTIFIED BENEFITS

Interviewees and survey respondents mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- **Protected core business revenue.** Interviewees with customer-facing remote kiosks found their organizations were able to better protect their operations when using Intel vPro as their remote device standard. This was especially true in regulated industries where employees needed special authorization to access devices. For example, an airline was able to avoid approximately one canceled or significantly delayed flight each day by maintaining check-in kiosks. A financial services organization in EMEA could fix ATMs hours or even days earlier with remote management enabled by Intel vPro.
- **Improved employee experience.** The improved performance and stability of Intel vPro hardware and technologies improved general working environments. Employees experienced fewer interruptions in their work and were able to resolve issues faster when they did occur, providing a better overall experience. Ninety-one percent of surveyed IT decision-makers founds

that choosing Intel vPro as their endpoint standard improved employee experience.²³

- **Provided longer device lifespan.** Some interviewees found that Intel vPro-based devices lasted longer than non-Intel endpoint devices, allowing them to extend their refresh cycle without detrimental impact to employees.
- **Yielded higher device resale value.** Seventy-six percent of survey respondents said that Intel vPro provided a higher device resale value than non-Intel vPro-based devices.²⁴ As organizations refresh a portion of their devices each year, this could allow for greater cashflow from reselling Intel vPro-based devices.
- **Enabled more efficient partnerships.** Many of the technologies included with Intel vPro allowed ecosystem partners to work with employee endpoint devices easier. For example, 85% of survey respondents said that maintaining Intel vPro as their organization's endpoint standard allowed for easier access for managed service providers.²⁵
- **Retained customers.** Business and IT leaders using mostly Intel vPro-based endpoint devices reported that their organizations were less likely to lose customers compared to leaders of organizations using mostly non-Intel-based endpoint devices. When asked about the effects of material breaches over the past year, only 29% of organizations using mostly Intel vPro based reported a loss of customers compared to 40% of organizations using mostly non-Intel based endpoints.²⁶
- **Protected ecosystem trust.** In addition to protecting customer trust, leaders of organizations using primarily Intel vPro-based devices were less likely to report that they had lost trust of ecosystem partners (35% reported that this was true) than their counterparts at

“After we moved to [Intel] vPro, it doubled the useful life of our PC fleet. Once we saw this, it was a no-brainer for us to standardize on the [Intel] vPro platform.”

Head of front-end environment, government

organizations using mostly non-Intel-based organizations (43% reported that this was true).²⁷

FLEXIBILITY

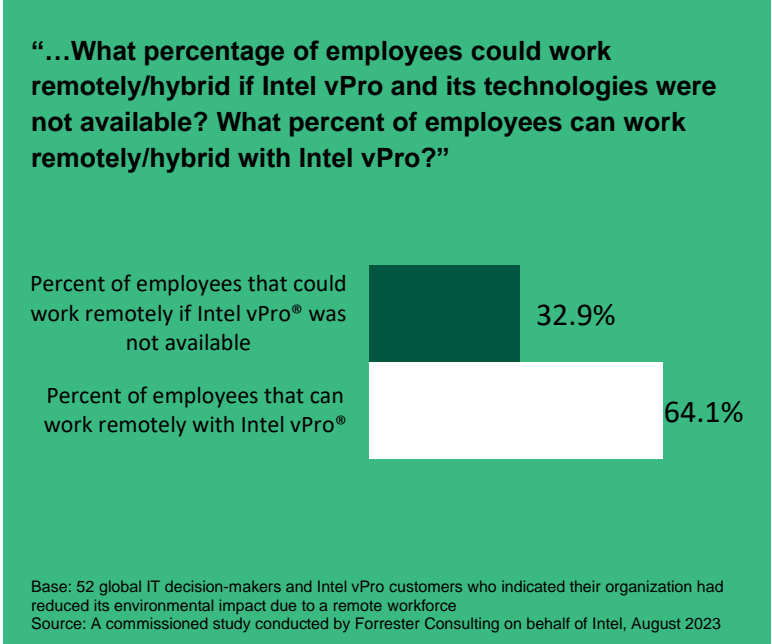
The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Intel vPro and later realize additional uses and business opportunities, including:

- **Provided access to a broader set of technologies.** Intel vPro allowed 86% of surveyed IT decision-makers’ organizations to have a broader ecosystem of technologies at their company. When asked to specify what technologies this includes, these respondents said the following:²⁸
 - Eighty-seven percent said “security technologies.”
 - Eighty-one percent said “remote management technologies (aside from Intel vPro technologies such as Intel Active Management Technology (Intel AMT) and Intel EMA).”
 - Sixty-nine percent said “collaboration technologies.”
 - Nineteen percent said “telemetry technologies.”

In addition, some interviewees’ organizations were in the process of building their own proprietary remote management and telemetry software by leveraging Intel vPro’s technologies and APIs. These interviewees expected that this software would provide their leadership with an even greater level of visibility into endpoint environments and provide long term benefits.

The IT architecture executive advisor of a financial services company said: “We’re working well with Intel because there is an open API structure, and we’re preparing to plug our monitoring tools into [Intel] EMA. We would create a script that would pull the information in

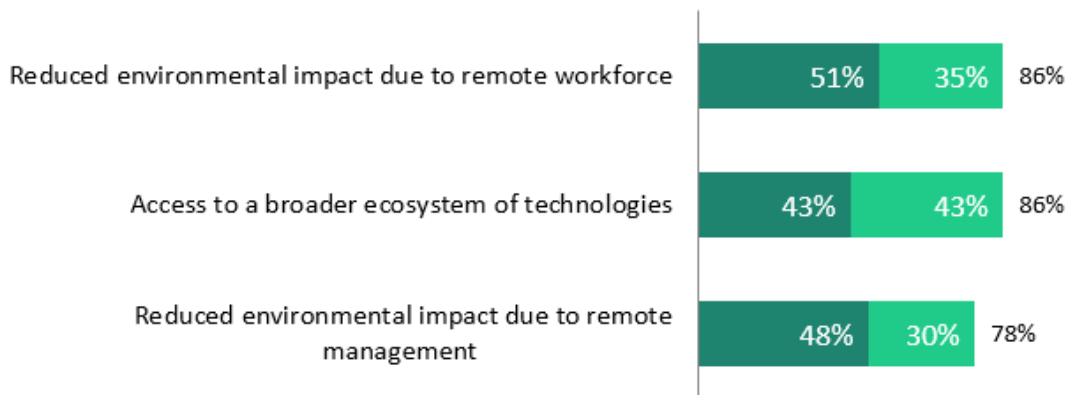
through the APIs, and then create a button with [Intel] EMA that would correct common issues. That would let first-level support solve issues without going to second-level support.



- **Enabled greater hybrid and remote working.** Interviewees noted that supporting hybrid work was made easier for their teams by leveraging Intel vPro technologies such as Intel Active Management Technology (Intel AMT) and Intel EMA. Forrester research has found that moving a hybrid model provides tangible business value to organizations and is one of the most sought-after environments for employees.²⁹
- **Continued improvements to hardware enabled security.** Interviewees described how Intel vPro had improved its security offerings over time and that these improvements allowed IT teams to strengthen their own security position. Forrester has previously discussed how futureproofing endpoint management and security strategies can be accomplished with natively embedded technologies.³⁰

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

"How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?"

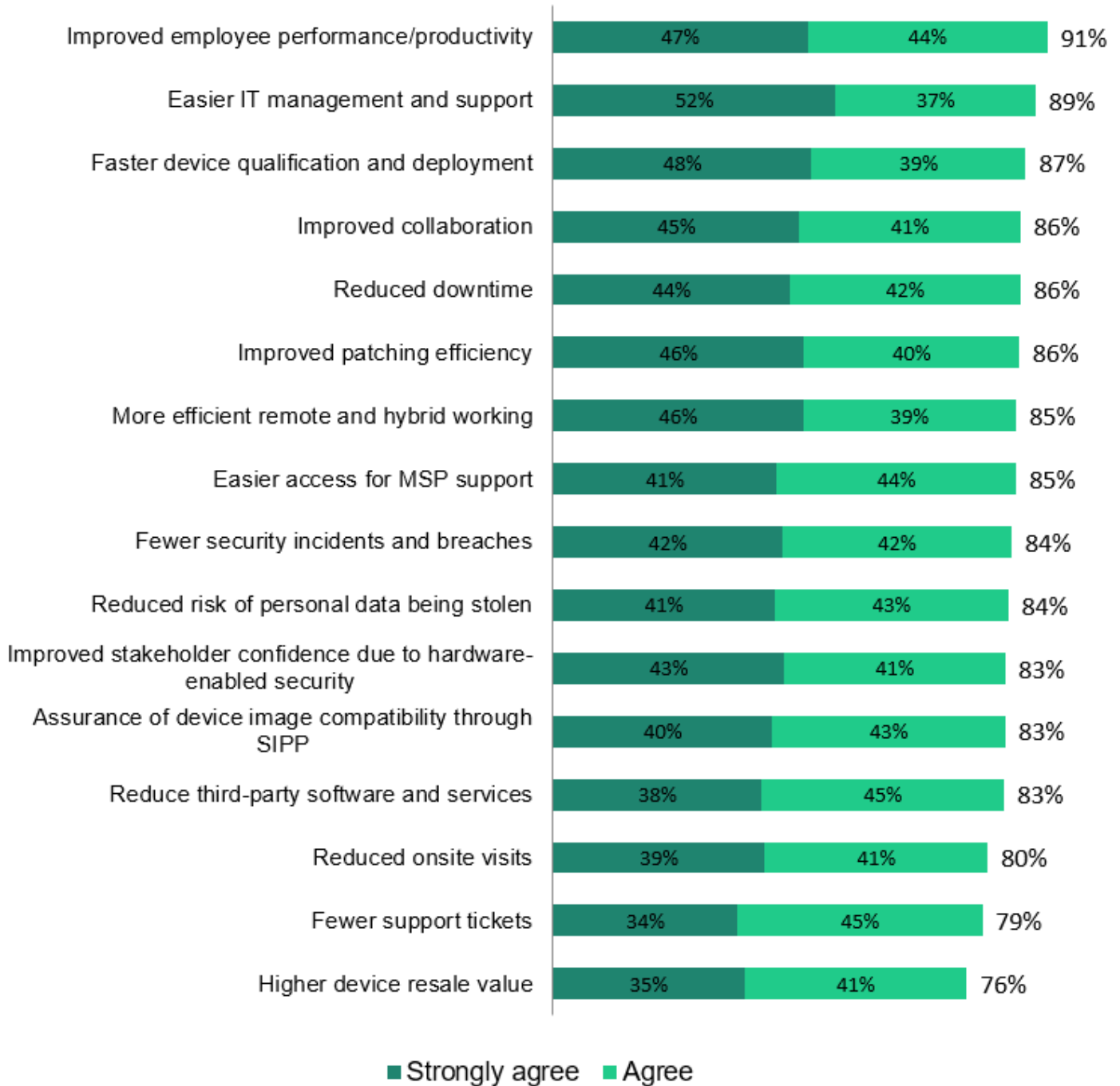


■ Agree ■ Strongly agree

Base: 63 global IT decision-makers and Intel vPro customers

Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, August 2023

"How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?"



Base: 500 global IT decision-makers and Intel vPro customers

Note: Total percentages may not equal separate values due to rounding

Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023

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
Htr	Incremental hardware cost of Intel vPro-based devices	\$0	\$480,322	\$480,322	\$480,322	\$1,440,965	\$1,194,489
Itr	Labor for additional security tickets	\$0	\$7,590	\$7,590	\$7,590	\$7,590	\$18,875
Jtr	Labor to train IT staff on Intel vPro technologies	\$120,750	\$18,975	\$18,975	\$18,975	\$177,675	\$167,938
	Total costs (risk-adjusted)	\$120,750	\$506,887	\$503,851	\$503,851	\$1,641,410	\$1,381,302

INCREMENTAL HARDWARE COST OF INTEL VPRO-BASED DEVICES

Evidence and data. Intel vPro-based devices were found to cost more for organizations as compared to similar models without Intel vPro hardware.

- Interviewees' and survey respondents' organizations consistently paid more for Intel vPro-based devices than for similar laptops and desktops that did not have Intel vPro.
- The premium for an Intel vPro-based device varied greatly across markets and organization sizes between \$70 and \$250 per device. However, the premium for Intel vPro across the most comparable endpoint device models was approximately \$125.

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- The composite organization maintains its 11,000 Intel vPro-based devices as its endpoint standard, with 10,000 endpoint laptops and desktops for its 10,000 employees. In addition,

1,000 remote kiosk devices are deployed with Intel vPro-based hardware for customer usage. Devices are refreshed every 3.5 years.

- An additional 1.5% laptops and desktops are provisioned each year as backups and spares.

“We've had to justify [Intel] vPro over the years, and every now and then an executive will ask why we don't just buy cheaper machines. The reason is that the cost of a machine is a fraction of the total cost of ownership. You have to consider the overall architecture of the environment.”

Head of front-end environment, government

- The composite organization pays an average of \$1,282 for each Intel vPro-based device, as compared to \$1,150 it would have spent for a comparable non-Intel vPro-based device. This is a premium cost of \$132 for each Intel vPro-based device the composite organization maintains.
- This analysis calculates the opportunity cost of maintaining an Intel vPro-based environment and assumes that the composite organization is refreshing endpoint devices evenly to employees each year.
- The premium cost to equip a remote kiosk device with Intel vPro is assumed to be the same premium as that of an endpoint device.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- While interviewees and survey respondents did consistently pay a premium for Intel vPro-based devices, the premium itself varied significantly depending on the device model, the market, and the quantity ordered.
- Initial costs of moving to Intel vPro as an endpoint standard could be higher if most employees are moved to Intel vPro at the same time, rather than a staggered rollout over time.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$1.2 million.

“If we tried to cut costs by removing [Intel] vPro, we would just end up paying more for something else in a different line item.”

*IT architecture executive advisor,
financial services*

Incremental Hardware Cost of Intel vPro-Based Devices						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
H1	Number of endpoint devices	Composite	0	11,000	11,000	11,000
H2	Device refresh rate	Composite	3.5	3.5	3.5	3.5
H3	Number of planned new laptops and desktops provisioned (rounded)	H1/H2	0	3,143	3,143	3,143
H4	Additional new laptops and desktops provisioned (1.5% additional spares)	H1*1.5%	0	165	165	165
H5	Average cost of non-Intel vPro endpoint device	Survey and Interviews	\$1,150	\$1,150	\$1,150	\$1,150
H6	Average cost of an Intel vPro endpoint device	Survey and Interviews	\$1,282	\$1,282	\$1,282	\$1,282
Ht	Incremental hardware cost of Intel vPro-based devices	(H3+H4)*(H6-H5)	\$0	\$436,656	\$436,656	\$436,656
	Risk adjustment	↑10%				
Htr	Incremental hardware cost of Intel vPro-based devices (risk-adjusted)		\$0	\$480,322	\$480,322	\$480,322
Three-year total: \$1,440,965			Three-year present value: \$1,194,489			

LABOR FOR ADDITIONAL SECURITY TICKETS

Evidence and data. Intel vPro’s hardware-enabled security technologies were associated with a greater number of security tickets and flagged threats, which required IT teams to spend some additional time reviewing and investigating.

- Interviewees noted that environments with Intel vPro-based devices, including Intel’s Hardware Shield, did result in more security risks being identified and more security tickets being created for their organizations.
- Surveyed organizations using Intel vPro as a standard reported an average of 115 more security tickets and low-level incidents each year as compared to non-Intel organizations. However, they reported fewer higher-level escalations, indicating that the organizations

addressed more threats in their initial stages before they could progress.

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- With an Intel vPro-based environment, the composite organization receives 3.25 security tickets per 100 devices. However, this is only 2.00 security tickets per 100 devices with a non-Intel vPro-based endpoint environment.
- Each security ticket requires 1.0 hours to resolve. This does not include the cost of addressing a security breach.
- IT staff are paid an average of \$50 per hour in fully burdened salary.

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- IT FTEs with less experience could require more time to resolve security tickets than the average figures used in this analysis.
- IT FTEs may also require more time to resolve security tickets in more complex environments

and organizations, and so additional security tickets would have a greater cost in labor.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$19,000.

Labor For Additional Security Tickets						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
I1	Number of Intel vPro-based devices	Composite	0	11,000	11,000	11,000
I2	Number of security tickets per 100 Intel vPro-based devices	Survey	3.25	3.25	3.25	3.25
I3	Number of security tickets per 100 non-Intel vPro-based devices	Survey	2.00	2.00	2.00	2.00
I4	Additional security tickets to resolve	$I1/100*(I2-I3)$	0	138	138	138
I5	Labor hours per security ticket	Survey	1.0	1.0	1.0	1.0
I6	IT hourly salary (fully burdened)	Composite organization	\$50	\$50	\$50	\$50
Itr	Labor for additional security tickets	$I4*I5*I6$	\$0	\$6,900	\$6,900	\$6,900
	Risk adjustment	↑10%				
Itr	Labor for additional security tickets (risk-adjusted)		\$0	\$7,590	\$7,590	\$7,590
Three-year total: \$22,770			Three-year present value: \$18,875			

LABOR TO TRAIN IT STAFF ON INTEL VPRO TECHNOLOGIES

Evidence and data. Some interviewees' and survey respondents' organizations spent additional time training their IT staff to use Intel vPro technologies, such as Intel EMA. This took place as a one-time training when Intel vPro was additionally introduced and on an individual basis when new IT staff were hired.

- IT staff usually spent between three to five days learning how to use Intel EMA and other Intel technologies. After this, no additional ongoing training was required for these IT staff.
- Other interviewees found that IT staff only needed minimal training on Intel vPro technologies, and therefore additional training time was not required or considered a cost associated with maintaining Intel vPro as an endpoint standard.

Modeling and assumptions. Forrester leveraged interview and survey data to model the financial impact for the composite organization and assumes the following:

- A total of 70 IT FTEs are responsible for primary management for the composite organization's 10,000 employee endpoint devices and 1,000 remote kiosk devices.
- Each IT FTE spends an initial 30 hours in training to fully leverage Intel vPro technology and functionality.
- To be conservative, this analysis assumes that all IT FTEs undergo this training at the beginning of this three-year analysis, even though Intel vPro is already the endpoint standard.
- IT FTEs experience a 15% attrition each year, and new FTEs need to spend 30 hours in training when they are first hired.
- IT staff are paid an average of \$50 per hour in fully burdened salary.

“Intel was quite good because it provided an onsite engineer to integrate vPro into our environment. It also forced us to upgrade the security on our desktops.”

*Front-end support manager,
government*

Risks. Forrester recognizes that these results may not be representative of all experiences and that the impact may vary depending on several factors:

- While the amount of training for IT FTES to leverage Intel vPro did not exceed 30 hours, organizations that build additional technology using Intel vPro will likely have a greater initial training period.
- Some organizations may pay for a professional services group to help conduct training sessions and would incur additional costs beyond IT FTE labor hours.

Results. To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV of \$168,000.

“Intel helps us with our labor. We haven't had any additional overhead.”

*Front-end support manager,
government*

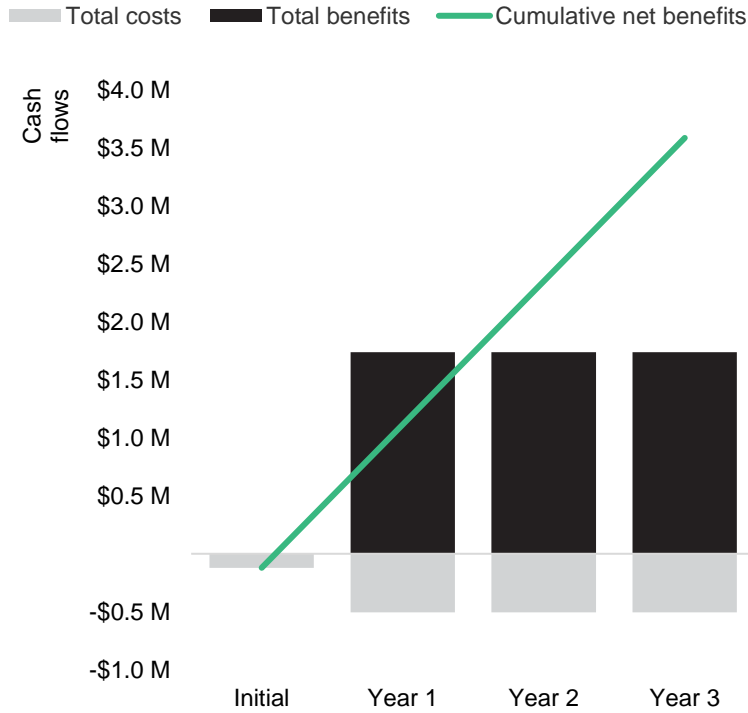
Additional Labor To Train IT Staff On Intel vPro Technologies

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
J1	Number of IT FTEs needing to be trained on Intel vPro technologies	Composite with 15% attrition	70	11	11	11
J2	Hours of training on Intel vPro technologies per IT FTE	Interviews	30	30	30	30
J3	Hourly wage for IT FTE (fully burdened)	Composite	\$50	\$50	\$50	\$50
Jt	Additional labor to train	J1*J2*J3	\$105,000	\$16,500	\$16,500	\$16,500
	Risk adjustment	↑15%				
Jtr	Additional labor to train (risk-adjusted)		\$120,750	\$18,975	\$18,975	\$18,975
Three-year total: \$177,675			Three-year present value: \$167,938			

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



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

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	(\$120,750)	(\$506,887)	(\$506,887)	(\$506,887)	(\$1,641,410)	(\$1,381,302)
Total benefits	\$0	\$1,738,330	\$1,738,330	\$1,738,330	\$5,214,990	\$4,322,969
Net benefits	(\$120,750)	\$1,231,443	\$1,231,443	\$1,231,443	\$3,573,580	\$2,941,667
ROI						213%
Payback						<6 months

Appendix A: Total Economic Impact

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

TOTAL ECONOMIC IMPACT APPROACH

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

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

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

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



PRESENT VALUE (PV)

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



NET PRESENT VALUE (NPV)

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



RETURN ON INVESTMENT (ROI)

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



DISCOUNT RATE

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



PAYBACK PERIOD

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



ENVIRONMENTAL FOOTPRINT

The annual impact on the environment of an organization's activities and operation, measured in terms of greenhouse gas emissions and pollution, water usage, volume of waste, usage of raw and scarce materials, and impact of wildlife habitat and biodiversity.

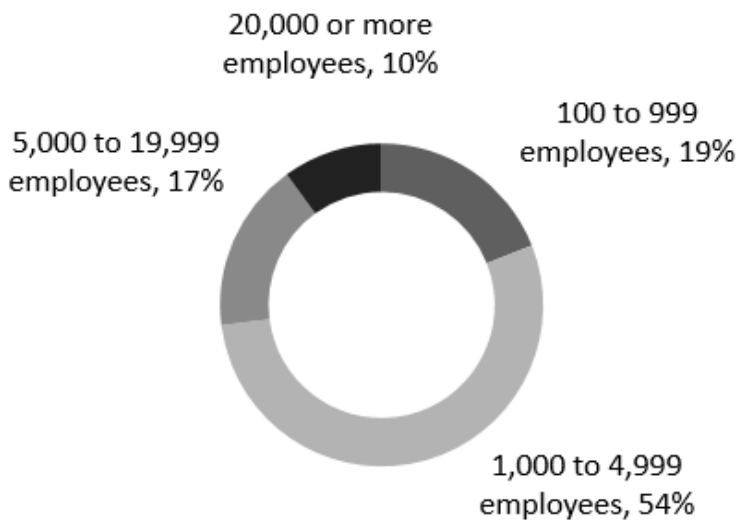
Appendix B: Interview And Survey Demographics

Interviews				
Role	Industry	Region	Number Of Employees	Approximate Percentage Of Windows Laptops And Desktops Using Intel vPro
Senior systems engineer	Airline	North America	83,000	80%
Director of hardware	Financial services	EMEA	110,000	90%
IT architecture executive advisor	Financial services	North America	120,000	100%
Chief information officer	Education	North America	27,500	50%*
Head of front-end environment	Government	EMEA	21,000	100%
Front-end support manager	Government	EMEA	21,000	100%
System analyst	Government	EMEA	21,000	100%

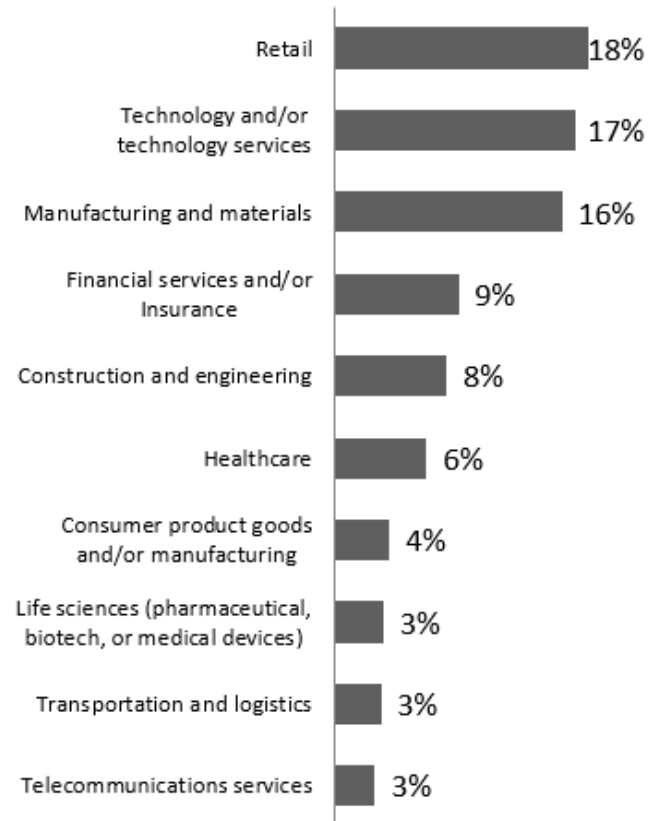
* At the time of the interview, the educational organization was in the process of phasing out non-Intel vPro-based Windows devices and estimated that almost all Windows devices would be Intel-vPro-based within the next two years.

Survey Demographics – July 2023 (Intel vPro As An Endpoint Standard)

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



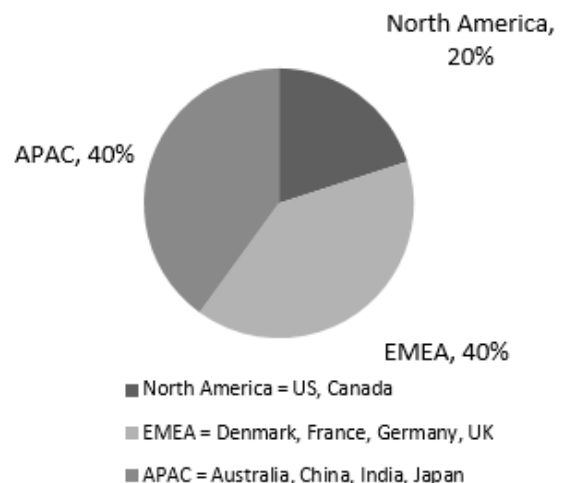
"Which of the following best describes the industry to which your company belongs?" (Top 10 industries shown)



Endpoint environments of surveyed IT decision-makers

Question	Average
"How many total laptops/desktops are provided to endpoints across your organization?"	7,114
"For the [previous amount selected] total laptops/desktops provided to your endpoints, what percentage do you estimate include Intel Core processors?"	82%
"For the [previous amount selected] total laptops/desktops that include Intel Core™ processors, what percentage do you estimate use Intel vPro platform?"	75%

"In which country are you located?"



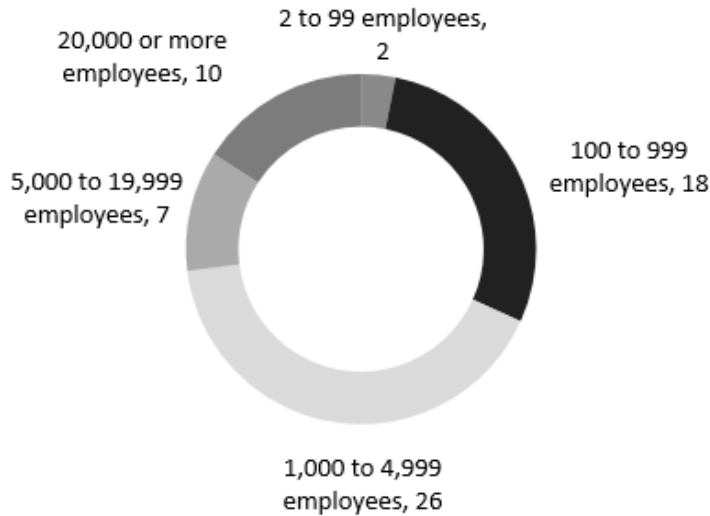
Base: 500 global IT decision-makers and Intel vPro customers

Note: Percentages may not total to 100% due to rounding

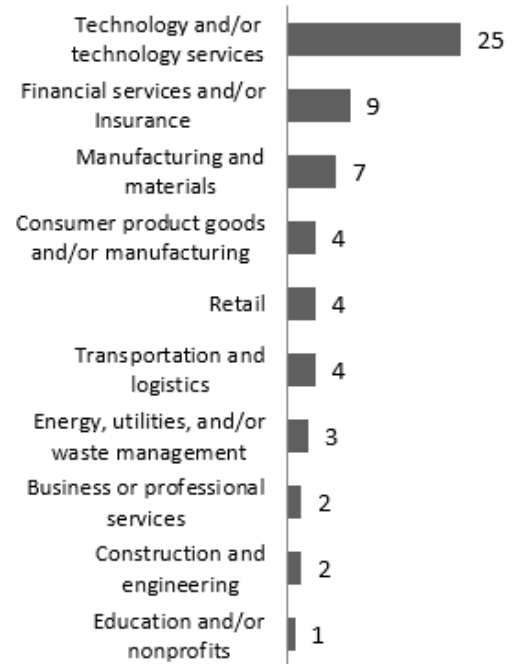
Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023

Survey Demographics – August 2023 (Environmental, Social, And Governance Interests with Intel vPro)

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



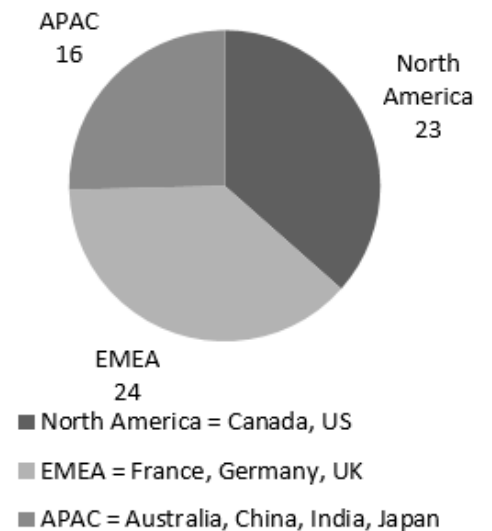
"Which of the following best describes the industry to which your company belongs?" (Top 10 industries shown)



Endpoint environments of surveyed IT decision-makers

Question	Average
"How many total laptops/desktops are provided to endpoints across your organization?"	3,307
"For the [previous amount selected] total laptops/desktops provided to your endpoints, what percentage do you estimate include Intel Core processors?"	85%
"For the [previous amount selected] total laptops/desktops that include Intel Core™ processors, what percentage do you estimate use Intel vPro platform?"	74%

"In which country are you located?"



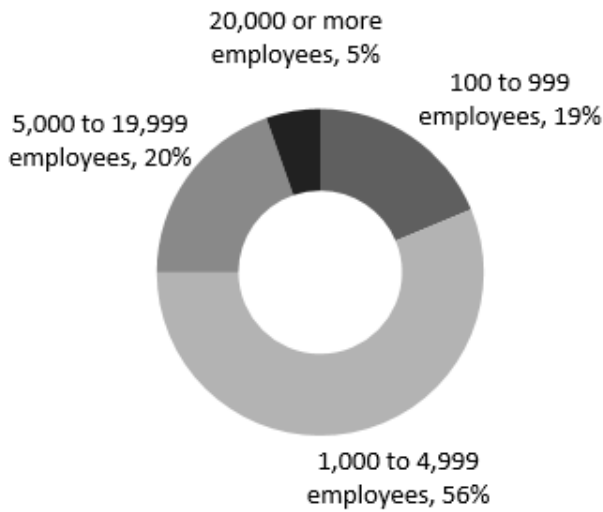
Base: 63 global IT decision-makers and Intel vPro customers

Note: Figures in charts above are number of respondents

Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023

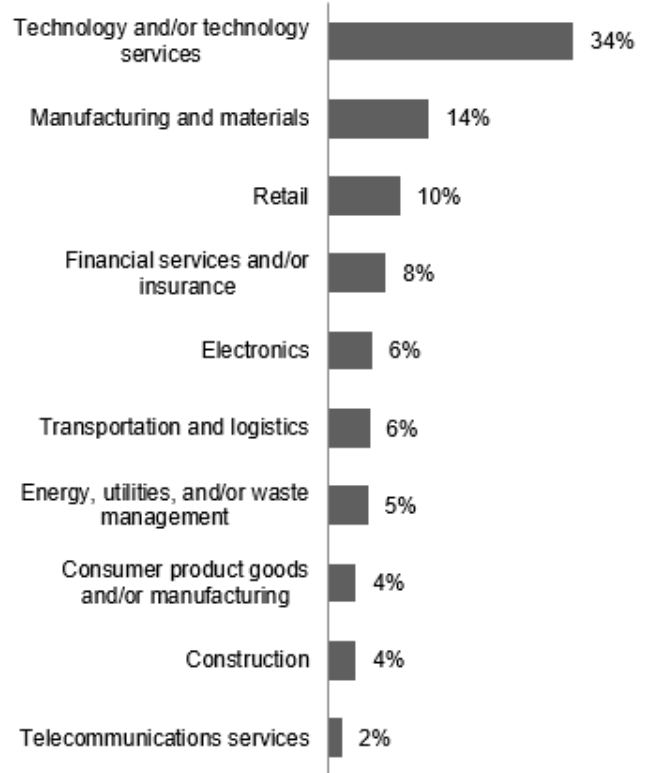
Survey Demographics – July 2022 (Security Outcomes For Intel And Non-Intel Organizations)

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

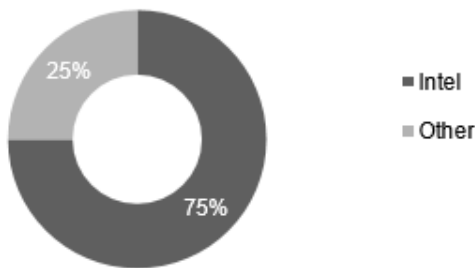


Base: 63 Global IT decision-makers and Intel vPro® Customer

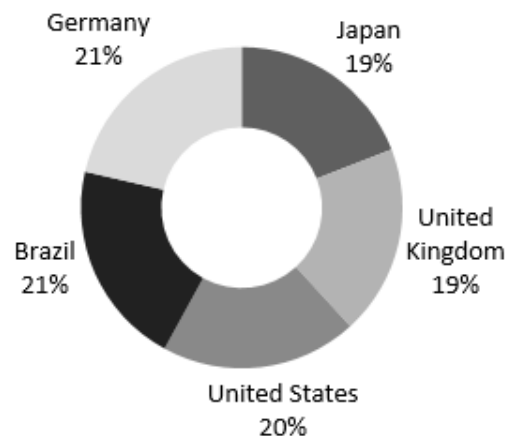
“Which of the following best describes the industry to which your company belongs?”



“To the best of your knowledge, what is the most common processor vendor inside your company’s Windows laptops and desktops?”



“In which country or region are you located?”



Base: 786 global IT decision-makers and Intel vPro customers in addition to 261 global IT decision-makers and non-Intel customers

Note: Percentages may not total to 100% due to rounding

Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, September 2022

Appendix C: Supplemental Information

Related Forrester Research

[“Navigating The New Terrain Of IT Platform Teams,”](#) Forrester Research, Inc., September 29, 2023

[“The Unified Endpoint Management Landscape, Q3 2023,”](#) Forrester Research, Inc., July 17, 2022

[“Assess Your Vulnerability Risk Response And Patch Management Maturity,”](#) Forrester Research, Inc., July 10, 2022

[“Case Study: How Intel Systematically Improves Its Customer Obsession,”](#) Forrester Research, Inc., November 17, 2022

Appendix D: Endnotes

¹ Total Economic Impact is a methodology developed by Forrester Research that enhances a company’s technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

² A secondary survey was also conducted with 63 respondents to better understand the benefits and costs of Intel vPro in helping organizations to reach their goals in reducing environmental impact. In addition, survey data from a past Forrester TEI commissioned study with 786 respondents has been referenced to better understand the impact that Intel vPro’s hardware-enabled security has had on the real world security outcomes of organizations. Source: “The Total Economic Impact™ of Intel vPro® Hardware-Enabled Security Features,” A commissioned study conducted by Forrester Consulting on behalf of Intel, 2022.

³ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “What challenges or organizational goals did you hope to address by selected Intel vPro as your standard platform: Improve employee performance and productivity?” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

⁴ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “What challenges or organizational goals did you hope to address by selected Intel vPro as your standard platform: Reduce IT and endpoint management costs?” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

⁵ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “What challenges or organizational goals did you hope to address by selected Intel vPro as your standard platform?” with “Improve support for a hybrid/remote workforce.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

⁶ “Predictions 2024: Cybersecurity, Risk, And Privacy,” Forrester Research, Inc., October 31, 2023

⁷ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “What challenges or organizational goals did you hope to address by selected Intel vPro as your standard platform?” with “Improve security prevention posture with silicon security capabilities.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

⁸ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the questions “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” with “Faster device qualification and deployment” and the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” with “Improved patching efficiency.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

⁹ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Easier IT management and support” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

¹⁰ The percentages referenced in this paragraph are based on 444 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “You indicated that Intel vPro has made it easier for IT to manage and support your organization. By what (average) percentage has the time to manage endpoint devices been reduced from using Intel vPro?” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

¹¹ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Fewer support tickets” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

¹² The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Fewer onsite visits” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

¹³ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to this question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” by rating these responses on a scale: “Improved employee performance/productivity,” “Improved collaboration,” and “Reduced downtime.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

¹⁴ The percentages referenced in this paragraph are based on 719 worldwide IT decision-makers with endpoint management responsibility responding to the question “How many security breaches have happened to [device] with [processor] at your organization in the past year?” Source: “The Total Economic Impact™ of Intel vPro®

Hardware-Enabled Security Features,” A commissioned study conducted by Forrester Consulting on behalf of Intel, 2022.

¹⁵ The percentages referenced in this paragraph are based on 239 worldwide IT decision-makers with endpoint management responsibility responding to the question “Has your organization faced any of the following types of breaches in the past 12 months?” Source: “The Total Economic Impact™ of Intel vPro® Hardware-Enabled Security Features,” A commissioned study conducted by Forrester Consulting on behalf of Intel, 2022.

¹⁶ The percentages referenced in this paragraph are based on 239 worldwide IT decision-makers with endpoint management responsibility responding to the question “You indicated earlier that your organization has faced a breach within the last 12 months. How was a breach enabled in your organization?” Source: “The Total Economic Impact™ of Intel vPro® Hardware-Enabled Security Features,” A commissioned study conducted by Forrester Consulting on behalf of Intel, 2022.

¹⁷ The percentages referenced in this paragraph are based on 238 worldwide IT decision-makers with endpoint management responsibility responding to the question “Thinking of your most recent breach, how long did it take your organization to recover from the breach?” Source: “The Total Economic Impact™ of Intel vPro® Hardware-Enabled Security Features,” A commissioned study conducted by Forrester Consulting on behalf of Intel, 2022.

¹⁸ Survey data represented is taken from “Forrester Consulting Cost Of A Cybersecurity Breach Survey, Q1 2021.”

¹⁹ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” by rating these responses on a scale: “Fewer security incidents and breaches,” “Reduced risk of personal data being stolen,” and “Improved stakeholder confidence due to hardware-enabled security.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

²⁰ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro® as a standard?” and rating “Reduce third-party software and services” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

²¹ Source: “[Greenhouse Gas Equivalencies Calculator](#),” epa.gov, accessed 14 November 2023.

²² Source: “[1 air mile](#),” bluskymodel.org, accessed 14 November 2023.

²³ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Improved employee performance/productivity” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

²⁴ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or

disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Higher device resale value” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

²⁵ The percentages referenced in this paragraph are based on 500 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “How much do you agree or disagree that these are benefits your company has experienced by using Intel vPro as a standard?” and rating “Easier access for MSP support” on a scale. Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, July 2023.

²⁶ The percentages referenced in this paragraph are based on 239 worldwide IT decision-makers with endpoint management responsibility responding to the question “What has the impact of a breach been on your organization?” with “Loss of customers.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, September 2022.

²⁷ The percentages referenced in this paragraph are based on 239 worldwide IT decision-makers with endpoint management responsibility responding to the question “What has the impact of a breach been on your organization?” with “Less trust from the partner ecosystem.” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, September 2022.

²⁸ The percentages referenced in this paragraph are based on 54 worldwide IT decision-makers and Intel vPro customers with endpoint management responsibility responding to the question “You indicated that Intel vPro has allowed your company a broader ecosystem of technologies. What types of additional technologies does this include?” Source: A commissioned study conducted by Forrester Consulting on behalf of Intel, August 2023.

²⁹ [“Master The Messy Middle Of Hybrid,”](#) Forrester Research, Inc., September 28, 2022

³⁰ [“The Future Of Endpoint Management And Security Is Now,”](#) Forrester Research, Inc., September 1, 2022.

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