



The Economic Value of Chromebooks for Education

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Executive Summary

Chromebooks increase classroom access to high-performing devices to establish a foundation for students' digital futures.

The face of education is rapidly evolving, and the importance of technology in the classroom is greater than ever. Students must be prepared for the world outside of the classroom, and this increasingly means use of computers and digital technologies as integral components of curricula and the student classroom experience.

Unfortunately, schools' budgets are often tight, and educational administrators looking to provide students with ubiquitous access to computers must do so with cost in mind. IDC's research shows that Google Chromebooks offer an affordable device solution combined with rich cloud-based educational software offerings that allow schools to put digital technology in the hands of many more students, thereby integrating next-generation learning into the classroom experience and preparing students for their futures. IDC's research shows that interviewed schools have used Chromebooks to double the number of devices available to students.

According to IDC's study, which included interviews with educational organizations around the world that are using Chromebooks in the classroom, schools can purchase, deploy, and operate Chromebooks at a 57% lower cost over three years. The result is that interviewed schools have

markedly increased the number of high-performing devices available to students. For some schools, use of Chromebooks has helped close opportunity gaps as they could not have otherwise afforded to make robust and secure technology a foundation of their learning environments. Further, the affordability of Chromebooks offers schools agility, flexibility, and scalability when it comes to device deployment and use, as cost and resource commitments are less restricting.

Importantly, these schools stressed that the affordability of Chromebooks does not require compromise in terms of device performance and security. They noted the strong performance of Chromebooks, described broad use of Google for Education applications, and emphasized the ability to tailor use of Chromebooks to meet the needs of all students. Chromebooks have become instrumental to their classroom learning experiences, and a number of schools described the impact of Chromebooks as transformational in nature in ensuring unique learning experiences and preparing students for a digital world.

Based on this research, IDC believes that Chromebooks provide a potentially unique value proposition for school systems looking to increase access to devices that deliver strong value as a digital classroom learning tool.



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Chromebooks Address Schools' Need to Provide Broad Classroom Access to High-Performing Devices

Technology is becoming ubiquitous at schools around the world. Computers are no longer relegated to technology labs, but instead are regular fixtures in the classroom. As schools move to bring more computers into the learning environment, they've had to work very hard to ensure student access to devices while controlling costs and making every dollar count.

Educational institutions need to consider device affordability, not only in terms of the upfront cost of purchasing the device itself but also in its software costs and staff support time requirements. Affordability affects

the number of devices that schools can buy and support, and it potentially limits the positive impact that classroom technology can have. At the same time, schools cannot afford to sacrifice device security or performance, as student safety and classroom experience are paramount.

IDC's research confirms that Chromebooks deliver a strong value proposition to schools in terms of device affordability, robust security and strong performance, and positive impact on student and teacher engagement in the classroom.



“Honestly, it was a no-brainer when you look at what we got with Chromebooks for one-third the cost of our previous devices.”

—CIO, School District,
United States

“There’s been a massive improvement in student performance with Chromebooks. They are much more engaged in their lessons.”

—Technology Director,
High School, Australia

“We chose Chromebooks for a number of reasons, including value for the money, and the Google environment because the apps are built in and free. . . . We’re getting more value with Chromebooks – better speed and more efficiency than other devices plus the longer battery life.”

—Head Teacher, School,
United Kingdom

Chromebooks Are More Affordable Even While Delivering Value Through Google for Education Ecosystems

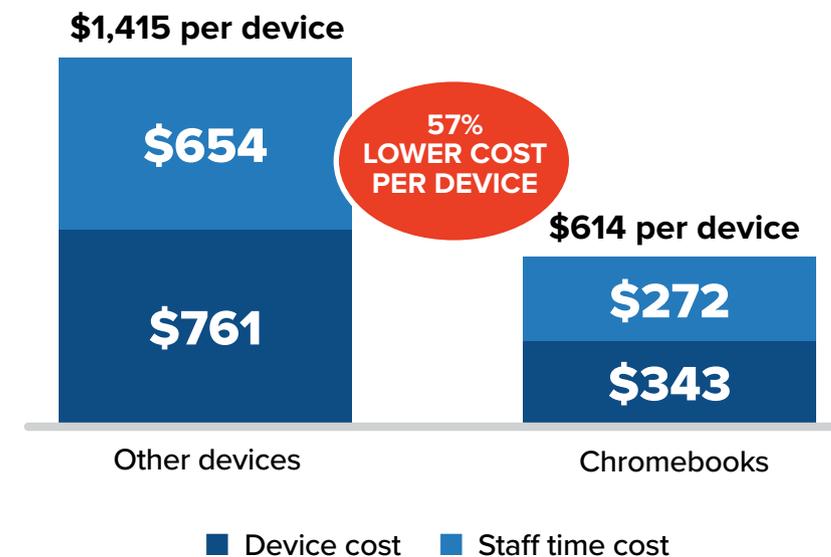
With schools' budgets often tight, school administrators saw Chromebooks as a way to provide broad-based student access to computers and robust educational applications while keeping cost in mind. Chromebooks' affordability enables schools to deploy more devices, thereby increasing student access to digital tools in the classroom.

IDC's research shows that the total cost of operations of Chromebooks over a three-year period is less than half the cost of other devices used and/or considered by interviewed schools.

Chromebooks' affordability is driven in part by the lower cost of the device itself and the software and hardware used to run the device. In addition, there are significant savings in staff time costs for ongoing operations, management, and deployment.

Regional differences in total cost of operations are not significantly different between "more established" countries and "less established" countries*, reflecting the consistent value of Chromebooks as an affordable but high-performing device for more students.

Three-Year Total Cost of Operations



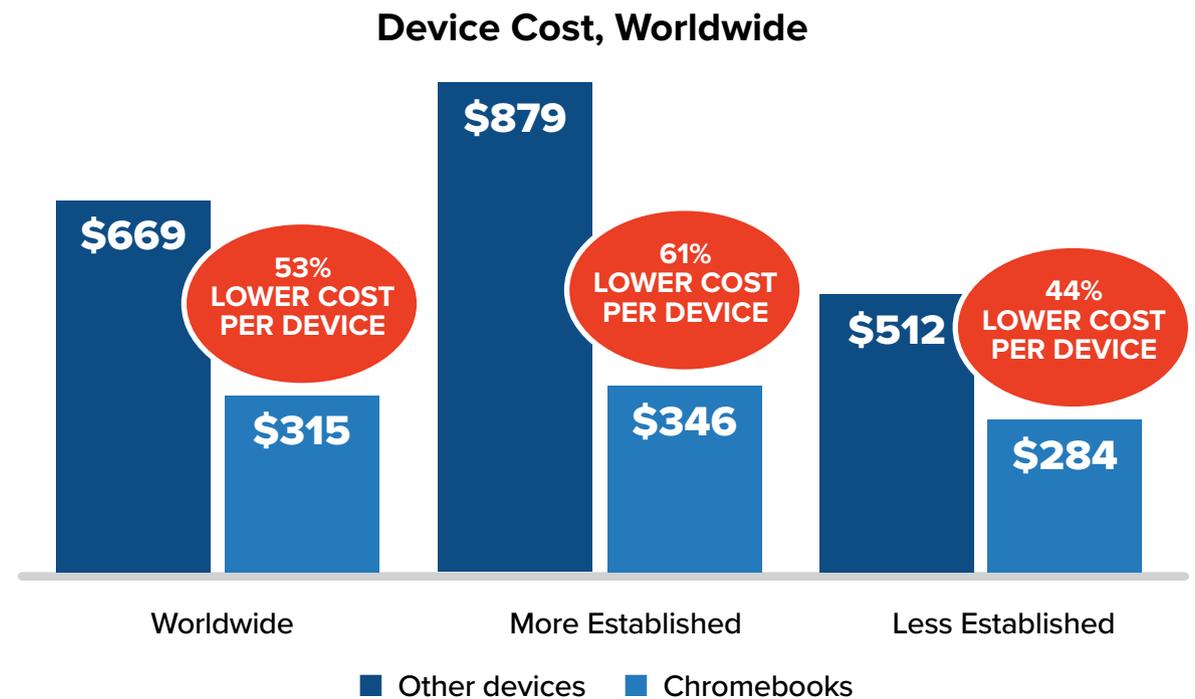
"Other devices" refers to devices that the schools interviewed once used or would have used in place of the Chromebooks they are using, including desktop computers, laptops, tablets, or similar devices.

Chromebooks' Affordability Begins with the Purchase Price of Devices

The cost of the device itself is one of the biggest factors that schools must consider when budgeting and making purchase decisions. A higher up-front cost makes it more challenging for schools to justify purchases and limits the number of devices a budget can accommodate.

Schools in IDC's study choose Chromebooks over more expensive alternatives, enabling them to maximize their budgets, stay more current on technology, and provide more students with devices. Moreover, automatic updates ensure that each device is secure and functioning at its best for the life of the product.

Chromebooks cost 53% less than other devices across all regions studied with little difference in the cost of Chromebooks for schools in "more established" countries and "less established" countries*, \$346 and \$284 respectively. On the other hand, schools in "more established" countries chose Chromebooks over more expensive alternatives, at \$879 per alternative device compared with \$512 per alternative device in "less established" countries.



"Other devices" refers to devices that the schools interviewed once used or would have used in place of the Chromebooks they are using, including desktop computers, laptops, tablets, or similar devices.

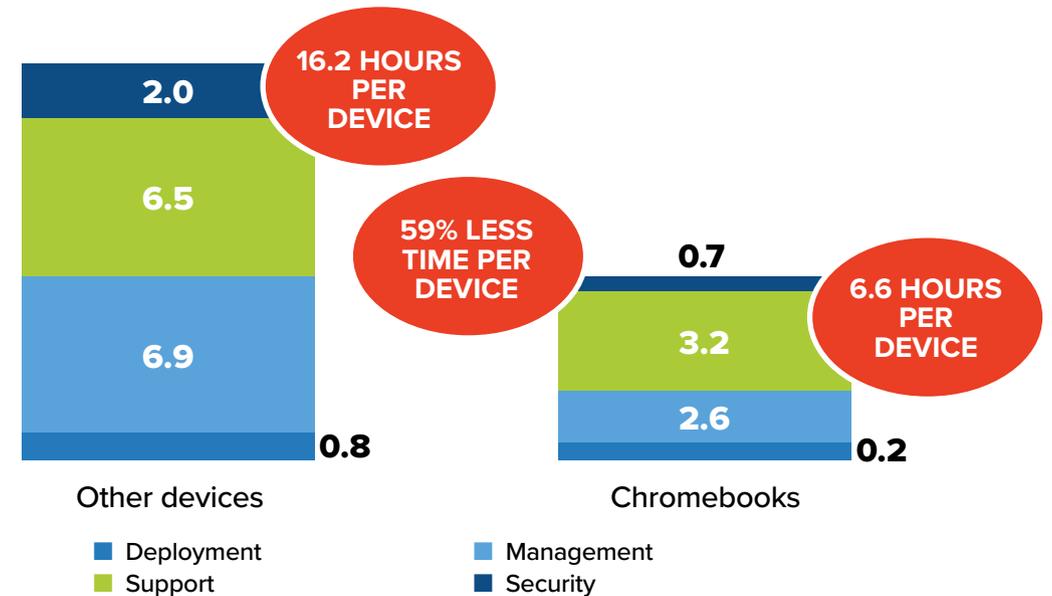
Chromebooks Require Considerably Less Staff Time to Deploy, Manage, Support, and Secure

Efficiencies in deploying, managing, supporting, and securing Chromebooks save more than one day of staff time per device over three years on average. This alleviates the burden that growing device counts can place on staff and allows schools to put many more devices in the hands of students without having a significant impact on staff time requirements.

Staff time savings also allow staff time to be refocused on teaching and other classroom technology initiatives. Just as important, with most schools operating with lean IT staffs, a high level of efficiency is critical to extending device coverage to more students.

Regional differences in staff support time between Chromebooks and other devices are not significantly different for “more established” countries and “less established” countries.

Total Staff Time per Device over Three Years



“Other devices” refers to devices that the schools interviewed once used or would have used in place of the Chromebooks they are using, including desktop computers, laptops, tablets, or similar devices.

“Deployment is simple with Chromebooks. It’s 5 minutes per Chromebook compared with 20 minutes per other device. Management is also significantly easier. Our team is doing more work in terms of supporting other areas of the school proactively.”

—Assistant Headmaster, Secondary School, United Kingdom

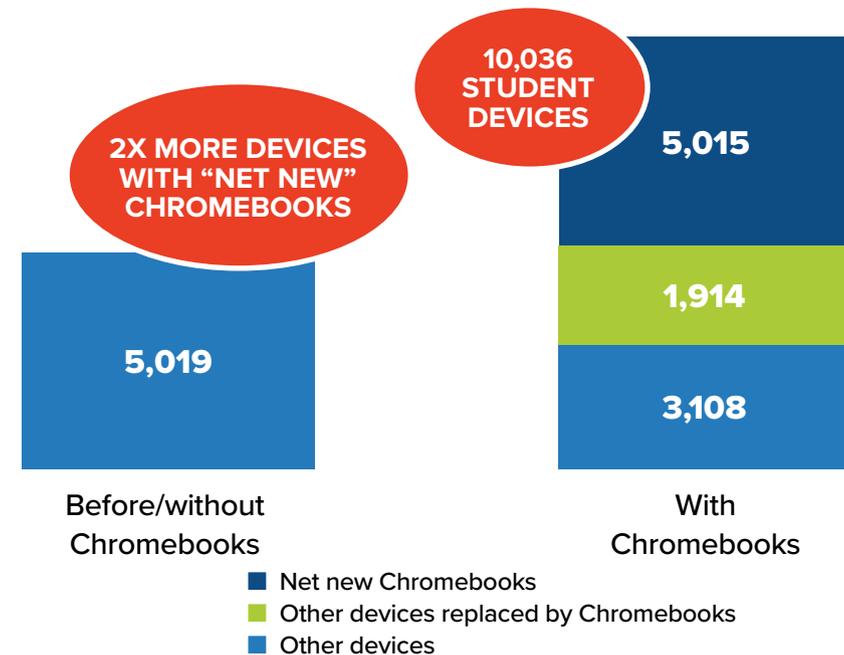
Chromebooks' Affordability Enabled Schools to Double the Number of Student Devices

Interviewed schools reported that 71% of Chromebooks were deployed as “net new” devices. This means that of just more than 10,000 total devices used by students per school, nearly half were Chromebooks that did not replace another device.

This means that Chromebooks have enabled a twofold expansion in student access to digital learning tools and shows the extent to which Chromebooks' affordability has driven schools' ability to invest in more devices for use in the classroom.

As a result, schools can better provide device access across student populations, and even schools with limited budgets can make access to impactful, high-performing devices a core part of more students' classroom experiences.

Number of Student Devices per Interviewed School



“Other devices” refers to devices that the schools interviewed once used or would have used in place of the Chromebooks they are using, including desktop computers, laptops, tablets, or similar devices.

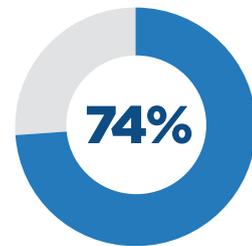
“The Chromebooks are so well accepted. It became possible to give each student their own so they could always use it. If it had not been for the Chromebooks, we would not have been able to do it because of the price.”

—IT Manager, School District, Sweden

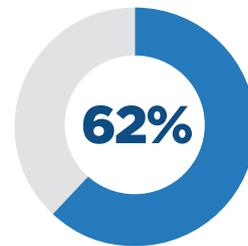
Chromebooks Deliver Strong and Consistent Performance in the Classroom

Chromebooks' affordability does not entail compromises in terms of device performance or functionality:

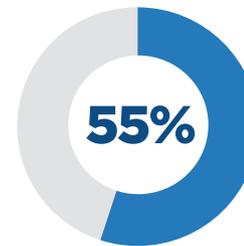
Fewer classroom interruptions due to robust performance and automated updates **means more time spent on learning and a more productive classroom experience.**



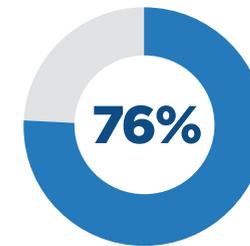
Less Deployment Time



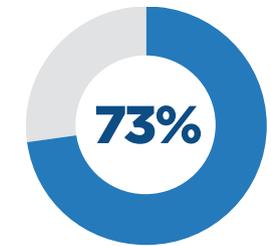
Less Frequent Reimaging



Less Unplanned Outages



Less Frequent Rebooting



Less Time to Reboot

“In the past, our IT technician would take a whole trolley of 20 laptops at a time and plug in each laptop one at a time so they can update. But now, each Chromebook does it in the background, so we never have to do that anymore, which frees up his time.”

—IT Lead, Primary School, United Kingdom

“It often took 10 to 15 minutes to get started on our previous devices for every lesson. Chromebooks take 10 to 15 seconds to start; there were no problems with connectivity or logging in. Teachers trust them more, so they use them more for lessons. That also influenced our buying decision.”

—IT Specialist, City School District, Sweden

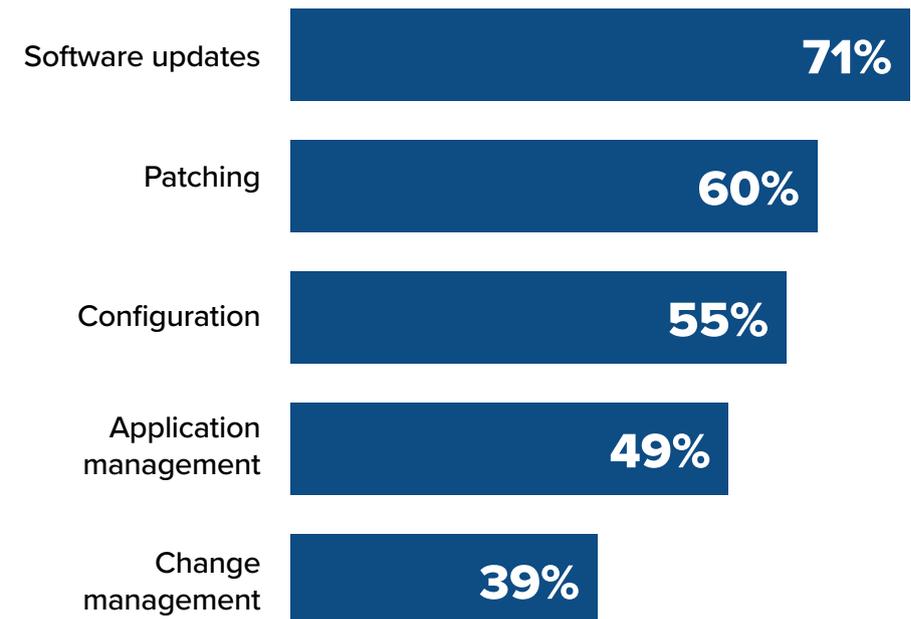
Chromebooks Automate and Enhance Security

With Chrome OS, security is integrated from the ground up and includes automatic updates, verified device boot, 128-bit encryption, and sandboxing of apps. Automation of patches and updates and centralization of security reduce the time required for day-to-day security activities and ensure robust and uninterrupted device security. This provides peace of mind to schools that they can secure Chromebooks and ensure that students use their devices for intended learning purposes.

Schools in our study spent approximately 12 minutes on average per year on security activities per Chromebook versus over 40 minutes for alternative devices.

With traditional PCs, support staff must often secure devices. Chromebooks do not require that extra security effort. Plus, simple remote-device lockdown through the Chrome management console adds an additional layer of security.

% More Efficient with Chromebooks



“With Chromebooks, we can push out security updates remotely and they literally take 10 seconds, compared with updates taking up to 20-30 minutes with desktops. . . Also, we don’t need antivirus software with Chromebooks.”

—Director of Instructional Technology, School District, United States

Google's Robust Education Ecosystem Delivers Significant Value to Interviewed Schools

Respondents reported widespread use of Google for Education applications and credited the Google ecosystem with improving the experience for both students and teachers. Many educators use Google's Classroom app to manage student assignments, encourage collaboration, and provide individual feedback.

Schools closely associate the value of their devices with the value of Google applications. Access to Google's G Suite strongly influenced the decision to purchase Chromebooks, and the integrated workflows of apps such as Docs, Sheets, Forms, and Drive enable more robust and impactful use of Chromebooks in the classroom.

Google for Education applications are designed to enable students and teachers to leverage Chromebooks' functionality, including connectivity and mobility for learning anywhere and the attached keyboard, camera, and audio system for creation and collaboration.



"We use Google for Education applications extensively from K-12. When you throw in the Google ecosystem and integration, it is easy to collaborate and be creative. Our teachers love Google Classroom and use all of the apps across the board."

—CIO, School District, United States

"We started using Google for Education. We started trying the Chromebooks, and when we found out they worked very well and that the price was cheaper, it just exploded. All of a sudden, all of [the schools] wanted it. By the end of a year, all of them had Chromebooks."

—IT Manager, School District, Sweden

"The most significant benefit for us of Chromebooks is the access to the G Suite tools and the way they all work with each other. The children are learning so many laptop skills. It's just amazing to see how it all links together."

—IT Lead, Primary School, United Kingdom

Chromebooks Drive Engagement, Enable Collaboration, and Improve Student Performance

A number of interviewed schools reported that Chromebooks have had nothing less than a transformational impact in their classrooms by enabling unique learning experiences and preparing students for a digital world.



“We’ve seen year-over-year improvements in student performance that’s attributed to the instructional model at our schools. Chromebooks have certainly been an ingredient in that.”

—ICTO, School District,
United States

“Chromebooks make it easier for teachers to work both with individual students and the entire class. Chromebooks make it easier to design for different levels and abilities.”

—IT Manager, School District,
Sweden

“[Students] are much more engaged in their lessons. They are completing more real-world activities rather than just doing worksheets which don’t actually mean anything.”

—Technology Director,
High School, Australia

“Chromebooks have many overall benefits, other than cost, that really enable students to learn. With these devices, students are really getting prepared for a life of learning.”

—Head of Computer Science,
School System, Netherlands

Chromebooks Help Enable Accessibility for All Students

Chromebooks' affordability enables schools to provide more students with devices and digital learning tools, which is a fundamental tenet of many schools' approaches to the use of technology in the classroom.

Chromebook accessibility tools such as ChromeVox and select to speak, along with integration with third-party apps, support learning for students with disabilities and students who benefit from non-traditional approaches to learning and classroom interaction.

With Chromebooks, students are no longer tethered to a computer lab or even the classroom. Device mobility and a cloud-first approach means learning can happen anywhere. Students can work in small groups, move to open spaces, and generally take their Chromebooks wherever they need to go to be productive.



“Overall, Chromebooks have enabled all of our students to have equal access. They’ve allowed them to widen their research and improve their homework. We really do believe that it’s improved their independent study skills because they feel far more empowered with their very own Chromebook.”

—Corporate Services Executive, Academy,
United Kingdom

“The biggest thing we have seen with Chromebooks is some of the software we use for pupils with disabilities. That helps every student to learn more and go farther.”

—IT Manager, School District,
Sweden

“Chromebooks allow access for students and staff for the most part at a low cost, while giving them access to Google tools that they can then access from any computer, anywhere.”

—Internal Consultant, School
District, Canada

Chromebooks Help Teachers Improve the Classroom Experience

Chromebooks and Google for Education enable teachers to personalize lessons and assignments for students and to better cater to different learning styles.

Further, Chromebooks can facilitate direct interactions between teachers and students.

Importantly, Chromebooks facilitate collaboration both within the classroom and with other classes. Schools recognize collaboration as essential and beneficial to students' overall learning experiences.

Teachers also benefit from Chromebooks' performance and Google for Education. Lessons face fewer interruptions, and Google applications help teachers manage classroom work more efficiently and with less paperwork.



“Most of our teachers are using G Suite and Chromebooks for lesson planning and receiving assignments and sending assignments. They also use them to manage classroom discussions and to greatly encourage student collaboration in the classroom.”

—Director, Bilingual School, Brazil

“Teachers save time because it’s easier to share documents to work together at the same time and comment when they work, and teachers don’t have to wait to comment when it’s on a piece of paper.”

—IT Manager, School District, Sweden

“Chromebooks are reducing the workload on the teachers, because instead of policing around looking at all different screens all the time, teachers have the ability to sit behind the desk and look at the overview a few times and then help individual students if there are individual problems.”

—Head of Computer Science, School System, Netherlands

IDC Guidance

To maximize their use of in-class technologies, educators and administrators should:

1. Take advantage of cost-effective ways to provide better computer access to all students

Educational technology has become a mandate in school systems looking to prepare students for today's workplace. School systems, with their limited budgets, need to identify the most cost-effective methods of introducing computer technologies into their classrooms and providing access to digital learning tools to all students in their classrooms.

2. Focus on both device and educational software solutions

The use of technology in the classroom means more than simply purchasing hardware for students. To succeed, students also need access to the right educational software that can drive a new level of engagement. Through its Chromebooks for Education offering, Google provides schools with purpose-built applications and collaboration tools to best take advantage of the Chromebook hardware.

3. Use technology to expand learning models and prepare students to succeed

Computers in the classroom open up opportunities for schools to rethink their educational models and better prepare students for the challenges they will face in the real world. Schools should benchmark themselves against their best-in-class brethren and then set clear and achievable education and technology goals for the near term, mid term, and long term.

Make learning more effective and engaging with Chromebooks

[CLICK HERE](#)

Methodology

For this study, IDC surveyed educational institutions to understand the economic impact of devices and technology used in the classroom. The findings in this InfoBrief derive directly from IDC's 2019 study of:

- 45 education institutions
- Ranging from elementary schools to high schools
- From 12 countries, with participants tending to have varied student device penetration rates:
 - » “More established” countries were those with higher student device penetration rates – United States, Canada, Netherlands, Norway, Sweden, and New Zealand
 - » “Less established” countries were those with lower student device penetration rates - Brazil, Mexico, Australia, Japan, Spain, and United Kingdom

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from educational institutions as the foundation for the model. Based on these interviews, IDC performs a three-step process to calculate benefits and investment costs:

- Measure the savings from reduced device-related costs and staff time requirements (staff, hardware, software, maintenance, and IT support)
- Ascertain the investment made in deploying Chromebooks and the associated training and support costs
- Project the costs and savings over a three-year period and calculate total costs associated with Chromebooks ownership

IDC Analyst Profiles



Matthew Marden
Research Director, Business Value Strategy Practice

Matthew Marden is a Research Director in the IDC Business Value Strategy team. He is responsible for carrying out custom business value research engagements and consulting projects for clients in a number of technology areas with a focus on determining the return on investment (ROI) of their use of enterprise technologies. Matthew's research often analyzes how organizations are leveraging investment in digital technology solutions and initiatives to create value through efficiencies and business enablement.



Tom Mainelli
Group Vice President, Devices & AR/VR

Tom Mainelli manages IDC's Devices group, which covers a broad range of hardware categories including PCs, tablets, smartphones, wearables, AR/VR, thin clients, and displays. In his role as program vice president, he works closely with company representatives, industry contacts, and other IDC analysts to provide in-depth insight and analysis on the always-evolving market of endpoint devices and their related services. In addition to overseeing the collection of historical shipment data and the forecasting of shipment trends in cooperation with IDC's Tracker organization, he also heads up numerous primary research initiatives at IDC including frequent consumer- and commercial-focused surveys.

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