# The Total Economic Impact™ Of Microsoft Surface Pro For Primary And Secondary Education

## Cost Savings And Business Benefits Enabled By Surface Pro

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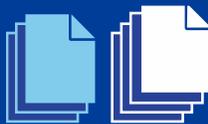
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## Benefits For A Composite School

Improved lesson planning, learning, and communication

More than 90% of parents say students rely on Surface Pro for schoolwork.

Reduced paper, printing, and textbook costs:
**$240,000**

Financial total of quantified benefits (three-year, right-adjusted present value):
**$820,000**

# Executive Summary

Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to examine the benefits primary and secondary schools may enable when providing Surface Pro devices to every student and teacher. The purpose of this study is to provide decision makers at schools and similar organizations with a framework to evaluate the potential quantitative and qualitative impact of a 1-to-1 device strategy with Surface Pro to improve teaching and learning.

Portable and powerful Surface Pro devices, with a type keyboard and stylus pen, can help teachers better prepare for class; provide students one tool for all readings, notes, and assignments; and allow parents to conveniently view their child's progress. "We asked the questions, 'How can we make learning better, how can we be innovative, and how can we best prepare students for the world that waits for them?'" said the technology director at a public school. "I find the Surface to be the most versatile device ever."

Forrester interviewed four primary and secondary schools that have a 1-to-1 device strategy for students and teachers. All schools have deployed Surface Pro devices to several middle- or high-school grades for the past one or two school years.

These schools, teachers, and students leverage Surface Pro collaboration and creation tools that fit within their current work. The Surface Pro stylus enables even better adoption of programs like OneNote; students and teachers appreciate how much it feels like a real pen.

## Key Findings

The following risk-adjusted quantified benefits and unquantified benefits are representative of those experienced by the schools interviewed:

› **More-productive teacher prep time.** Teachers are able to save time developing lesson plans by 30 minutes or more and are able to spend at least a half hour more in the classroom. They can deliver higher-quality content, work one-on-one more with students, and present information interactively across the classroom display or individual screens.

› **Reduced paper, printing, and textbook costs.** Surface Pro collaboration helps reduce paper and printing costs by 33% to 75% each year. Teachers provide electronic notes, workbooks, and readings, and have started to transition to electronic textbooks that are about half the price.

› **Reduced IT costs.** Surface Pro standardization helped reduce support calls, allowing schools to reduce IT teams by two people. Since Surface Pro, schools have seen many fewer broken screens and other hardware issues.

› **Student homework completion and other improved performance.** With Surface Pro, students have everything they need to get homework done whenever and wherever they are. Eighty percent or more of students, teachers, and parents report that they use their Surface devices to complete in-class work and homework, as they always have what they need.

Forrester's interviews with four schools have been summarized as a composite school. The TEI analysis for the composite school shows a risk-adjusted, three-year present value (PV) of benefits of nearly $820,000, which equates to more than $950 per student over three years.

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## 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 Microsoft Surface Pro.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Microsoft Surface Pro can have on an organization. Specifically, we:

**DUE DILIGENCE**
Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Microsoft Surface Pro.

**CUSTOMER INTERVIEWS**
Interviewed organizations using Surface Pro 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 interviews, using the TEI methodology, and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.

**CASE STUDY**
Forrester employed four fundamental elements of TEI in modeling Microsoft Surface Pro's 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.

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

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# The Surface Pro Education Customer Journey

**BEFORE AND AFTER THE SURFACE PRO INVESTMENT**

## Interviewed Organizations

For this study, Forrester conducted four interviews with Microsoft Surface Pro customer schools, all based in the US, which we combined into a composite school to summarize and share benefits and costs. Interviewed customers include the following:

| SCHOOL | REGION | INTERVIEWEES | SURFACE PRO IMPLEMENTATION |
|---|---|---|---|
| Private high school | US Northeast | Technology coordinator and teacher | Deployed 400 Surface Pro devices for students grades nine through 10; will deploy for all students within two years. |
| Public high school | US Midwest | Technology director, IT admin, and vice principal | Deployed 650 Surface Pro devices within specific curriculums for students in all grades. Will deploy for all students within one to two years. |
| Private high school | US Midwest | Director of IT and manager of technology integration | Deployed 750 Surface Pro devices for all students |
| Private K-12 school | US Southwest | IT director | Deployed 450 Surface Pro devices for students in grades six through nine. |

## Key Challenges

Based on individual interview responses, decision makers at the composite school saw the following issues, drivers, and opportunities leading up to its decision to purchase and deploy Surface Pro:

› **Teachers saw a missed opportunity.** Technology is a key part of society, but teachers felt they weren't providing enough opportunity for students to prepare for the technology expectations of college or the workforce such as helping students learn and use Microsoft Office documents, spreadsheets, and presentations that are used by many businesses.

› **Students and parents had to deal with a myriad of ad hoc devices and systems.** Many teachers who wanted to include more technology in class for research, completing work, and tracking progress ended up creating or implementing their own siloed systems and bringing in devices, which often meant students ended up using a variety of devices and device types. Students had to log in to different systems each class period or in the evening to download assignment materials. "And if you're a student, you go to this classroom, you've got to log in to this website, you go to that class, you've got to log in to that website. There was this segregation between the teachers, between the departments, between the expectations," said the technology director at a public high school.

› **Teachers and students spent a lot of time on things they knew could work better.** Teachers spent a lot of time in front of the copy machine and preparing handouts for class. Students spent extra time locating assignment materials, completed homework, or notes — and if that wasn't convenient, they might just skip the assignment.

> "We had given some teachers Surfaces. All of a sudden, that became the device of choice. That wasn't forced by the school board, administrators, or me. It was a decision by the teachers. They wanted an inking device. The outcome was extremely positive; people were happy, students were happy."
>
> *Technology director, public high school*

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> › **Teachers wanted to spend more time in the classroom.** With these logistical tasks, teachers had to spend less time on lesson planning or even some time out of the classroom. Teachers wanted to increase their time spent in the classroom, improve that in-class time to deliver better information, and provide students more 1-to-1 assistance.

> › **Schools wanted to reduce costs.** Schools, especially public schools, have budget constraints. A lot of money is spent on paper for printing and copying, and textbooks can be very expensive, compared with electronic versions that are often half the price.

## Solution Requirements

The interviewed organizations all wanted to be able to provide students and teachers powerful computing devices in a 1-to-1 strategy. Administrators and technology decision makers needed to see that:

> › **Devices would improve teaching and learning, not just be a research window.** "We asked the questions, 'How can we make learning better, how can we be innovative, and how can we best prepare students for the world that waits for them outside of high school?' With Surface Pro, we enabled the underachievers to achieve more and aren't limiting the overachievers," said the technology director at a public high school.

> › Devices would provide access to and integrate with applications and platforms currently in use and to be added.

> › **Adoption would not be a struggle.** Devices had to be easy to use for both teachers and students, and they would use these devices as an alternative to materials, such as: calculators, textbooks, notepads, binders, gradebooks, desktop computers, worksheets, quizzes, drawing canvas, and other electronic and physical materials.

> › **Devices would come with a high-quality writing device.** Meeting the adoption requirement would require a quality stylus that felt like a natural pen or pencil. Any discomfort or difficulty would reduce adoption significantly.

> › **Devices would have a good battery life** to make it through a full day on one charge.

> › **Devices would be durable** but still be light and convenient to use while delivering computing power comparable to a standard laptop or desktop.

> › Devices would be reasonably priced.

## Key Results

The interviews revealed key results from the Surface Pro investment, as applied to the composite school:

> › **Teacher classroom time and lesson quality are improved.** Teachers can create more interesting lessons with a broader variety of media, share files online, screen-share in class, and use tools like OneNote classroom notebooks to quickly track student learning and progress.

> "We asked the questions, 'How can we make learning better, how can we be innovative, and how can we best prepare students for the world that waits for them outside of high school?' With Surface Pro, we enabled the underachievers to achieve more and aren't limiting the overachievers."
>
> *Technology director, public high school*

**Surface Pro benefits in education:**
**Teachers:**
- Teachers prepare lessons more quickly.
- Teachers have more classroom time.
- There is more classroom collaboration, particularly in math and science.
- Students always have what they need.
- Students turn in more homework and more on time.
- Teachers can make fast notebook checks with OneNote classroom notebooks.
- Surface Pro allows for immediate learning feedback.
- Surface Pro prepares students for the future.

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› **Student engagement is improved.** With improved lessons, students are more engaged. Learning is more collaborative and hands-on, and information is presented in a variety of ways with more opportunities to get help.

› **Paper and printing costs are reduced.** With a 1-to-1 device strategy, every teacher and student has a Surface Pro device in the classroom, so teachers can avoid printing handouts, and electronic textbooks are much more cost effective.

› **IT costs are reduced.** With a more standardized and modern client device implementation, several IT resources could move back to full-time teaching.

## Composite School

Based on the interviews, Forrester constructed a TEI framework and an associated benefit analysis that illustrates the experience of the interviewed schools. The composite school is representative of the four schools that Forrester interviewed and is used to present the aggregate financial and nonfinancial analysis in the next section. The composite school that Forrester synthesized from the customer interviews has the following characteristics:

› It uses a US-based curriculum and org structure.

› It has 975 students. Deployment has started with grades nine and 10; as they advance, they will keep their devices while incoming ninth graders will be provisioned their devices. By Year 3, 100% of students will have Surface Pro tablets. By the first year of this analysis, 450 students are using Surface Pros.

› It has 65 teachers, all with Surface Pro devices, and 10 admins and other employees using Surface Pros as well.

› Current deployments include Surface Pro 4 devices and some Surface Pro 3. Any new or refreshed device purchases will take advantage of the next generations of Surface Pro devices; those will be purchased and provisioned as they become available. All devices are running Windows 10.

**Description of the composite school:** A private high school in the United States serving a community near a large city. It includes grades nine through 12 and has about a 15-to-1 student-to-teacher ratio. It has purchased and deployed Surface Pro 3 and 4 devices to students, teachers, and some administrators; devices are owned (leased) by the school but a lab fee is added to family school costs to help offset the cost of devices.

> "The stylus was really, really important. On the Surface Pro, there wasn't any lag on the screen. Having it feel natural was really important."
>
> *IT director at a Southwest private school*

Key assumptions for the composite school:
- 975 students.
- 65 teachers.
- A 15:1 student-to-teacher ratio.
- A 1:1 device strategy.

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# Financial Analysis

**QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE**

## Total Benefits

| REF. | BENEFIT | YEAR 1 | YEAR 2 | YEAR 3 | TOTAL | PRESENT VALUE |
|---|---|---|---|---|---|---|
| Atr | Value of productivity gained from reduced preparation time | $51,376 | $102,752 | $154,128 | $308,256 | $247,423 |
| Btr | Paper and textbook cost savings | $52,792 | $91,265 | $153,815 | $297,872 | $238,982 |
| Ctr | Reduced IT costs | $134,000 | $134,000 | $134,000 | $402,000 | $333,238 |
| | **Total benefits (risk-adjusted)** | **$238,168** | **$328,017** | **$441,943** | **$1,008,128** | **$819,643** |

## Reduced Teacher Class Preparation Time

Benefits described above, such as quicker lesson planning, faster grading, and sharing of electronic documents (versus spending time printing and copying), all led to improved teacher productivity.

The technology coordinator and teacher at a private school in the Northeast highlighted how much time teachers could save just by being able to project or share directly from their Surface Pro. "We used to have laptop carts that teachers would check out; they would spend 30 minutes picking up the carts, logging in and setting up, and then shut down and put everything away. They now have more time to teach and to integrate things rather than just getting devices working."

> Total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than $820,000.

## Value Of Teacher Time As A Measure Of Productivity

| REF. | METRIC | CALC. | YEAR 1 | YEAR 2 | YEAR 3 |
|---|---|---|---|---|---|
| A1 | Teachers | | 65 | 65 | 65 |
| A2 | Prep time before Surface Pro (hours per day) | | 2.5 | 2.5 | 2.5 |
| A3 | Prep time since Surface Pro | | 2.0 | 1.5 | 1.0 |
| A4 | Prep time spent during school hours before Surface Pro | | 0.5 | 0.5 | 0.5 |
| A5 | Prep time spent during school hours since Surface Pro | | 0.0 | 0.0 | 0.0 |
| A6 | **Reduced teacher prep time with Surface (hours per day)** | | **0.5** | **1.0** | **1.5** |
| A7 | **Additional class teaching time with Surface (hours per day)** | | **0.5** | **0.5** | **0.5** |
| A8 | Estimated hourly average teacher salary (fully burdened) | | $32.00 | $32.00 | $32.00 |
| At | Value of productivity gained from reduced prep time | A1 * (A2 - A3) * A8 * 52 | $54,080 | $108,160 | $162,240 |
| | Risk adjustment | ↓5% | | | |
| Atr | **Value of productivity gained from reduced prep time (risk-adjusted)** | | **$51,376** | **$102,752** | **$154,128** |

What this really means is that teachers are able to spend more time in

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the classroom focused on teaching, and not out of the room preparing materials, or sitting at their desk finishing a PowerPoint. The value of improved time in the classroom can be very high, but also very hard to measure. As a proxy, the school has estimated the amount of time teachers save as a measure of hourly productivity (based on annual salary); this is not a very accurate measure, in that it is both not really a cost that the school saves, and it probably greatly underestimates the long-term value students may gain from improved teaching and learning.

This benefit can manifest in a variety of ways:

› **Increased time in class** to teach lessons.

› More time providing **one-on-one teaching.**

› Additional time for **student questions.**

And can lead to benefits such as:

› **Teachers taking less personal time** to prepare lessons and grade papers.

› **Students understanding concepts more completely**, hopefully leading to better grades and test scores.

› **More student involvement** in class, through more interactive lessons and more question and answer time.

As mentioned, the measure of teacher time saved is used as a proxy, to help understand the potential size of this benefit. With a small 5% risk adjustment applied, the three-year risk-adjusted present value (PV) of nearly $250,000.

## Reduced Paper, Printing, And Textbook Costs

With a 1-to-1 device strategy, teachers can significantly reduce the amount of paper they hand out in class, since they can simply save information to the online OneNote classroom notebook or to the school's learning management system (LMS). Specific improvements for the school include:

› **Reduced printing** and copying paper needs.

› **Reduced printing and copying supplies** and maintenance costs.

› **Reduced time standing in front of the copier.** "One of our teachers did the math: He spends around 14 hours each year standing at the copy machine, waiting for copies to be completed or waiting in line to do copies," said the IT director at a Southwest private school.

Additionally, with a classroom full of Surface Pro users, schools can reduce or eliminate the need for physical textbooks. Teachers can:

› **Completely move to electronic textbooks.** Students can read assignments on their Surface Pro devices.

› **Reduce textbook purchases.** Some classes might provide extra copies (especially for very large, heavy textbooks) so students don't need to carry them from home to school every day. The "extra" copies can now be the electronic editions on the Surface Pro.

› **Maintain textbook purchases,** but provide both the physical and electronic versions as a way to prepare teachers and students for eventual physical textbook reductions in the future.

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

"One of our teachers did the math: He spends around 14 hours each year standing at the copy machine, waiting for copies to be completed or waiting in line to do copies."

*IT director at a Southwest private school*

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## Reduced Paper, Printing And Textbook Costs

| REF. | METRIC | CALC. | YEAR 1 | YEAR 2 | YEAR 3 |
|---|---|---|---|---|---|
| B1 | Teachers | | 65 | 65 | 65 |
| B2 | Classes per teacher | | 5 | 5 | 5 |
| B3 | Classes that require handouts each week, per teacher, that can be avoided | 1 each day | 0.2 | 0.3 | 0.4 |
| B4 | Copies of each handout required per handout | 15 students with extras | 17 | 17 | 17 |
| B5 | Pages per handout (average) | | 12 | 12 | 12 |
| B6 | Total classroom pages printed or copied per week | B1 * B2 * B3 * B4 * B5 | 13,260 | 19,890 | 26,520 |
| B7 | Additional pages printed by students, administrators, and teachers | B6 / 2 | 6,630 | 9,945 | 13,260 |
| B8 | Average cost per page (blended color and black-and-white | | $0.07 | $0.07 | $0.07 |
| B9 | School weeks in a year | | 36 | 36 | 36 |
| B10 | Cost of printing and paper before Surface, per year | (B6 + B7) * B8 * B9 | $50,123 | $75,184 | $100,246 |
| B11 | Reduction in printing with Surface devices | | 33% | 50% | 75% |
| B12 | **Paper and printing cost savings with Surface** | **B10 * B11** | **$16,541** | **$37,592** | **$75,184** |
| B13 | Percentage of classes that require textbooks | | 66% | 66% | 66% |
| B14 | Cost per hardbound textbook | | $70 | $70 | $70 |
| B15 | Cost per electronic textbook (about half the cost of a physical book) | B14 / 2 | $35 | $35 | $35 |
| B16 | Reduction in textbooks with Surface devices | | 33% | 50% | 75% |
| B17 | **Textbook cost savings with Surface** | **B1*B2*B4*B13* (B14-B15)*B16** | **$42,117** | **$63,814** | **$95,721** |
| Bt | Paper and textbook cost savings | **B12 + B17** | $58,658 | $101,406 | $170,905 |
| | Risk adjustment | ↓10% | | | |
| **Btr** | **Paper, printing, and textbook cost savings (risk-adjusted)** | | **$52,792** | **$91,265** | **$153,815** |

Overall, the composite school estimates the following related to paper, copying, and textbooks:

› About one large handout per week per teacher, requiring about 12 pages per handout and 17 copies of each.

› The average cost per page is about $0.07 per page, a blended rate of mostly black-and-white with some color printing.

› The average cost of a physical textbook is $70, while an electronic copy is half that.

› For the first year, it estimates a 33% reduction in printing, copying, and physical textbook use, increasing to 75% by Year 3.

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Given that may factors affect printing, copying, and textbook needs, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted present value of nearly $240,000.

## Reduced IT Costs

With the deployment of Surface Pro devices, the school IT department saw a significant decrease in support calls and hardware issues, including broken screens. Additionally, with Microsoft direct support and maintenance, repair requests are much simpler.

With a standard hardware profile, preinstalled software such as Office, the latest Windows operating system, and a single image, support questions have reduced, and dealing with support issues is easier (since there is no longer a variety of hardware and software profiles to support).

Surface Pro devices are sturdy and well-constructed, with a fixed hard drive and fewer moving parts that might break. That means the school no longer needs to deal with trying to fix hardware issues on their own — they simply provide the student or teacher a spare, and ship the problem device back to Microsoft for repair or replacement under warranty. Schools that have included military-grade ruggedized cases for their Surface Pro devices have seen even fewer issues such as cracked screens.

With these efficiencies, the composite school has been able to move two IT resources back to full-time teaching. This avoided salary (either as an avoided IT or teacher hire) adds up to a three-year PV of more than $333,000.

**Before Surface Pro:**
- Two additional IT resources were required — now they are back in the classroom.

### Reduced IT Costs

| REF. | METRIC | CALC. | YEAR 1 | YEAR 2 | YEAR 3 |
|------|--------|-------|--------|--------|--------|
| C1 | IT and support team FTE before Surface | | 4 | | |
| C2 | IT and support team FTE since Surface | | 2 | | |
| C3 | IT and support team FTE annual salary | | $67,000 | | |
| Ct | Reduced IT costs | (C1 - C2) * C3 | $134,000 | $134,000 | $134,000 |
| | Risk adjustment | ↓0% | | | |
| **Ctr** | **Reduced IT costs (risk-adjusted)** | | **$134,000** | **$134,000** | **$134,000** |

## Improved Education And Learning

Surface Pro tablets help teachers prepare lessons and teach more effectively and at a higher quality. And they help students stay organized, get work done, and use technology to learn in a variety of ways.

**Interactive Lessons**

Teachers can use the Surface Pro tablets to access information and prepare more comprehensive lessons more quickly. "We want to provide an environment where teachers can be as flexible in the delivery of information as possible. We want teachers to offer more opportunities for collaboration; we want better and more effective communication," said the technology director at a public high school.

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Math and science classes, in particular, have seen dramatic changes in the interactive lessons teachers prepare and the way students learn. The public-school technology director continued, "Our physics class was doing calculations on their Surface tablet measuring the collisions of toy cars of different speeds, collected with USB sensors connected to the Surface devices." The technology coordinator and teacher at a private school in the Northeast added, "The pen has been great for getting the technology integration into our math and science classes," as students can use the stylus to write equations and diagrams, make notes, and annotate data. "If you were to walk into our math and science classes, nearly everyone has their device out and they're interacting with the device with the stylus. In other classes, depending on the class, they may be using the keyboard a little bit more. The stylus is a big game changer, and the fabulous experience that Surface has with the stylus proves itself almost instantly," added the IT director at a private school in the Southwest.

The public-school technology director agrees, pointing out how his view of Surface devices changed after seeing them used in classes: "Because of the inking capabilities, particularly in math and science classes, I did a 180-degree shift in my thinking about the Surface device."

### In-Class Collaboration
Teachers are able to easily share material on in-class screens or directly to each student's Surface Pro device via OneNote or another program. "The screen is shared, that's of course a given. The teachers actually can push content directly to the students through OneNote," said the technology director at a Midwest public school.

A significant part of the success in teaching and learning is OneNote classroom notebooks on Surface Pro devices. The convenient form factor, computing power, and especially the stylus helped ensure much greater adoption for the use of OneNote notebooks in the classroom — much more than they would have seen on other devices. "There isn't any other stylus out there that does anything like that," said the IT director at a private school in the Southwest. "If it doesn't fit the work flow of a person using a pen or pencil, then they won't use it."

### Online Integration
"Teachers are using OneNote to distribute handouts. They're putting assignments online. They're putting their presentations online. It's impressive," said the technology coordinator and teacher at a Northeast private school. "They've really made a lot of use with that program; uploading files and folders, grading work right in OneNote classroom notebooks in real time, avoiding emailing back and forth." With OneNote classroom notebooks, teachers can set up an all-class notebook for lectures, handouts, and shared notes, while also providing each student a private notebook that only the student and the teacher can access. Teachers no longer have to collect and check notebook progress. "With OneNote, if I want to check all of my classes' notebooks, I can do that anytime I want," said the manager of technology integration and teacher at a Midwest private school.

With more electronic assignments and readings, the school has also started to implement some quizzes online via their LMS system. This helps teachers collect instant feedback about learning and retention, and speeds up the grading process. The vice principal at a Midwest public school said, "You're getting information, accurate information, much more quickly than you may have in the past, and it's recorded already.

"The [Surface] pen has been great for getting the technology integration into our math and science classes."

*Technology coordinator, Northeast private school*
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
"Teachers are using OneNote to distribute handouts. They're putting assignments online. They're putting their presentations online. It's impressive."

*Technology coordinator, Northeast private school*
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It's automatically recorded."

**Providing Tools To Help Students Succeed**
One interviewed school distributed surveys to teachers, parents, and students, and highlighted the following findings:

› Teachers report that students are getting homework done. More than 80% report that students are using their Surface devices daily, both in class and to complete homework assignments. Eighty percent of teachers use their Surface daily as well.

› More than 90% of parents say the school's 1-to-1 Surface strategy has exceeded their expectations and that students rely on the devices for school work.

› Eighty-five percent of students say they use their Surface for notes and assignments, and to get their schoolwork done at home.

Another school surveyed students; the technology director for that school reported, "Ninety-eight percent of our students used a OneNote notebook in at least half of their classes."

Schools are incorporating technology in more ways, even obvious ways. "We have students that run our help desk — it's part of a class and it's completely run by students, and they try to troubleshoot any issues with syncing or OneNote or any hardware issues," continued the manager of technology integration. "They record all the documentation for anything that needs to be shipped to Microsoft for repair. For students that want to get into IT, it's a great experience for them."

Additionally, teachers and administrators feel they are better preparing their students for the future. "If you get into a workplace, they're going to be using Microsoft Office. I think that it's preparing them for the future. They'll apply for a job, they already have the skills, they'll be one step ahead," said the technology coordinator and teacher at a Northeast private school.

**Students Always Have The Notes and Handouts They Need**
Students have also provided positive feedback, and teachers feel they are performing better. "Students are a lot more engaged during their study hall because they have everything they need," said the technology coordinator and teacher at a Northeast private school. "You go into any classroom, the kids are constantly moving around, shifting from group work to independent work. They can get up and they can take it up in the hallway for a conversation, put it on their desk or their lap to type, or sit cross-legged and handwrite notes. There's a lot of different options."

Students also have been able to complete and turn in homework more regularly. "We don't have to worry about them losing a worksheet or missing a notebook, because it's all online, and they carry that computer with them everywhere," said the technology director for a Midwest private school. He continued, "Student productivity, I think, is better in the study halls; students are a lot more engaged because they have everything they need."

**Fostering Classroom Success**
Lesson success can also be measured, even for students who are less willing to raise their hands. Teachers can prepare summary questions and ask the students to respond in class by typing or writing their answers on their Surface tablets. The technology director at a public school noted, "Teachers can immediately see the results and know, 'Well, the kids got question 1 and 2 but not 3, so I need to do some re-

- More than 80% of teachers report students using Surface daily, including homework.
- More than 90% of parents say students rely on Surface for schoolwork.
- More than 85% of students say they use it for notes, assignments, and homework.

"If you get into a workplace, they're going to be using Microsoft Office. I think that it's preparing them for the future. They'll apply for a job, they already have the skills, they'll be one step ahead."

*Technology coordinator, Northeast private school*

"We don't have to worry about them losing a worksheet or missing a notebook, because it's all online, and they carry that computer with them everywhere."

*Technology director at a Midwest private school*

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teaching.'" This immediate feedback can significantly help, "Especially when kids are at different places and moving at different speeds."

## Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into benefit for some future investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a school might implement Surface Pro and later realize additional uses and business opportunities, such as:

› **Expanded technology strategies, including devices such as Surface Hub.** The school has connected Surface Pro devices to classroom screens and projectors already but is looking forward to experimenting with the added collaboration enabled by Surface Hub.

› **Expanded online quizzes and tests for more automated grading.** The school has enabled some quizzes through its LMS system but sees an opportunity for more ways to digitize this to measure progress quickly and automate some grading tasks.

› **New Surface Pro devices.** As a part of its purchase plans, the school expects to continue to purchase new Surface devices each year to replace damaged or old devices. It plans to purchase the latest Surface Pro devices at those times and looks forward to taking advantage of new capabilities and features of the new hardware.

## Overview Of Costs

Before this first year of 1-to-1 student deployments, the school spent several years piloting the program with teachers and documenting a comprehensive technology strategy.

With the Surface Pro as the chosen device, the school gained board approval and began implementation.

Surface Pro device purchases include:

› The device itself.

› Type Cover keyboards.

› A stylus.

Teachers also had the option of a docking station, an external monitor, and an extra keyboard and mouse.

On average, the purchase cost of a Surface Pro device is $1,200, including the peripherals above (if needed) and a three-year warranty.

Deployment to each student and teacher is relatively easy, with a standard image and other tools such as Office 365, OneNote, and the school's LMS system to keep files online.

Some consulting resources were brought in to make sure this was managed well.

While adding up these numbers will exceed the financial benefits summarized above, this comparison does not consider the unquantified benefits of:

› Improved lesson quality.

› Improved learning and retention.

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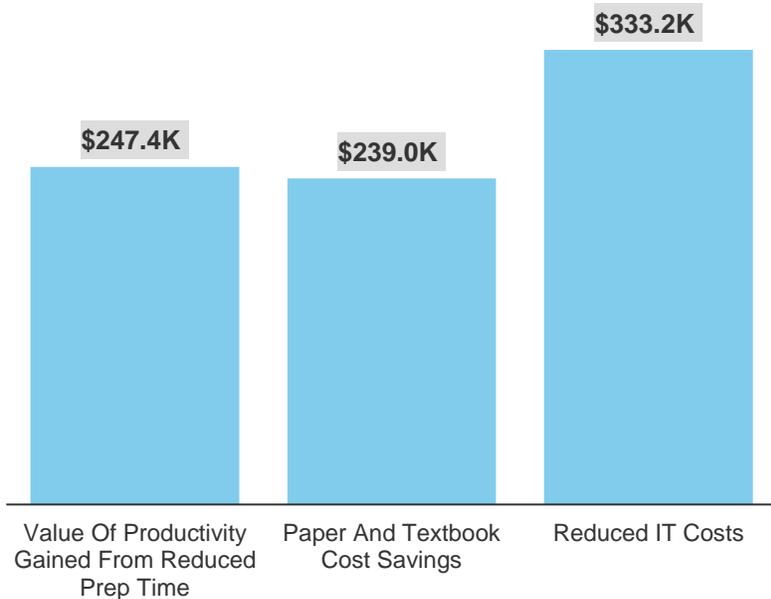› Expected improvements in grades and test scores.

The IT director at a Southwest private school shared a conversation with one child's parents, who had wanted their child to use their own device. "They came back after the weekend and said, 'Oh, now we understand why you recommended this.' Their child fell in love with the Surface Pro in just that short period, and the parents saw the benefit right away."

# Financial Summary

**CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS**

## Benefit Chart (Risk-Adjusted)

**Benefits (Three-Year Present-Value)**



| Value Of Productivity Gained From Reduced Prep Time | Paper And Textbook Cost Savings | Reduced IT Costs |
| --- | --- | --- |
| $247.4K | $239.0K | $333.2K |

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

These risk-adjusted values are determined by applying risk-adjustment factors to the unadjusted results in each benefit and cost section.

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# Microsoft Surface Pro: Overview

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

## The Most Versatile Laptop

A device with the versatility to let you work on your own terms, the new Surface Pro gives you everything you need in terms of performance, mobility, security, and reliability. A best-in-class laptop with the creative freedom of a studio, and the convenience of a tablet. All in one.

## What It Means For Your Business

› **Modernize Your Business —** with a core, connected device that will enable digital-first workflows, streamline tasks, and help you project a modern face to your customers. Surface is easy to deploy and manage, and comes standard with enterprise-grade security.

› **Empower Your Employees —** seize the power of the group with superior collaboration tools and features. Exceptional power and performance lets your employees capture great ideas on the go.

› **Attract And Retain Talent —** with meticulously designed, premium devices that can be personalized in a range of rich colors.

## Discover The New Surface Pro

› **Uncompromising Mobility.** Now supported by LTE connectivity, up to 50% more battery life than Surface Pro 4, and an ultra-light design, the new Surface Pro redefines mobile working. Work from virtually anywhere.

› **Exceptional Power And Performance.** The new Surface Pro gives you the power to run all the applications you rely on. Experience up to 20% more performance than Surface Pro 4 thanks to the latest, powerful Intel Core processor and bring your ideas to life with the stunningly responsive PixelSense Display.

› **The Best Of Microsoft At Your Fingertips.** Choose the laptop with all of your familiar Office 365 applications and Windows 10 security you and your customers can depend on. Enjoy fast, secured, password-free sign-in with Windows Hello. Surface Pen and Surface Dial help you make the most of the full, interactive Windows experience.

› **Make It Your Own.** Reflect a premium, professional image with the new Surface Type Cover, featuring luxurious Alcantara fabric in a choice of rich colors. Complete the impression with new Surface Pen and Surface Arc Mouse in matching colors.

For more information visit microsoft.com/en-us/devices/business.

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# Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances an organization's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps organizations 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.

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