

A Forrester Total Economic Impact™  
Study Commissioned By Dell and Intel®  
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# The Total Economic Impact™ Of Dell's PC Lifecycle Services

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**Project Director:**  
Sebastian Selhorst

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# Executive Summary

## Key Outcomes



Reduction of PC life-cycle service costs:

▼ **23.5%**



“With the reduction in my staff, being able to leverage Dell’s ProDeploy services is definitely a big benefit.”

-Executive director of technology, educational institution



“With [Dell] ProSupport Plus and the accidental damage warranty we’re getting what I think is the highest level of support you could get from a manufacturer. When you take everything as a whole, we’re getting a lot and it’s worth the price that we’re paying.”

-End-user computing manager, global financial institution

Both public and private organizations acknowledge that managing the PC life cycle becomes more complicated and expensive as the variety of PC devices and employee workstyles increase. In order to be fully productive, different groups of employees have different needs in terms of end-user device hardware, software, and configuration. While IT departments are trying to provide and support a wider range of technology to an increasingly dispersed and mobile workforce, while maintaining low end-user disruption, they are also under a lot of cost pressure.

However, consolidating processes and enlisting the help of a vendor partner, such as Dell, might reduce costs and provide expert-level knowledge for better PC life-cycle management operations.

Dell offers services that spread the entire PC life cycle, all the way from procurement with deployment and support, to disposal of the end-user device. ProDeploy Plus is an end-to-end service including every task required to get new PCs from factory to desk, up and running. Dell ProSupport Plus is a complete support service offering, which combines priority access to expert support, accidental damage repair, and proactive monitoring for automatic issue prevention and resolution. Dell’s end-user devices leverage Intel® vPro capabilities, which enable organizations to proactively protect PCs against malicious software attacks, diagnose and repair systems remotely, and actively reduce power usage — even if the system is powered off.

Dell and Intel® commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by leveraging Intel® vPro and Dell’s ProDeploy Plus and ProSupport Plus services. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of leveraging Dell’s PC Lifecycle Services on their organizations.

To better understand the costs associated with services throughout the PC life cycle, Forrester surveyed 101 IT decision makers at large organizations in the US, Canada, UK, France, and Germany. All of the respondents were significantly involved in the decision-making process for PC and device management and had significant expert-level knowledge about the PC life-cycle process. Furthermore, Forrester interviewed six Dell customers leveraging Dell’s ProDeploy Plus and/or ProSupport Plus services. These companies were looking for ways to streamline the deployment of end-user devices to their employees, to reduce support costs, and to free up internal IT resources to focus on other technology tasks or revenue generating initiatives.

## Key Findings

Compared to sourcing end-user devices from various vendors and delivering the entire PC life-cycle services with internal resources, an organization that standardizes on Dell hardware and fully leverages Dell’s PC Lifecycle Services and tools might realize the following quantified benefits:



**ROI**  
**11%**



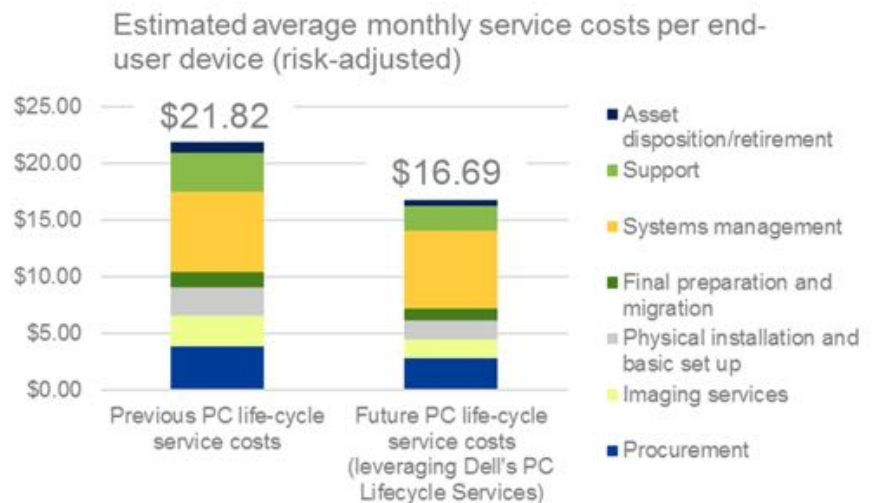
**NPV**  
**\$644,000**



**Payback**  
**<6 months**

- › **Reduction of life-cycle service costs for end-user devices at 23.5%.** By fully leveraging Dell's PC Lifecycle Services and tools, organizations can realize cost savings in each phase of the PC life cycle. Based on data from the online survey, Forrester estimated the average monthly cost per device that an organization would incur if it delivered these services with internal resources. These services include: procurement services, imaging services, physical installation and basic setup, final preparation and migration, system management, support, asset disposition, and retirement. Forrester then also estimated these costs for an organization fully leveraging Dell's services and tools. Considering a large organization with about 4,000 end-user devices, an average hardware refresh cycle of three years, and a given mix of office, remote, and mobile workers Forrester estimated that this type of organization would be able to reduce its monthly PC life-cycle costs per device from \$21.82 to \$16.69, corresponding to a savings of 23.5%.
- › **Reduction of hardware related costs of 2%.** Organizations that consolidate the number of vendors and standardize on a few types of end-user devices might be able to negotiate lower average hardware prices. But as the focus of this case study is not on a potential reduction of hardware costs, Forrester conservatively assumes a 2% reduction of the average prices for the Dell devices as compared to the average prices for the legacy devices. This should only be seen as an example, and every organization should explore the potential of hardware cost savings for its specific case.

All in all, Forrester's online survey of 101 IT decision makers, interviews with six existing Dell customers, and subsequent financial analysis found that a large organization which supplies 4,000 end-user devices to its workforce will offset the costs of switching a provider (see corresponding chapter for more details) and achieve a risk-adjusted ROI of 11% and a payback of less than six months when fully leveraging Dell's PC Lifecycle Services.



The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

## TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Dell PC Lifecycle Services.

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 Dell PC Lifecycle Services can have on an organization:



### **DUE DILIGENCE**

Interviewed Dell stakeholders and Forrester analysts to gather data relative to PC life-cycle services.



### **SURVEY AND INTERVIEWS**

Collected responses from 101 IT decision makers about the PC life-cycle services in their respective organizations and interviewed six organizations using Dell's PC Lifecycle Services to obtain data with respect to costs, benefits, and risks.



### **COMPOSITE ORGANIZATION**

Designed a composite organization based on characteristics of the interviewed organizations.



### **FINANCIAL MODEL FRAMEWORK**

Constructed a financial model representative of the survey findings and interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



### **CASE STUDY**

Employed four fundamental elements of TEI in modeling Dell PC Lifecycle Services' impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

## DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Dell and 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 report to determine the appropriateness of an investment in Dell PC Lifecycle Services.

Dell 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.

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

# The PC Life Cycle Services Customer Journey

## BEFORE AND AFTER LEVERGING DELL'S PC LIFECYCLE SERVICES

### Interviewed Organizations

For this study, Forrester conducted six interviews with Dell customers who were leveraging Dell ProDeploy Plus and/or Dell ProSupport Plus services. Interviewed customers include the following:

INDUSTRY	REGION	INTERVIEWEE	NUMBER OF END-USER DEVICES
Local government organization	US	Senior manager of client services	2,600 (10% laptops, 90% desktops)
Educational institution	US	Executive director of technology	6,000 (70% laptops, 30% desktops)
Multinational technology company	Headquartered in US	Director of IT services	10,000 (45% laptops, 55% desktops)
Professional consulting firm	Headquartered in US	Emerging technology manager	4,800 (100% laptops)
Educational institution	US	System architect	10,000 (25% laptops, 60% desktops, 15% tablets)
Global financial institution	Headquartered in US	End-user computing manager	12,000 (80% laptops, 20% desktops)

### Surveyed Organizations

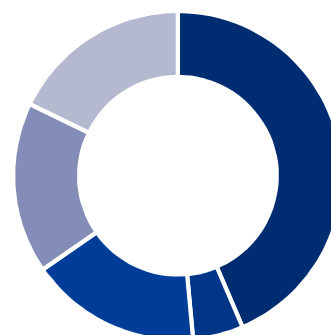
In addition to the in-depth phone interviews, Forrester conducted an online survey among 101 IT decision makers with knowledge of desktop infrastructure environments at their organization. All respondents were significantly involved in the decision-making process for PC and device management and had significant expert-level knowledge about the PC life-cycle process. The aim of this survey was to gather information about the time and efforts that organizations spent on the services related to the entire PC life cycle, from procurement and deployment, to support and management, to retirement of the end-user devices.

Survey respondents worked at organizations with the following characteristics (percentages are rounded):

- › **Organization headquarters location.** US (44%), Canada (5%), UK (17%), France (17%), and Germany (18%); see chart to the right.
- › **Organization size.** Between 1,000 and 4,999 employees (62%), between 5,000 and 9,999 employees (18%), between 10,000 and 20,000 employees (20%).
- › **Organization industry.** Financial services (16%), manufacturing and materials (13%), consumer product manufacturing (8%), telecommunications services (8%), public sector/government (8%), business and consumer services (6%), electronics (5%), retail (5%), insurance (5%), education and non-profits (5%), healthcare (5%), energy, utilities, and waste management (3%), agriculture, food and

Surveyed organizations' headquarters located in:

- US
- Canada
- UK
- France
- Germany



beverage (2%), transportation services (2%), construction (2%), media and leisure (1%), other (7%).

- › **Organization with more than five locations globally.** Between five and nine locations (24%), between 10 and 24 locations (24%), between 25 and 49 locations (23%), between 50 and 99 locations (16%), between 100 and 249 locations (4%), between 250 and 499 locations (6%), and more than 500 locations (4%).

## Key Challenges

Although the interviewed organizations came from various industries including the public sector, they had similar challenges with regards to their PC life-cycle environment:

- › **Lack of resources.** Interviewees repeatedly stated that the deployment and support of end-user devices requires a significant amount of time and that they struggle finding and allocating the appropriate resources internally. Often, non-technical staff, such as regional office managers, get involved in the deployment and support processes at remote locations.
- › **Organizational pressure to reduce IT costs.** Similar to other areas, interviewees reported that they were also asked to optimize the efficiency of deploying and supporting end-user devices for their organization.
- › **Inconsistent services across the organization.** Another key challenge noted by interviewees was to provide consistent service and end-user experience for the entire workforce. Organizations in the study were struggling to provide a remote worker or an employee in a remote office in another country the same kind of service as to an end-user located in one of the organization's main offices.
- › **Usage of outdated technology.** Organizations want to empower their employees and put them into a position where they can be as productive as possible. However, they struggle not only with finding the budget, but also with keeping up with the technological advances and making the necessary adjustments to their procurement and support processes.

## Solution Requirements

Data collected from the online survey indicates that:

- › Seventy-eight percent of the respondents would like to be able to deploy and manage their Windows 10-based devices faster and more efficiently than in the past.
- › Fifty-eight percent of the respondents are open to having their PC vendor handle all of the PC imaging and deployment processes for them.
- › Fifty percent of the respondents would like to move to a PC-as-a-service model.

When looking for an outside vendor for client solutions and services, survey respondents indicated that they found the following characteristics either important or very important:

“[Prior to working with Dell, we had a] project that did not scope in professional services for deployment. And so, with our current staffing, deploying more than 700 desktops in a calendar year did not look feasible and the project was essentially delayed by two years.”

*-Senior manager of client services, local government organization*



- › **High level of expertise**; 89%.
- › A vendor who helps them **minimize end-user downtime**; 83%.
- › A vendor who helps **cut down deployment time**; 78%.
- › A vendor who helps **free up internal IT resources** for other activities; 77%.
- › **Consistency of services** across all countries they do business in; 74%.

## Key Results

The interviews revealed that key results from adopting Dell's PC Lifecycle Services include:

- › **Avoiding the need to hire more staff.** Interviewees reported that they often consider the Dell teams as an extension of their own IT department: Dell technicians are dispatched onsite when needed and Dell experts are available on the phone to troubleshoot any issues. Interviewees estimated that they would have to hire at least two to three additional engineers if they could not rely on Dell. Some of what Forrester learned in interviews include the following responses from interviewees.

A senior manager of client services for a local government organization reported that: "It's far more efficient and cheaper to employ an organization like Dell to augment the staff for complex projects than it is trying to find the right staff member. The value far exceeds what I think we would get hiring someone." and he continued with saying, "Our rollouts [of end-user devices] was very successful and I attribute a lot of that to Dell because we could not do that with our limited number of resources."

The executive director of technology at an educational institution reported that, "I would probably have to increase my staff by at least two full-time positions to do the services that Dell is helping us do now."

- › **Freeing up internal resources for other tasks.** An important result of adopting Dell's PC Lifecycle Services for the interviewed organizations was the ability to reduce the involvement of internal IT and other resources in the deployment and support activities for end-user devices. The saved time was reallocated to other important tasks that might have been placed on hold previously.

The executive director of technology for an educational institution reported that: "Dell's service technician shows up here onsite and it may take him three hours to rebuild a laptop, and that's three hours that my technician is onsite attending other problems. That is a huge benefit to us."

The emerging technology manager for a professional consulting firm reported that: "For the remote offices, we used to have our office managers running the deployment which would take maybe two hours and then some configuration. Now, instead of the office manager spending two to three hours of IT time doing a deployment on a device for us, they spend maybe 15 minutes, which is a significant amount of time saving."

"Dell is really an extension of our IT and the savings they provide is tremendous. They do all of the remote support that we cannot do or choose not to do. We are probably saving at least two or three full-time positions on a support desk."

*-Emerging technology manager,  
professional consulting firm*



"If you deploy 10 devices each week, and you know it takes two hours for each of them to implement, then you're saving someone 20 hours of productivity to really focus on the job they were hired to do."

*-Emerging technology manager,  
professional consulting firm*





- › **Provision of consistent services across the entire organization.** Interviewees reported that due to Dell's PC Lifecycle Services they now provide consistent services and a consistent end-user experience across the entire organization. Some had redefined procurement, deployment, and support processes on a global level.

The senior manager of client services reported that, "Dell allowed us to have a consistent experience across all locations."

- › **Shortened time to resolutions.** Organizations now have priority access to ProSupport engineers 24x7x365 to quickly resolve hardware and software issues. Interviewees reported that this gives them confidence and speeds up root-cause analyses and resolutions.

The director of IT services for a multinational technology company reported that, "One thing that we gain from their support is being able to get to the root cause and solve hardware problems fast. We're a trusted and respected source within the company but having the backing of Dell engineers to be able to say this problem or that product has failed and work through the repair process is great."

## Composite Organization

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

- › A large US manufacturing and distribution company with global operations and more than 40 locations worldwide.
- › The organization has about 5,000 employees, including 4,000 users of end-user devices.
- › Prior to standardizing on Dell's hardware, the company leased end-user devices from various vendors, with an average refresh cycle of three years.
- › Prior to leveraging Dell's PC Lifecycle Services, the company's IT department delivered those services exclusively with internal resources.



### Key assumptions

Global manufacturing and distribution company

40+ locations

4,000 end-user devices

The following table indicates the number and type of devices and peripherals supplied to different categories of employees:

<b>CATEGORY OF WORKER</b>	<b>DEFINITION</b>	<b>NUMBER</b>	<b>PRIMARY DEVICE</b>	<b>PERIPHERALS</b>
Desk-centric task worker	Most of the time at a desk, working on simple tasks, i.e., call centers, sales, manufacturing, data input	550	Desktop	2 displays
Desk-centric knowledge worker	Over 50% time spent at desk, working on complex tasks, i.e., marketing, finance, creative professionals, engineers	1,500	Laptop	1 display, 1 docking-station
Corridor warrior	Over 50% time on the move on corporate facility, i.e., management, facility, security, warehouse managers	1,200	Laptop	1 display, 1 docking-station
Remote worker	Over 50% working from customer, public locations or home, i.e., consultants	300	Laptop	None
On the go professional	Over 50% spent mobile, visiting customers or remote locations, i.e., sales, field technicians, delivery, logistics	350	Convertible	None
Specialized worker	Most of the time in an office environment at a desk, i.e., creatives, power workers, engineers, analysts with specific requirements	100	Workstation	2 displays
<b>TOTAL</b>		<b>4,000</b>		

# Financial Analysis

## COST COMPARISON AS APPLIED TO THE COMPOSITE

### Total Costs Avoided

REF.	Current State Costs	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Previous PC life-cycle service costs	\$1,047,581	\$1,047,581	\$1,047,581	\$3,142,742	\$2,605,178
Btr	Previous hardware refresh costs	\$1,559,748	\$1,559,748	\$1,559,748	\$4,679,244	\$3,878,862
	<b>Total costs avoided (risk-adjusted)</b>	<b>\$2,607,329</b>	<b>\$2,607,329</b>	<b>\$2,607,329</b>	<b>\$7,821,986</b>	<b>\$6,484,040</b>

### Previous PC Life-Cycle Service Costs

Most organizations only have limited visibility into the real costs that their organization are incurring for delivering the full PC life-cycle services to their workforce, from procurement and deployment, to support and management, to retirement and disposal of end-user devices.

Based on data from the online survey, Forrester analyzed the average amount of time and efforts spent on each of these activities as reported by the respondents. The result was then used to estimate the average monthly PC life-cycle cost for an organization that uses internal resources for the delivery of these services.

For the composite organization, Forrester assumes that:

- › The PC life-cycle services used to be delivered by internal resources.
- › Fifty-four percent of the company's end users are working in a major office and spend the majority of their time at a desk; 30% are also working in a major office but spend more than 50% of their time on the move. Seven percent are remote workers who spend the majority of their time at a desk, and 9% of the users are remote and highly mobile.
- › Supporting remote and mobile workers is on average more expensive than supporting office workers who spend most of their time at a desk. Data from the online survey suggests that supporting a remote worker, who is mainly at his desk, is 10.4% more expensive than supporting an end user in one of the organization's main offices.
- › Given the mix of workers for the composite organization (office workers versus remote users, users who are mainly at a desk versus mobile workers), Forrester assumes average monthly PC life cycle cost of \$22.27 per device. These costs include estimations for procurement services, imaging services, physical installation and basic setup, system management, support, asset disposition, and retirement.
- › The average refresh cycle of end-user devices is three years. After three years, the average support costs would increase. Data from the online survey suggests that the average support costs would increase by 4% for each additional year.

In this business case, the estimated previous PC life-cycle service costs represent the avoided service costs after having adopted Dell's PC

The table above shows the total of the previous PC life-cycle costs including hardware and services, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total avoided costs to be a PV of approximately \$6.5 million.



**Supporting a remote worker is on average 10% more expensive than supporting a worker in a main office.**

Impact risk is the risk that the business or technology needs of the organization may not be met by the investment, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for benefit estimates.

Lifecycle Services. To account for uncertainty in the above assumptions and estimations, Forrester adjusted these avoided service costs downward by 2%, yielding a three-year risk-adjusted total PV of \$2.6 million.

#### Previous PC Life-Cycle Service Costs: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Number of end-user devices		4,000	4,000	4,000
A2	Average monthly service cost avoided per device (non-risk-adjusted)		\$22.27	\$22.27	\$22.27
At	Avoided services costs	$A1 \times A2 \times 12$	\$1,068,960	\$1,068,960	\$1,068,960
	Risk adjustment	↓2%			
Atr	Avoided services costs (risk-adjusted)		\$1,047,581	\$1,047,581	\$1,047,581

### Previous Hardware Refresh Costs

Most of the interviewed organizations were refreshing the end-user devices on an ongoing basis every three to four years, on average. Often, refresh projects were created for specific locations exceeding a certain number of end users.

The table to the right indicates the type and amount of hardware used by the composite organization's workforce.

For the composite organization, Forrester assumes that:

- › The legacy hardware was leased from various vendors (with the following assumptions: residual value of 20%, annual interest rate of 5%, and duration of 36 months).
- › The composite organization paid the following average prices for the legacy hardware:
  - Desktop, \$776.
  - Workstation, \$2,010.
  - Laptop, \$939.
  - Convertible, \$1,061.
  - Docking station, \$164.
  - Display, \$245.

On an annual basis, the composite organization used to pay \$1.56 million on leasing fees. When moving to Dell hardware, these fees represent avoided hardware refresh costs.

TYPE OF HARDWARE	NUMBER OF ITEMS
Desktops	550
Workstations	100
Laptops	3,000
Convertibles	350
Docking stations	2,700
Displays	4,000

## Previous Hardware Refresh Costs: Calculation Table

REF.	METRIC	CALC/ASSUMPTION	YEAR 1	YEAR 2	YEAR 3
B1	Previous hardware cost of all end-user devices	\$3,816,150			
B2	Previous hardware cost of all peripherals	\$1,422,800			
B3	Total previous hardware cost	\$5,238,950 (B1+B2)			
B4	Average monthly leasing costs for end-user devices	Lease formula (with residual value: 20%, annual interest rate: 5%, duration: 36 months)	\$129,979	\$129,979	\$129,979
Btr	Avoided hardware refresh costs	B4*12	\$1,559,748	\$1,559,748	\$1,559,748

## Flexibility

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. There are multiple scenarios in which a customer might choose to leverage Dell's PC Lifecycle Services and later realize additional uses and business opportunities.

Organizations may for example start deploying end-user devices, thereby leveraging Dell's services for a given department and then extend the scope over time. The senior manager of client services, for a local government organization, explained how they were going to repeat the success of the first rollout with Dell:

"Working with Dell and creating this process is going to really pay off for us in the long term because we have other departments that we are working with, that we directly support, and we're just going to take that same process and essentially repeat it."

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

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so.

## Total Future State Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ctr	Future PC life-cycle service costs leveraging Dell's services	\$0	\$801,475	\$801,475	\$801,475	\$2,404,426	\$1,993,150
Dtr	Future hardware leasing costs	\$0	\$1,527,600	\$1,527,600	\$1,527,600	\$4,582,800	\$3,798,915
Etr	Assumed cost for switching provider	\$48,450	\$0	\$0	\$0	\$48,450	\$48,450
	<b>Total future state costs (risk-adjusted)</b>	<b>\$48,450</b>	<b>\$2,329,075</b>	<b>\$2,329,075</b>	<b>\$2,329,075</b>	<b>\$7,035,676</b>	<b>\$5,840,515</b>

### Future PC Life-Cycle Service Costs Leveraging Dell's Services

Interviewees reported that they leveraged Dell's PC Lifecycle Services in order to help their IT department save time and money. Dell ProDeploy Plus is an end-to-end service including every task required to get new PCs from factory to desk, up and running. Dell provides 24x7 onsite installation, migration of data to the new system, wiping it from the legacy system, and 30-day post-deployment support. Dell ProSupport Plus is a complete support service offering which combines priority access to expert support, accidental damage repair, and proactive monitoring for automatic issue prevention and resolution. Interviewees also appreciated tools such as Dell's TechDirect and Dell Command Suite. In addition, Intel® vPro capabilities help organizations to proactively protect PCs against malicious software attacks, diagnose and repair systems remotely (even if the system is powered off), and actively reduce power usage.

For the composite organization, Forrester assumes that:

- › The organization leverages the full scope of Dell's PC Lifecycle Services and tools as well as Intel® vPro capabilities.
- › Dell devices are leased for a period of three years.
- › Given the mix of workers for the composite organization (office workers versus remote users, users who are mainly at a desk versus mobile workers), Forrester assumes average monthly PC life cycle cost of \$16.37 per device. These costs include cost estimations from Dell (for Dell's services) that have been complemented by cost estimations with regards to tasks that will still have to be carried out by internal resources, such as the procurement process, the creation, and the management of a central image or systems management.

To account for uncertainty in the above assumptions and estimations, Forrester adjusted these future PC life-cycle service costs upward by 2%, yielding a three-year risk-adjusted total PV of nearly \$2 million.

The table above shows the total of all future hardware and service costs after having adopted Dell's PC Lifecycle Services, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of approximately \$5.8 million.

Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

### Future PC Life-Cycle Service Costs: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
C1	Number of end-user devices			4,000	4,000	4,000
C2	Average future monthly service cost per device (non-risk-adjusted)			\$16.37	\$16.37	\$16.37
Ct	Future PC life-cycle services costs	$C1 \times C2 \times 12$	\$0	\$785,760	\$785,760	\$785,760
	Risk adjustment	↑2%				
Ctr	Future PC life-cycle service costs (risk-adjusted)		\$0	\$801,475	\$801,475	\$801,475

### Future Hardware Leasing Costs

When consolidating the number of vendors and standardizing on a few types of end-user devices, organizations might be able to better negotiate volume discounts.

But as the focus of this case study is on PC life-cycle services and not so much on a potential reduction of hardware costs, Forrester conservatively assumes that — for the composite organization — the average prices for the Dell devices are roughly 2% lower than the average prices for the legacy devices.

For the sake of this business case, the total value of the entire Dell hardware (same type and number of devices as indicated in the Previous Hardware Refresh Costs section), including end-user devices and peripherals, has been estimated to \$5,131,000, resulting in an annual leasing fee of \$1,527,600.

### Future Hardware Leasing Costs: Calculation Table

REF.	METRIC	CALC/ASSUMPTION	INITIAL	YEAR 1	YEAR 2	YEAR 3
D1	Total costs for end-user devices	\$3,739,000				
D2	Total costs for peripherals	\$1,392,000				
D3	Total hardware cost	\$5,131,000 (D1+D2)				
D4	Average future monthly leasing costs for end-user devices	Lease formula (with residual value: 20%, annual interest rate: 5%, duration: 36 months)		\$127,300	\$127,300	\$127,300
Dtr	Future hardware leasing costs	$D4 \times 12$	\$0	\$1,527,600	\$1,527,600	\$1,527,600

### Cost Of Switching Provider

Switching a B2B provider is rarely cost neutral — new processes must be created and new relationships must be built. Interviewees indicated that their engineers had to invest time in learn how to be efficient with the Dell ProDeploy tools.

For the composite organization, Forrester assumes one-time switching costs of \$47,500. The reader should note that the focus of this business case is the end-user device. The estimated switching costs do not include any costs of learning to roll out, manage, or administer a new operating system or a new business application that might be rolled out at the same time as the new devices.

The switching costs will of course vary by company and have only been estimated for the composite organization. To account for the uncertainty of the assumptions made, this cost was risk-adjusted upward by 2%. For the composite organization, the risk-adjusted provider switching costs had a value of \$48,450.

**Costs For Switching Provider: Calculation Table**

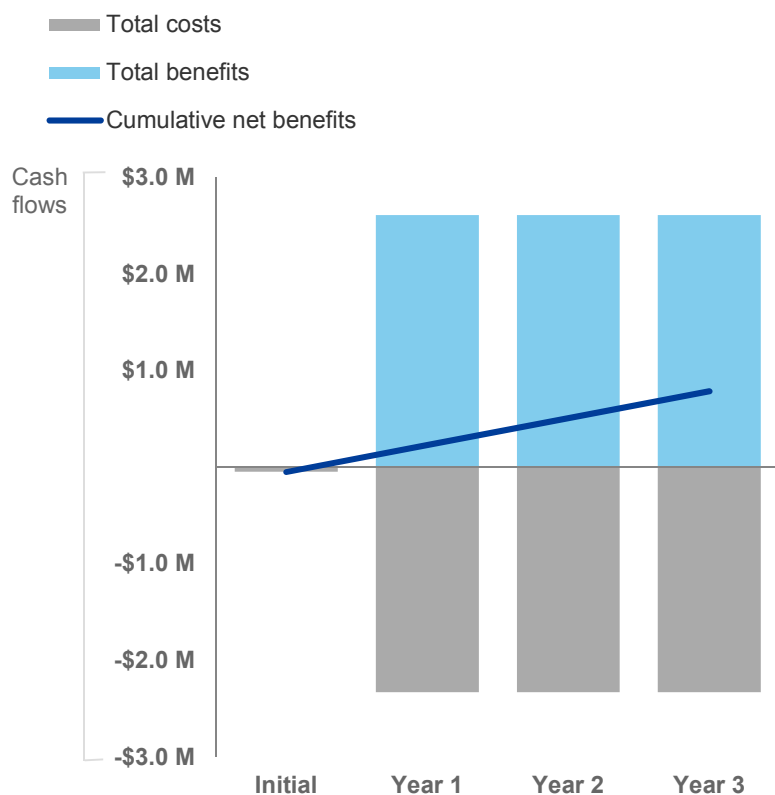
REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
E1	Assumed one-time costs for switching provider		\$47,500			
Et	Costs for switching provider	F1	\$47,500	\$0	\$0	\$0
	Risk adjustment	↑2%				
Etr	Costs for switching provider (risk-adjusted)		\$48,450	\$0	\$0	\$0



# 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 section above.

### Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	(\$48,450)	(\$2,329,075)	(\$2,329,075)	(\$2,329,075)	(\$7,035,676)	(\$5,840,515)
Total benefits	\$0	\$2,607,329	\$2,607,329	\$2,607,329	\$7,821,986	\$6,484,040
Net benefits	(\$48,450)	\$278,254	\$278,254	\$278,254	\$786,311	\$643,525
ROI						11%
Payback period						<6 months

# Dell PC Lifecycle Services: Overview

The following information is provided by Dell. Forrester has not validated any claims and does not endorse Dell or its offerings.

Dell offers services that spread the whole PC life-cycle, from procurement, to deployment and migration, to management and support, all the way to retirement and disposition of end-user devices.

- › **PremierConnect** easily integrates with most enterprise resource planning (ERP) applications and supplier networks. Dell PremierConnect supports end-to-end eProcurement transactions, including catalog, purchase order, purchase order acknowledgement, invoice, and payment.
- › **ProDeploy Plus** is an end-to-end service that addresses every task required to get new PCs from the factory to desk, up and running fast.
  - Systems are prepared for deployment and arrive with the image loaded, basic input/output system (BIOS) configured, and asset tag applied.
  - A deployment engineer develops an implementation plan covering all aspects of installation and configuration of hardware and system software, 24x7 onsite installation, and post-deployment knowledge transfer.
  - Customers can also use the ImageAssist tool to quickly create, deploy, and maintain a single cross-platform dynamic image.
  - ProDeploy Plus customers can use Dell Connected Configuration to set up a factory distribution point for their Microsoft System Center Configuration Manager to securely configure BIOS, image, and domain join; which lowers onsite effort. They also receive data migration with secure data wipe of legacy systems, training credits to use at any time, 30-day post-deployment support, and a dedicated ProSupport Technical Account Manager.
  - Deployment projects are set up and managed through TechDirect, a self-service portal that allows customers and partners to easily and confidently direct deployment projects, from defining the scope, to making changes, to configuring systems, or checking status. Projects can be executed faster and with less risk of mistakes, making the entire engagement more efficient and effective.
- › **ProSupport Plus** is a complete support service offering. It combines priority access to expert support, accidental damage repair, and proactive monitoring for automatic issue prevention and resolution. ProSupport Plus includes:
  - Priority access to ProSupport engineers 24x7x365 to quickly resolve hardware and software issues.
  - Predictive analysis for issue prevention and optimization enabled by SupportAssist.
  - Proactive monitoring, issue detection, notification, and automated case creation for accelerated issue resolution enabled by SupportAssist.
  - Power to manage all asset alerts from a single portal with Tech Direct or other tools.
  - System repair after a drop, spill, or surge to protect your investment.
  - Hard drive retention after replacement to help secure data.
  - Dedicated Technology Service Manager, a single point of contact for issue resolution and monthly reporting.

# Appendix A: Total Economic Impact

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

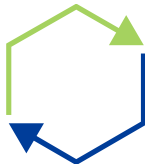
## Total Economic Impact Approach



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



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



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



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

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



### PRESENT VALUE (PV)

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



### NET PRESENT VALUE (NPV)

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



### RETURN ON INVESTMENT (ROI)

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



### DISCOUNT RATE

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



### PAYBACK PERIOD

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

# Appendix B: Related Forrester Research

## *Related Forrester Research*

“Build Digital Workspace Delivery Systems To Give Employees The Right Tools For Their Jobs,” Forrester Research, Inc., March 6, 2017

“Put A Plan In Place To Improve The Employee Experience,” Forrester Research, Inc., November 17, 2017

“Engineer Your Technology Environment To Improve Employee Productivity And Flow,” Forrester Research, Inc., December 15, 2017