A Forrester Total Economic Impact™ Study
Commissioned By Microsoft
February 2019

Microsoft Accessibility And Assistive Technologies For Education

A Total Economic Impact™ Analysis

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ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

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Benefits And Costs

Additional instructional time per teacher per year:
97 hours

IT-related savings per student per year:
$50

Interviewee-reported improvement in reading and writing performance:
20%

Executive Summary

Built into Office 365 and Windows 10 are a wide range of accessibility and assistive technologies that help special education students perform better, remove the stigma that can be associated with having to learn differently, and improve mainstreaming and inclusivity initiatives. Because these solutions are a standard and free part of Microsoft 365 Education (Office 365, Windows 10, and Intune for Education), many other students can also use them to improve their learning, such as English language learners (ELLs), students with temporary disabilities such as a broken arm, and students not formally diagnosed with a learning disability and given an Individualized Educational Program (IEP). Furthermore, these solutions improve teacher effectiveness and satisfaction and reduce IT costs and effort (see the Microsoft 365 for Education section of this study for details regarding what is included).

Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) school districts may realize from utilizing the accessibility and assistive technologies built into Microsoft 365 Education (Microsoft 365). The purpose of this study is to provide readers with a framework to evaluate the potential financial and nonfinancial impacts of Microsoft 365 on their institutions. This study focuses specifically on the accessibility and assistive technologies included in Microsoft 365; another Forrester TEI study, completed in January 2018, explored the full benefits realized with these solutions.[1]

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four school districts and educational institutions using Microsoft 365. They all reported better student outcomes, more engaging learning experiences, lower IT costs and effort, and more satisfied teachers. While the primary objective was to improve student learning and performance, cost savings was also a major consideration because of budget constraints. Prior to using Microsoft 365 accessibility and assistive technologies, the schools typically had many disparate solutions from different vendors, which all came at a separate cost. Because of this, they were only made available to students with a diagnosed need for the solution.

Key Findings

Benefits. The following risk-adjusted quantified present value (PV) benefits are representative of those experienced by the schools interviewed and applied to a composite organization of 60,000 students (9,000 of whom were formally in special education) and 5,500 teachers (750 of whom were designated special education teachers) and projected forward for three years:

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ROI
160%

Payback
9 months

"We have found that if we give these tools only to students who needed them, we had a 20% improvement in reading and writing. When we gave it to the whole class, we saw a 30% to 40% improvement. More people using them creates a strong support network. A student can turn to their neighbor and ask for help."

Assistive technology specialist, public K-12

"I've been in the accessibility field for 38 years. Microsoft has done a very good job with the features they have built. I'm very excited about this."

VP of educational research and innovation, private college

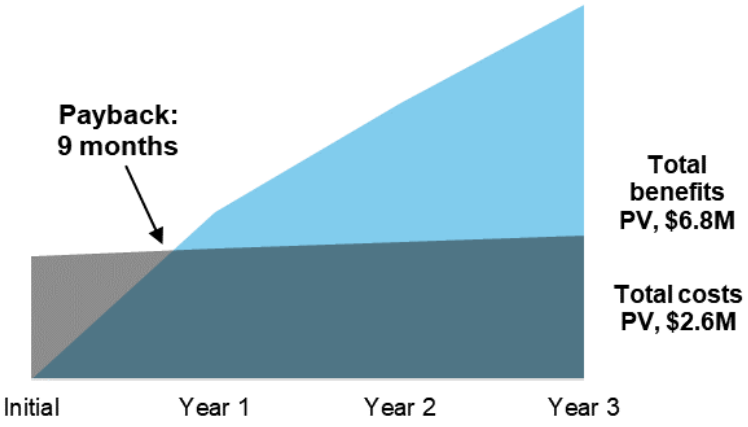
- **Improved student learning and outcomes.** The primary reason the interviewed schools adopted the accessibility and assistive technology solutions built into Microsoft 365 was to provide better educational outcomes for their students. Interviewees stated that these solutions are a good alternative to the specialized ones they were previously buying. Because the accessibility and assistive technology features are standard features built into Microsoft 365, schools removed any potential stigma from requiring special technology, and all students were more likely to use them. In a study conducted by RTI (more details later in the study), students experienced a 10 percentile point increase in STAR reading comprehension scores by using Microsoft 365 for Education.[2] Additionally, the anytime/anywhere nature of the cloud-based solution means that students can access their coursework from their homes or mobile phones as well as at school. This benefit was not quantified in the study.
- **Increased teacher satisfaction and more teaching time.** The Microsoft 365 solution greatly benefits teachers by providing them tools to better engage students and collaborate with other teachers, paraprofessionals, and others involved in a student's IEP, e.g., psychologists and speech pathologists. Utilizing a universal design learning (UDL) environment reduces duplicative effort. Additionally, these teachers (and paraprofessionals) are working with the latest technologies, which improves professional development. For the composite organization, 750 special education teachers save a total of 72,750 hours per year in training, assigning work to students, and assisting students. The total savings over three years is $5.4 million.
- **Reduced and more predictable IT costs along with better performance, availability, and security.** Because the accessibility and assistive technology solutions are standard in Microsoft 365, their deployment and management are part of a broader deployment and are built on Microsoft's secure and scalable cloud platform. Technology savings include the elimination of licenses for other assistive technologies, less IT effort to support multiple solutions, and reduced device acquisition and provisioning costs. The total IT savings over three years is $1.3 million. These solutions are now available and supported by IT for all students, not just those on an IEP. If the full cost for IT to support the entire student body with the previous solutions was calculated, the savings would be much greater.

Costs. Because these technologies, e.g., Text-to-Speech, Accessibility Checker, and Automatic Alt-text descriptions for images, are part of the standard Microsoft 365 solution set, there is little to no incremental effort associated with their deployment and management. In most cases, educators and students can use the assistive and accessibility solutions for free. Therefore, there are very few cost categories; the interviewed organizations experienced the following risk-adjusted costs, which are represented by the composite organization:

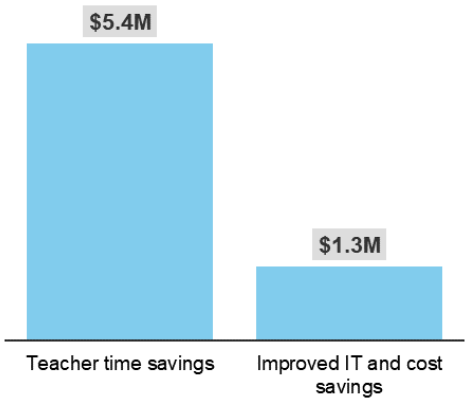
- **Student and faculty devices.** The ultimate goal for many school districts is a 1-to-1 student/faculty-to-device ratio. In all cases, each teacher had their own device. For students, some school districts were already at 1 to 1 across all schools, and others were still in a phased rollout. The approach to deploying devices varied greatly depending on current device penetration rates for faculty and students and budget availability. This ranged from an initial big-bang approach to following existing device refresh schedules. Forrester used a big-bang approach for the financial analysis for simplicity. All costs were included in the initial period even though financing options are often used to spread the costs out over multiple years. At an average price of $400 per device, the total cost for 5,250 devices with a warranty is $2.2 million.
- **Ongoing management.** Two internal FTEs are focused on testing new solutions, providing training-the-trainer sessions, rolling out solutions, etc. They support the rest of the special education IT specialists. The total cost over three years is $391,182.

Forrester's interviews with four school districts and institutions using Microsoft 365 Education accessibility and assistive technologies and subsequent financial analysis found that an organization based on these interviewed organizations experienced present value benefits of $6.8 million over three years versus costs of $2.6 million, adding up to a net present value (NPV) of $4.2 million and an ROI of 160%.

Financial Summary



Benefits (Three-Year)



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The TEI methodology helps organizations 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 educational institutions considering utilizing the accessibility and assistive technologies built into Microsoft 365 Education.

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 these solutions can have on an organization:

DUE DILIGENCE
Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Microsoft 365 education accessibility and assistive technologies.

CUSTOMER INTERVIEWS
Interviewed six individuals across four educational institutions using Microsoft 365 Education accessibility and assistive technologies to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed educational institutions.

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 educational institutions.

CASE STUDY
Employed four fundamental elements of TEI in modeling Microsoft 365 Education'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.

DISCLOSURES

Readers should be aware of the following:

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

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Microsoft 365 Education.

Microsoft reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

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

The Acessibility & Assistive Tech Customer Journey

BEFORE AND AFTER THE MICROSOFT 365 EDUCATION INVESTMENT

Interviewed Organizations

For this study, Forrester conducted six interviews across four school districts using the accessibility and assistive technology solutions built into Microsoft 365 Education. Interviewed organizations include the following:

DISTRICT TYPE	INTERVIEWEES	TOTAL STUDENTS	SPECIAL EDUCATION STUDENTS
Private college	• VP educational research and innovation • Manager of IT operations and support services	400	400
Public K-12	• CIO	14,000	2,100
Public K-12	• Assistive technology specialist	72,000	9,000
Alternative education campus	• CIO • Special education coordinator	4,000	400

Key Challenges

The interviewed educational institutions had many challenges that they wanted to address with Microsoft 365 Education accessibility and assistive technologies.

- **Existing solutions could not be widely deployed and often had a stigma associated with them.** The previous solutions consisted of a portfolio of tools that addressed a specific student need, e.g. text-to-speech. Each came with a separate license cost and management and training effort. For these reasons, the solutions were only made available to students as part of an IEP. Many other students who might have benefited from them did not have access. Because these solutions were not available to all students, some students were reluctant to use them because they feared they might be viewed as different.
- **Learning experiences could be disjointed and distracting.** Having multiple solutions from different vendors often meant that the solutions did not integrate well together. Students needed training on different solutions with different user interfaces. Many of these students already struggled neurologically to focus, and these added complexities further impaired their ability to learn.
- **Technology costs and effort were too high.** Having multiple technology vendors increased license costs, IT effort to deploy and manage, and training for IT, teachers, and students. Some of these solutions also required high-end machines to perform well. Schools struggled with incurring these costs for the subset of students using the tools and could not make them available to a wider audience. Furthermore, integrating all these solutions into a learning management system (LMS) was difficult.

> "We needed to figure out how to serve our special education students better. We also wanted to help more students such as those in ESL."
>
> *CIO, alternative education campus*

> "We had a strong desire to do universal design so identified students wouldn't feel singled out or need a special computer. Before Microsoft, this meant beefier machines with eight different product platforms."
>
> *CIO, public K-12*

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Key Results

The interviews revealed several key results from moving to the accessibility and assistive technologies within Microsoft 365:

- **Student learning has improved.** Improved student outcomes were the most important result for all interviewees. Student learning has improved through increased access to a wide range of solutions and a common user experience. Because student self-determination increases adoption, this applies to both designated special education students and the student population as a whole. The Microsoft tools have also removed the stigma attached with using specialized tools. "Our students with dyslexia use color overlays and single-line reading. In the past they weren't made too much fun of, but still stood out. Now they get their information how they need it, and there is no stigma. It's really cool."
- **Using built-in solutions reduced operating costs and effort.** Because these solutions are part of the Microsoft 365 solution, there is no additional cost or effort to provide accessibility and assistive technology tools. This saves time and cost in terms of support, training, licenses, and hardware. "The thing we really like about Microsoft is that the features are not proprietary. We can mix and match since they come built in and are mainly free."
- **Teachers save time and have tools to support more effective teaching.** Teachers save a lot of time because all the solutions are integrated into Microsoft 365 and because this provides a universal design learning environment. This frees up time that can be spent helping students rather than on administrative activities, training, switching applications, and supporting different tools. "We do everything in Teams, including helping each other and communicating with students."
- **Schools have established strong partnerships with Microsoft.** All interviewees said that Microsoft is committed to providing these solutions and actively listens to feedback from teachers and administrators. This results in better solutions being released and updated more frequently. "When Microsoft presented to us and said that accessibility is important to them, our IT department turned it on right away. Microsoft's level of support makes a huge difference in accelerating rollout and adoption."

"The Microsoft tools in this space have become leaders in the industry. They make life easier for teachers and technology people and, most importantly, the students. This is the trifecta of effectiveness."

CIO, public K-12

"Once users become familiar and comfortable with the solutions, they are amazed at the difference they can make for everyone, not just people with a specific need."

Manager of IT operations and support services, private college

Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite organization, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four school districts and institutions 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:

The composite organization is a K-12 public school district. There are 60,000 students, 9,000 of whom are in special education programs with IEPs. Out of 5,500 total teachers, 750 are designated as special education teachers. Everyone uses Microsoft 365 for Education and the accessibility and assistive technologies built in.

The composite rolled out Microsoft 365 for the entire school district — all 60,000 students, 5,500 teachers, and staff. As part of this, the accessibility and assistive technologies were put in place. After the full rollout, the special education team worked on testing these solutions and then training students and replacing previous solutions where appropriate. Each teacher received a new device as part of the move to Microsoft 365, and devices were deployed at a 1-to-2 ratio to students.

Key assumptions

9,000 special education students

750 special education teachers

Financial Analysis

BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
	Improved student outcomes			(not quantified)		
Atr	Teacher time savings	$2,175,598	$2,175,598	$2,175,598	$6,526,794	$5,410,390
Btr	Improved IT and cost savings	$1,139,968	$194,546	$194,546	$1,529,061	$1,343,282
	Total benefits (risk-adjusted)	$3,315,566	$2,370,144	$2,370,144	$8,055,854	$6,753,672

The table above shows the 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 nearly $6.8 million.

+ Improved Student Outcomes

This first benefit is one that was not quantified but was considered the most important by all the interviewees. The school districts and institutions adopted the accessibility and assistive technologies built into Microsoft 365 to provide better learning opportunities for students and to better incorporate them in the broader educational community by having the same built-in toolset for *all* students whether or not they had special learning requirements. These have improved student results across multiple areas:

Better Performance

Because of the built-in nature of these solutions and their rich feature set, special education students can perform better academically, in part because the possible stigma associated with using different technology tools is removed. Interviewees said:

- "Retention and graduation rates are on par nationally with all two-year and four-year colleges even though all of our students are neurodiverse. The Microsoft solutions contribute to this by minimizing distractions and enabling students to consume information in different ways."
- "I was working with a student who is visually impaired. I walked her through Magnifier, and she got very excited."
- "The Microsoft solutions help with cognitive access in four ways: reducing cognitive load, accessing working memory, activating prior knowledge, and supporting learning efficiencies."

In a study completed by the Center for Evaluation & Study of Educational Equity, part of RTI International, the researchers concluded that the accessibility and assistive technologies in Microsoft 365 reduced stigma for students with reading difficulties and supported multiple modes of learning that better match students' needs. A teacher participating in the study said, "Students would rather go without than stand out. We need to move from assuming access to ensuring access in classrooms."

"We had a student who fell and had a traumatic brain injury. She couldn't read anymore. I showed her how to have tests read aloud with Edge and Office Lens. She got an A and maintained her 4.0 average."

Assistive technology specialist, public K-12

Solutions That Are Easier To Use And More Reliable

Students are challenged when working with multiple point solutions, each of which has a different user interface; this can add to confusion and distraction. Integrating all solutions into a single platform with a common user experience enables students to focus on learning the curriculum rather than the tools.

- "Having everything built in is great and makes it much easier for students."
- "There is less downtime for students. Even classes without special education students had downtime problems from glitchy software."
- "Some years we had no problems, and some years we had a lot of problems with other solutions. This is very disruptive beyond the actual downtime."
- "These new tools are really helping students to get things done, and unlike the past, they don't have to pay out of pocket for them."

> "For students and faculty, a big benefit is having everything right there on a single computer or mobile device. It can also be personalized with the features they need. Not having to go to multiple places is great."
>
> *Manager of IT operations and support services, private college*

More Students And Mainstreaming

The accessibility and assistive tools in Microsoft 365 are available to all students who are using Microsoft 365. This is a marked contrast to highly specialized tools that are deployed on an as-needed basis on a specific device for a specific student. This has two huge implications: First, more special education students can be moved into mixed classrooms as part of mainstreaming initiatives; and second, students who have not been designated as special education and given an IEP can use these tools and experience better learning.

- "A student might be able to get by fine without these technologies. However, doing something like listening to a book might make learning easier. We are seeing wider adoption because of this."
- "We roll out laptops to all students and install the Microsoft solutions on every device. Not every student feels that they need the help, but when they see the tools, they may start using them and benefit from it. The teachers demonstrate them to everyone."
- "Students who don't have these tools assigned to them as part of an IEP say they are enjoying them."
- "We push universal design with teachers to make things easier for all students. For example, a student with a broken arm can continue to study effectively."
- "We have a lot of ESL students, and they are using these tools — Translator and other tools that improve language access."
- "Since the solutions are more readily available, we should have fewer students in special education classes. We can improve mainstreaming while still meeting their technology needs."

The previously cited RTI study compared reading comprehension STAR scores between one group of students using the Microsoft learning tools (Microsoft OneNote, Word, Outlook, Office Lens iOS, and Edge Browser) and a control group that was not. The students using these tools had an average gain of 123.6 points in their STAR scores and a gain of 10 percentile points. By comparison, the control group had a gain of 89.2 points and dropped 0.62 percentile points.

Anywhere Access And Parent Engagement

Because these solutions are standard to Microsoft 365 and often cloud-based, students can access their content and many tools from a school device, home computer/tablet, or mobile phone. This enables more learning time and continuity of experience. It is particularly important for students with mobility disabilities including limited reach, strength, and movement. It also benefits students who cannot come to a campus for other reasons and empowers parents to be more involved in their children's education.

- "Ease of access is very important. Students can log in from any machine and access everything because it is on OneDrive."
- "Teams is how the teachers have meetings with remote students. They also use screen sharing, and it is great for proctoring exams."
- "Students and staff can download these solutions to use at home on PC and Mac as well as online access."
- "Our students are not required to come into the school, so one-fourth are fully remote. If we didn't have tools like Teams, we couldn't provide them with the special assistance they need."
- "We make all documents available equally on campus and off campus. They can use the dictation and other accessibility tools from anywhere."

The RTI study included this example of improved access and parent engagement: "I have students who have difficulty in both reading and writing. . . . Once I used the tools, I could see how to train students who have other learning disabilities to use them, and I could see how to adapt each individual tool for specific purposes for specific students. . . . I did initial trainings and then followed up . . . to make sure they were practicing on a weekly basis. Then I alerted parents to the tool so that they could support it at home and help kids troubleshoot it and use it independently."

> "Parents are very happy because students can do things easier. Parents can be move involved because there are not specialized products that they don't understand, and we would have licenses for parents anyway. With Microsoft, parents can access and understand the tools."
>
> *CIO, public K-12*

+ Teacher Time Savings

Teachers have also benefited greatly from Microsoft 365. They can better engage with students and having access to these tools and a UDL environment reduces time spent on administrative and other lower-value activities. This time savings can be used to increase student learning. It also provides teachers with tools to better interact with other teachers and colleagues such as paraprofessionals and speech therapists. Lastly, it improves their skills on new technologies, which supports their professional development and career progression. Some examples Forrester heard include:

Time Savings

- "Teachers need less training on other tools. This saves them 2 to 3 hours per year."
- "Teachers don't have downtime anymore because a tool is not working."
- "It's easier and faster to access information because everything is saved in one place in Microsoft 365."

- "Teachers are saving time when giving assignments. They don't have to spend 5 or 10 minutes getting special education students set up. These students work in Word like everyone else. This adds up to 1 or 2 hours per week."
- "This year we did not need an on-site training session for all of the special education teachers because we use Teams. That saves up to one full day of travel time."
- "Using these solutions saves teachers a lot of time, probably 3 or 4 hours per week."
- "The student's Microsoft account is integrated into the SIS (student information system). In the past, a teacher would have to create an account for each student. This saves them time."

"Special education teachers are saving time. They can help students without logging into other systems. An average teacher will save 1.5 hours per week on these types of tasks, hopefully more."

Assistive technology specialist, public K-12

Making Work Easier

- "The universal design piece is great. Teachers can more easily create instructional materials without using multiple tools."
- "The reception has been super positive because teachers don't have to learn something else. They already know how to use Windows and Office. They are happier just focusing on one thing."
- "Teams is great. We use it a lot. I actually moved states and can still work for the school."
- "The companies we use for speech pathology and psychology are online only. They each had their own platform and wanted us to use them. We told them that they had to use Microsoft. Now we don't have to log into multiple systems to access reports. This saves us a lot of time and also means students don't have to learn multiple systems. Students spend more time getting speech services rather than learning another platform."

Supporting Each Other

- "We live in Teams. It is a one-stop shop for everything special education related. We keep an updated procedures manual for everything that could happen. Teachers have easy access to the latest information. When they have a question, I or one of the other teachers will answer it."
- "I use the chat function in Teams all the time. I've already answered 100 questions today."
- "We have outside service providers for speech therapy and psychologists. They each have a Team, so we can easily coordinate student learning."
- "Using the Microsoft platform removes many bottlenecks and empowers teachers to support each other."
- "We have an entertainment Team to build camaraderie."

Other Benefits To Teachers

- "This is a big win for general teachers who may see a special education student every few years. They know how to use Microsoft and can provide the help a student needs."
- "The communication tools make it possible to seamlessly go from computer to phone. Parents can call into a meeting if they can attend in person, which is great for parent engagement."

- "In some places we are seeing a change in faculty mix. We are currently doing a pilot program where special ed and regular teachers are co-teaching."

For the financial analysis, Forrester included the time that was avoided for training on multiple systems, giving out assignments, and dealing with administrative or technical issues when assisting students as a proxy for the value realized from additional instructional time. Forrester assumes that:

- Teachers save 2 hours per year avoiding time spent training on multiple systems.
- Teachers save 1 hour per week giving out assignments.
- Teachers save 1.5 hours per week helping students with administrative issues such as logging in and dealing with technology problems.
- These time savings can be used to deliver additional instruction to students, complete professional development, or accrue less overtime costs.
- Seventy-five percent of the total time and cost savings are captured because not all increases in productivity result in more work being completed or the ability to realize quantifiable savings.
- Special education teachers earn an average fully loaded salary of $54,845, which is based on national average.

This benefit can vary greatly depending on how teachers are using these solutions and what was in place before. It can also vary based on the teacher compensation model. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of $5.4 million.

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.

Teacher Time Savings: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Total number of students		60,000	60,000	60,000
A2	Number of special education students	A1*15%	9,000	9,000	9,000
A3	Number of special education teachers	A2/12	750	750	750
A4	Special education teacher fully burdened cost (hourly)	($54,845+30%)/ (38 weeks*40hours)	$46.91	$46.91	$46.91
A5	Training time savings	A3*A4*2 hours	$70,365	$70,365	$70,365
A6	Assignment time savings	A3*A4*1 hour*38 weeks	$1,336,935	$1,336,935	$1,336,935
A7	Assisting students administrative time savings	A3*A4*1.5 hours*38 weeks	$2,005,403	$2,005,403	$2,005,403
A8	Total teacher time savings	A5+A6+A7	$3,412,703	$3,412,703	$3,412,703
A9	Productivity capture adjustment		75%	75%	75%
At	Teacher time savings	A8*A9	$2,559,527	$2,559,527	$2,559,527
	Risk adjustment	↓15%			
Atr	Teacher time savings (risk-adjusted)		$2,175,598	$2,175,598	$2,175,598

+ Improved IT And Cost Savings

Moving to Microsoft 365 Education accessibility and assistive technologies eliminates many costs associated with multiple point solutions. As these technologies are part of the cloud-based Microsoft 365 solution, they also deliver better performance, availability, and security than what a school district could achieve with its previous solutions. The Microsoft 365 solution also increases the IT department's reach in terms of the number of students it can support. This means that more students can benefit from these solutions. Because these tools are standard in Microsoft 365, lower-spec devices can be issued to students and teachers compared to ones running specialized tools. Lastly, Intune for Education is included at no additional cost as part of the student use benefit, and this streamlines device provisioning and maintenance time.

Regarding cost savings, interviewees said:

- "We no longer have to buy special education products. This saves us at least $25,000 per year in licenses, which is a big deal since budgets have been flat for the last three years."
- "We eliminated $95,000 per year on other read-aloud solutions. The amount of our time needed to support it will also go away."
- "We were able to get rid of one solution that was costing $500 per student."
- "We have eliminated $10,000 specialty machines used in classrooms."
- "We spend much less time now on technology setup and maintenance. We have three field service people dedicated to assistive technologies, and they can spend more time training students and teachers."
- "We used to have a network engineer spending up to 40 hours in the summer getting deployment packages built. There would be another 100 hours of testing by the whole assistive technology tech team. We don't have to do that anymore. This could add up to hundreds of hours depending on the year."
- "We used to struggle a lot with devices. We have cut support time across the board by more than 10 percent. This has lowered our overtime costs."
- "When the 2017 Fall Creators edition came out, that was the tipping point. The solutions were fast enough and robust enough to replace the specialized solutions we had. We now save license costs and the technician time to install and maintain. Training is also easier."

> "We are reaching exponentially more people now. We can also train general education staff, not just the special ed teachers. I can't even imagine how many more people we would have needed for this level of outreach. It used to be a concierge model unique to each student's needs. Now we can provide the same tools to everyone and get the same results."
>
> *Assistive technology specialist, public K-12*

Interviewees had the following things to say about improved performance, availability, and security:

- "Before, security was based on isolation and anonymity. Who knew what account name a student created? Now we have all of the security features for special ed that the district has as part of Microsoft 365."
- "Having the same solution running on every computer is good for us. We used to have a lot of performance problems."
- "We now have better integration with our LMS. We chose one that partners with Microsoft in order to make everything work better."
- "We were able to move almost everything to the cloud. Assignments are submitted via OneDrive."

> "We now want to move even faster. We can roll out updates and new tools in a couple of months because the solutions are so good. It used to take a year."
>
> *CIO, public K-12*

- "Technology is built into the fabric of every class. We don't treat it as a bolt on. It is integrated into the lesson plans and how students and teachers work together."
- "In the past, some of the specialized software would affect the performance of other systems."

With regard to device equipment and provisioning savings, interviewees said:

- "We can get the cost of a student machine from between $600 to $1,000 down to $350 to $600. These devices can last anywhere from three to 10 years."
- "It used to take 3 hours to get a computer ready to ship; now it takes just 21 minutes."
- "We have multiple groups with different categories of students. We can deploy packages based on what a teacher is needing. For example, we needed dictation software for three kids in the southwest corner of the state. We created a group, assigned it, downloaded the software and licenses from [the vendor], and then had Intune deploy it. If we didn't have Intune, students would have had to ship the devices back, or we would contract locally with a mobile device management company to touch the machines."
- "Intune for Education allowed us to run a single deployment configuration using one master image to every computer that we have organizationwide. That cut our deployment time from months down to weeks."

For the financial analysis, Forrester included cost savings described by interviewees and scaled them for the composite organization's size. Forrester assumes that:

- The organization eliminates $125,000 in license costs each year. This is lower in Year 1 as teachers and IT become comfortable with the new solutions and as contracts expire.
- One hundred fifty hours of effort related to package deployment and testing are eliminated each year.
- The team of 12 technology specialists saves 10% of their time. They also reach more teachers and students than before with this reduced effort.
- IT employees earn an average fully loaded IT salary of $55,000, plus 30% for benefits and taxes.
- Each fully configured Windows device (software and hardware) costs $125 less than a device that would have been required for the previous solutions. See the Cost section for the remaining device and provisioning costs.
- The time to fully configure a device using Intune for Education is reduced by 2.5 hours, an 84% time savings.
- Devices last for more than three years and do not need to be replaced or touched again during the life of the study. Any costs in this category would be covered by a four-year warranty.

For model simplicity, all devices are added at the start of the project in a big-bang approach. A phased approach would spread out the benefits and costs over a longer period.

"Moving to Windows 10 devices was a big factor in being able to provide more devices. They are easier and cheaper to implement — lower purchase cost, lower setup and rollout costs, and less effort to maintain."

Assistive technology specialist, public K-12

"I get super excited every time I go to Ignite. As Microsoft progresses, there will always be more that we can do with them. What they have done so far has been great for us."

Manage of IT operations and support services, private college

The savings from one school district to another can vary greatly depending on their previous solutions and approaches to IT management. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of $1.3 million. If the required cost to make assistive technologies available to the entire student population using the previous solutions was included, this benefit would be many times larger.

Improved IT And Cost Savings: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Eliminated licenses for other assistive solutions		$50,000	$125,000	$125,000
B2	Average IT resource fully burdened cost (hourly)	($55,000+30%)/2,000 hours	$35.75	$35.75	$35.75
B3	Reduced IT effort — deployment packages and testing	150 hours*B2	$5,363	$5,363	$5,363
B4	Reduced IT effort — field support	12 FTEs*10%*($55,000+30%)	$85,800	$85,800	$85,800
B5	Device hardware savings	(A2*50%+A3)*$125	$656,250		
B6	Device setup time savings	(A2*50%+A3)*2.5 hours*$35.75	$469,219		
Bt	Improved IT and cost savings	B1+B3+B4+B5+B6	$1,266,631	$216,163	$216,163
	Risk adjustment	↓10%			
Btr	Improved IT and cost savings (risk-adjusted)		$1,139,968	$194,546	$194,546

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 utilize the Microsoft 365 Education accessibility and assistive technologies and later realize additional uses and business opportunities.

Examples shared by interviewees included eliminating additional third-party solutions, rolling out more Microsoft accessibility tools as they become available, and implementing the security tool built into Microsoft 365 Education. None of these future opportunities are included in the financial analysis.

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 Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ctr	Devices	$2,205,000	$0	$0	$0	$2,205,000	$2,205,000
Dtr	Ongoing management	$0	$157,300	$157,300	$157,300	$471,900	$391,182
	Total costs (risk-adjusted)	$2,205,000	$157,300	$157,300	$157,300	$2,676,900	$2,596,182

Because the accessibility and assistive technologies that the special education team used are part of Microsoft 365 Education, all of the effort around deployment already took place as part of the full school district rollout. Furthermore, students have free use of Microsoft Education via the student use benefit. Any faculty or administrators who may need a paid version of Microsoft for Education (the vast majority should be able to use the free version) will have already had these licenses included in the main deployment. There are no incremental license costs to use these solutions. Therefore, neither deployment costs nor license costs are included in the analysis.

The table above shows the total of all costs across the areas listed below, 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 almost $2.6 million.

- Devices

To realize the full student-learning benefits from the accessibility and assistive technologies built into Microsoft 365 Education, students need to have devices to use. Ideally, this is a 1-to-1 ratio. Some school districts let the students take the devices home, and others check the devices in and out each day.

Device costs can vary based on specifications and volume discounts. Typically, the school districts planned for the devices to last four years and purchased them with a four-year warranty. There were also different approaches to rolling out the devices. Some school districts did everything at once, and others did a rollout over a couple of years. This depends on budget, staff capacity, and change management issues. Device vendor financing could be used to spread out the costs, allowing for more devices to be deployed faster.

Adding these devices and increased internet usage can result in increased bandwidth requirements. However, most schools reported that there was not that much of a change, and that the incremental costs were very small and often subsidized. One interviewee said: “We added bandwidth, going from 300MB to 900MB. E-rate pays for most of the increase, so the price hasn’t gone up much.” Another interviewee said: “We already had pretty high bandwidth because of online testing. We analyzed bandwidth differences since moving to Microsoft 365 and saw very little increase in bandwidth utilization.”

For the financial analysis, Forrester assumes that:

- Devices were deployed in a big-bang approach for students and teachers. A 1-to-2 device to student ratio was used for students, and each teacher received their own device. For simplicity, all purchase costs are shown in the initial period. However, a school district may use financing options to spread the costs out over multiple years.
- The average cost per device was $400. This included a four-year warranty, so any replacement and maintenance costs during the life of the study are born by the warranty.

- Configuration and deployment services were largely done by the hardware vendor and their partners, along with internal IT resources.

School districts may pay more for hardware depending on the specifications and volume discounts. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted total PV of $2.2 million.

Devices: Calculation Table

REF.	METRIC	CALC.	INITIAL
C1	Student devices	A2*50%*$400	$1,800,000
C2	Teacher devices	A3*$400	$300,000
Ct	Devices	C1+C2	$2,100,000
	Risk adjustment	↑5%	
Ctr	Devices (risk-adjusted)		$2,205,000

- Ongoing Management

Overall, the amount of IT effort is reduced by moving to the Microsoft 365 solutions, as was discussed in the Benefits section of the study. Of the existing special education technology specialist team, the equivalent of two FTEs are involved in activities not directly tied to working with the field, e.g., liaising with the districtwide IT team, attending training and conferences, testing and deploying new Microsoft solutions, etc. Even though this is not new headcount, it is included in the financial analysis to show the total cost of ownership.

For the financial analysis, Forrester assumes that:

- Two internal FTEs are dedicated to supporting Microsoft 365 assistive and accessibility technologies.
- The average salary is $55,000, plus 30% for benefits and taxes.

These costs can be higher if a special education IT team is already understaffed. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of $391,182.

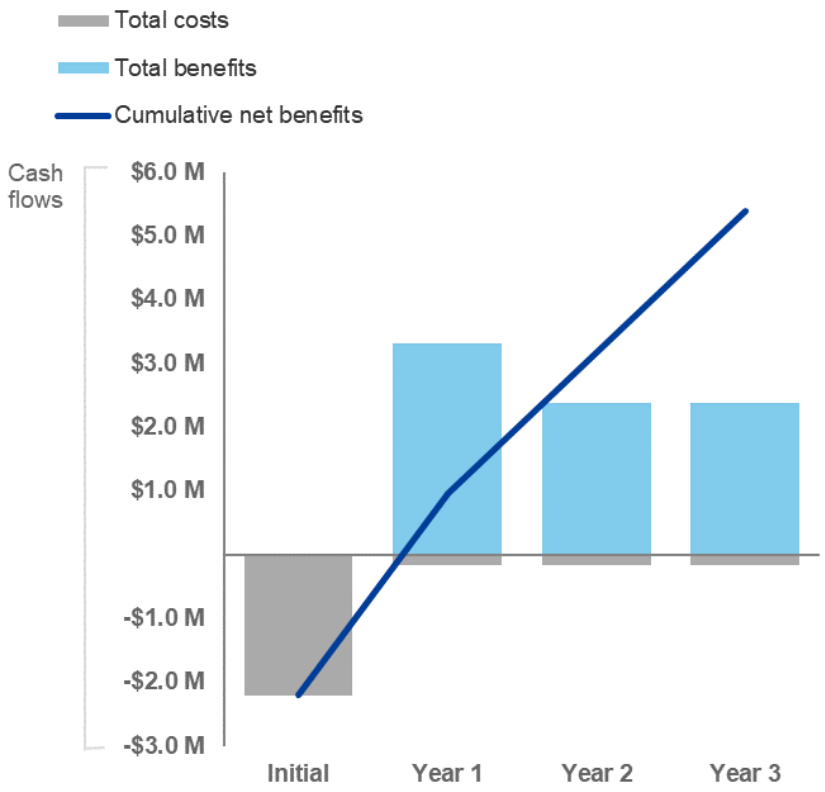
Ongoing Management: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
D1	Internal resources	2 FTEs*($55,000+30%)		$143,000	$143,000	$143,000
Dt	Ongoing management	=D1		$143,000	$143,000	$143,000
	Risk adjustment	↑10%				
Dtr	Ongoing management (risk-adjusted)			$157,300	$157,300	$157,300

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 Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	($2,205,000)	($157,300)	($157,300)	($157,300)	($2,676,900)	($2,596,182)
Total benefits	$0	$3,315,566	$2,370,144	$2,370,144	$8,055,854	$6,753,672
Net benefits	($2,205,000)	$3,158,266	$2,212,844	$2,212,844	$5,378,954	$4,157,490
ROI						160%
Payback period						9.0

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Microsoft 365 Education Accessibility & Assistive Technologies: Overview

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

Microsoft Inclusive Education provides a built-in accessibility solution that gives students personalized access to their curriculum, improves learning outcomes, optimizes teacher time, and helps schools build reputations as positive places that promote equity and inclusion.

Microsoft provides a robust platform for students to fully engage with their curricula, classmates, and teachers in powerful new ways.

Microsoft tools and solutions work in tandem with universal design learning principles, among others, and help teachers spend less time creating workarounds and more time working with their students.

- Reading — Learning tools and immersive reader technologies provide a critical link for students who need help accessing course content.
- Writing — Tools like Enhanced Dictation help make writing and in-class note taking easier and more efficient.
- Instruction — Automated alt text and Translator ensure that students are able to access the content that teachers are presenting.

Microsoft 365 Education empowers educators to unlock creativity, promote teamwork, and provide a simple and safe experience in a single, affordable solution built for education.

Unlock Creativity In Each Student

- Spark creativity, collaboration, and problem solving with immersive and engaging apps.
- Enhance independence for students of all abilities with intelligent tools.
- Bring ideas to life in 3D and data visualization tools.

Promote Teamwork

- Collaborate and save educators time with a single hub for classes and teams.
- Easily connect with others and coauthor in real time.
- Meet individual students' needs with a universal toolkit to connect, share, and communicate in class and out.

Provide A Simple And Safe Experience

- Manage users, data, and devices with a single dashboard.
- Protect identity, apps, data, and devices with intelligent security enhanced by machine learning.
- Manage data archiving, governance, and discovery.

Microsoft 365 Education Solutions

		Microsoft 365 A1	Microsoft 365 A3	Microsoft 365 A5
	Per-Device or Per-User licensing	*Per-Device*	*Per-User*	*Per-User*
Collaboration & Learning	Office Online: web-based document editing	●	●	●
	Office client applications: *Word, Excel, PowerPoint, Outlook*		●	●
	Email & calendar, IM, persistent chat, Yammer	●	●	●
	Files & content management: *file storage, sharing, Groups, Planner*	●	●	●
	Minecraft: Education Edition		●	●
Inclusive Classroom Tools	Microsoft Teams with classroom experiences, PLC and Staff teams	●	●	●
	OneNote Class Notebook, Sway	●	●	●
	Learning Tools, Accessibility Checker, Office Lens	●	●	●
Voice, Video, and Meetings	Skype for Business	●	●	●
	Cloud PBX & PSTN Conferencing			●
Compliance	Legal Hold, eDiscovery search and export	●	●	●
	Advanced eDiscovery, Customer Lockbox, Advanced Data Governance			●
Management & Basic Security	Intune for Education	●	●	●
	School Data Sync, Data Loss Prevention, Office 365 Rights Management	●	●	●
	Office 365 A3: *Cloud App Security, Skype Meeting Broadcast, Delve, Bookings*		●	●
	EMS A3: *Intune for Education, AADP P1, AIPP P1, Advanced Threat Analytics*		●	●
	Windows Auto Pilot	●	●	●
	Windows 10 Education A3[1]		●	●
Advanced Security, Analytics & Voice	Office 365 A5: *ATP, TI, Adv. Comp., Power BI Pro, MyAnalytics*			●
	EMS A5: *AADP P2, AIPP P2, Cloud App Security*			●
	Windows 10 Education A5[1]: *Windows Defender ATP*			●
Server & CAL Benefits[2]	Productivity Server Licenses & CALs (Exchange, SharePoint, Skype for Business, etc.)		●	●
	Windows Server CALs		●	●
	System Center Config CML		●	●
	System Center Endpoint Protection		●	●

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: Endnotes

[1] Source: “The Total Economic Impact™ Of Microsoft 365 Education: Improving Student Learning While Reducing Cost And Effort,” Forrester Consulting report prepared for Microsoft, January 2018.

[2] Source: McKnight, Katherine, PhD, “Leveling the Playing Field with Microsoft Learning Tools,” Center for Evaluation & Study of Educational Equity, RTI International, 2017.