

Department Report: Technology

Objective: Report the state of technology systems functionality and on strategic key measurements of student and staff technology experience.

Data: Data on percentage of staff and students reporting adequate access to technology is provided through the 2022-23 staff and student surveys. Additional data sources for this report include the help desk system, asset management system, server and networking systems log files.

Staff and student reporting access to technology

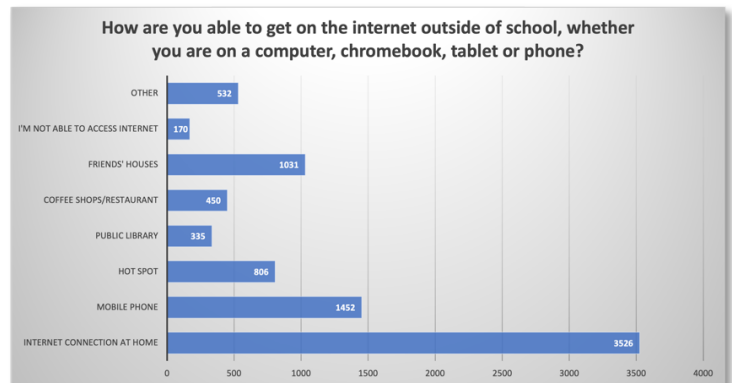
Measurement	2020/21	2021/22	2022/23
% teachers reporting adequate access to technology to support their work	87.3%	88.0%	84.1%
% secondary students reporting their learning experience is supported by digital tools the school offers	NA	91.5%	90.3%
% students reporting their school teaches them how to use technology responsibly	91.0%	83.2%	85.1%

2023 BSD Student Survey – Technology Support for Student Learning

Elementary Students

In the 2023 elementary student survey, students in grades 4 and 5 were asked about internet access outside of school. Compared to 2022 elementary student survey results, the number of students responding to each internet access option rose in every category. Categories with the greatest increases were students reporting access at home and mobile phone access with increases of 14% and 12% respectively. Categories with the

smallest changes in responses were no access, with an additional 33 students selecting

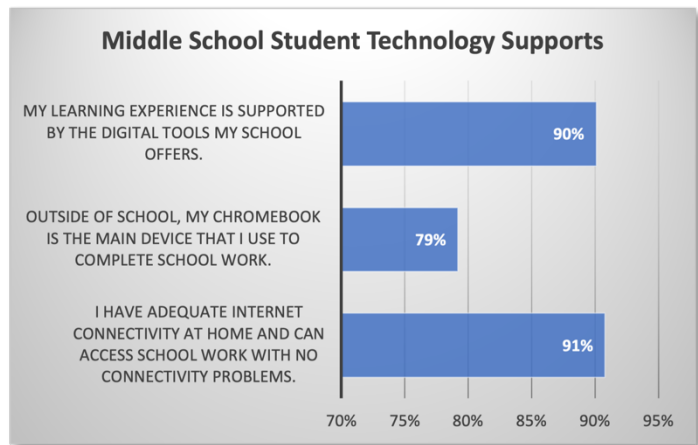


that option and the category, other, only increasing by 27 responses. At the elementary level, students do not take devices home and there is no expectation that elementary students use devices outside of the school day.

Middle School Students

Technology support questions were included in the middle school survey and in 2023, the survey respondents were in 7th grade. Students were asked if digital tools supported their learning, whether their student device was their main device used for completing schoolwork and if the student had adequate internet connectivity.

Student responses were over 90% in feeling their learning experience is supported by digital tools and having adequate home internet connectivity. Outside of school, my Chromebook is the main device that I use to complete schoolwork. Almost 4 out of 5 students reported the district issued Chromebook was their primary device used to complete schoolwork outside of school. Students reporting the Chromebook as their primary device slightly rose from student responses in 2022.

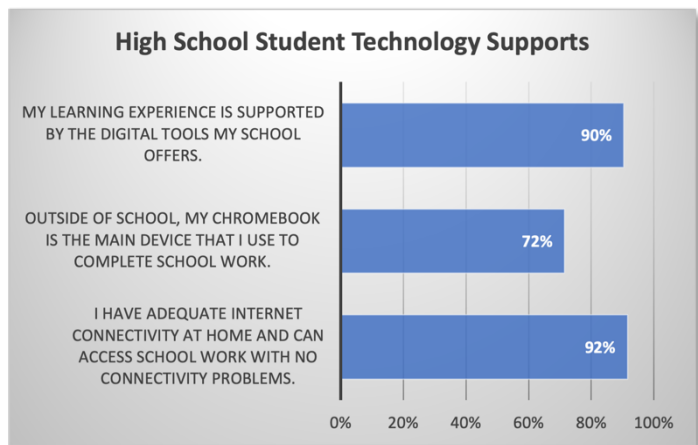


High School Students

High school students were asked the same questions as middle school students and their responses were similar. High school students reported their learning is supported by digital tools at 90%, and 92% of students report having adequate internet connectivity to access schoolwork at home.

Although slightly lower than the 79% of students at the middle school level, 72% of high school students reported their district issued Chromebook is the primary device used to complete schoolwork outside of the school day.

Chromebooks used by students are funded through the 2022 bond. High levels of student use illustrate the need for devices so students can continue their learning outside of the school day.



Successes:

- Student and staff survey responses indicate continued high satisfaction for technologies supporting student learning and staff work.
- IT department staff are implementing infrastructure and student device projects funded from the 2022 bond.

Issues:

- Beaverton School District continues to experience an increase in the number of cyber security attacks. The frequency and sophistication of attacks continues to escalate.

Action Plan:

- Work to increase technology support for students and staff continues through bond and general fund investments and is summarized in this report. While not inclusive of all projects within IT, the projects below demonstrate work aligned to increasing staff and student satisfaction of how technology supports their learning and work.

Technology Systems

Our District Goal, teaching and learning mission, and our business functions demand robust and reliable technology systems and support structures. Secure network access and application availability are needed continuously. Applications for student learning and business functions are used inside and outside of school or work hours and location. The responsibility and mission of the Information Technology Department is to create and sustain an environment that is always available and continuously improving to meet increasing needs.

Infrastructure Improvements

Data Center and Network Infrastructure

The Beaverton School District has redundancy at the data center level, with two locations serving district network, telecommunications, and system access needs and with either location able to assume full control of the district and continue operations in the event of an outage.

The Beaverton School District operates in a hybrid cloud environment. This means some applications are utilized directly from the internet and others are housed in our district data centers. Applications for learning and business functions are used around the clock the must always be available.

The systems administration team is completing an update of our virtual infrastructure environment. The virtual infrastructure environment contains and manages all servers used for applications housed in our district data centers. The existing virtual

infrastructure is 8 years old and at the end of life. In addition to faster processors and memory, the team is upgrading the networking connections of the system. When complete, the new virtual infrastructure will provide faster access to enterprise applications for student and staff and provide additional security to the equipment holding student, staff, and organizational data.

Cyber Security

Securing Beaverton School District networks, systems and data is a primary and critical focus area for the IT Department. According to SonicWall's 2023 Cyber Threat Report, cyber attacks targeting K-12 school systems rose by 827% over 2021.¹ Ransomware remains the most frequent type of attack with K-12 school systems seeing a 275% rise in ransomware attacks as other industries experienced a decline in ransomware. Attacks other than ransomware include account compromise, malware, unauthorized access, and data breach attempts to download student, staff and organizational data. In addition to protecting data stored in our district data centers, the IT department must work with vendors to secure data stored in cloud systems. The most significant vector for student and teacher data breaches are school district vendors and other trusted non-profit and government partners.²

In January 2023, the IT department received the results of our 2022 third party cybersecurity assessment which is performed every other year. The assessment included:

- Policies and practices
- Web application vulnerability
- Wireless network security
- External penetration test
- Internal penetration test

The assessment is aligned to standards defined by the National Institute of Standards and Technology (NIST). IT staff are addressing areas that were identified as lower in the maturity matrix from the report.

A key defense in our cybersecurity portfolio is addressing user education and training. Staff regularly receive phishing simulations from our security awareness platform along with micro training sessions both when a phishing email is reported and when a staff member clicks a phishing email from the platform. IT tracks engagement with the platform, staff skill level at identifying phishing emails, and speed of reporting. There has been improvement in every category over the past year.

¹ SonicWall 2023 Cyber Threat Report

² Levin, Douglas A. (2022). "The State of K-12 Cybersecurity: Year in Review – 2022 Annual Report." K12 Security Information Exchange (K12 SIX).

Enterprise Applications

Enterprise Resource Planning

BusinessPlus is the financial and human resources application used in the Beaverton School District and was implemented in 1999. Staff from the Business Office, HR and IT, working with external consultants, are studying existing business practices and capabilities of BusinessPlus to align business and HR functions with best practices and determine if the existing system will support those practices. The final report with recommendations will be delivered in November 2023 and will be used to decide next steps.

Synergy Enhancements

IT Department staff work closely with Teaching and Learning staff to ensure the Synergy student information system continues to meet needs of teachers and support the teaching and learning mission of the Beaverton School District.

The creation of student schedules for secondary students is a complex task and for many years involved visualizing the schedule on whiteboards. The number of students, courses and the need to balance courses contribute to the complexity of creating student schedules. In addition to balancing by class size, staff must evaluate courses to ensure gender, race/ethnicity, and program participation are included to ensure equitable access to courses.



Figure 1: Secondary schedule creation using a whiteboard.

Edupoint, the student information system vendor, created a new ScheduleBoard module and the Beaverton School District was asked to be an early partner in this new application. ScheduleBoard is a graphical way to visualize student schedules and is connected to student information contained in the student information system. ScheduleBoard saves time in the creation of the complex physical whiteboard and can be used to quickly visualize student schedule models and adjustments made to balance courses.

Secondary staff tasked with schedule creation worked closely with IT development staff to test ScheduleBoard early and as a result, Edupoint incorporated feedback and our feature needs as they continued to develop the product. The advantage of our participation was that features important to Beaverton were implemented early in the ScheduleBoard development and were available as the product was finalized.

School staff feedback is that ScheduleBoard provides a much improved process and supports equity in the creation of student schedules.

Document Management System

IT staff are implementing a document management system for improved management, storage, and security of electronic files and digital images of paper-based content. The Content360 system will provide multiple methods of inputting paper and electronic files, searching capabilities, workflow automation for document processing, routing and approval processes and file security by logging document access, edits and retention policies on files. Staff from Human Resources and the Purchasing Department are beginning to transition to the Content360 system with other departments following.

2022 Bond Projects

In May of 2022, Beaverton voters approved the 2022 bond. The 2022 bond contains \$44M of investments for student devices, networking upgrades and infrastructure support. Information Technology department staff are working on the following projects as part of the second-year implementation of the 2022 bond.

High School Student Device Replacement

The majority of monies allocated from the bond are used to replace student devices. Devices for high school students were replaced at the start of the 2023 school year. Students attending high schools and option programs received new Chromebooks with 15,444 devices purchased for student use. The existing Chromebooks are being collected and will be used to support students in middle and elementary schools until the start of the 2024 school year when middle and elementary devices are replaced. Devices unable to be used due to age or device failure are recycled or used for parts to repair other devices.

Dark Fiber Improvements

Dark fiber is a strategy of leasing fiber optic network cables and maintaining the electronics on the points where those network connections enter buildings to connect school and ancillary sites. The advantage of a dark fiber network is that monthly connection costs remain constant during the long-term lease agreement and the District has the ability to scale up network speeds by upgrading the electronics on the connections without incurring additional monthly costs from the provider.

In 2017 as part of the 2014 bond, High and Options school sites were connected to the district via a dark fiber connection. Construction is nearly complete on phase 2 of the dark fiber network project and will connect half of elementary and middle schools. The remaining schools will be in phase three which will be completed in Spring 2024.

When phase 3 is complete, all District sites will be on a long-term, leased fiber optic network. In addition to the ability to scale to meet future network needs, ownership of the network will allow IT staff to best secure and optimize the network.

User Experience Improvements

Classroom Technology Standards

Information Technology and Facilities staff are collaborating on a project to standardize technology for all classrooms in the Beaverton School District. In the past, schools were funding classroom technology from school budgets and the result was a variation in classroom technology equipment and age of technology available to students and teachers. There are many benefits to standardizing classroom technology including:

- Ensuring all students have access to the same learning environment and opportunities, regardless of the school they attend.
- Providing a consistent experience for teachers and substitute teachers when they move to other classrooms.
- Simplifying staff training and support on standard classroom technology.
- Cost savings with bulk purchasing.

The classroom technology standard project will be complete by the end of the 2023-24 school year.

School Office Staff Computer Replacement

Beginning in 2012, a computer replacement program was launched for certified staff members. Every four years, certified staff receive a new laptop as their primary computing device. Other staff computer purchases were funded through school or department budgets and as a result, there was a wide variation in the age and adequacy of computing devices used by classified staff. IT is implementing a computer replacement cycle for some classified positions to ensure computing devices are adequate for staff work. Beginning in the 2023 school year, school office assistants, registrars, athletic trainers, college and career specialists, and accounting assistants will have a standard computing device and be on a four-year rotation cycle. This project is in process and should be complete in early 2024.

Generative Artificial Intelligence (AI)

Since the launch of ChatGPT in November 2022, school systems across the United States have been exploring the impact of generative artificial intelligence (AI) on student learning and business operations.

The use of AI applications in the Beaverton School District has the potential to support student learning. AI tools, like other resources on the internet, offer students the opportunity to seek help in their learning, brainstorm ideas for demonstrating their understanding and provide ways for students to stay engaged in their learning.

For staff, AI tools can automate routine and repetitive tasks. The use of this technology can afford teachers more time to focus on instruction and relationships with students, as outlined in the **Artificial Intelligence and the Future of Teaching and Learning** report released by the U.S. Department of Education. Examples include automating the

delivery of additional learning resources for an assignment or project and automating recordkeeping.

As AI tools become more integrated into applications used by students and staff, it's important to understand the limitations of these tools. While AI tools are growing in sophistication, the information that they provide isn't always accurate, so students and staff need to exercise critical thinking skills to evaluate work produced by AI.

Teacher and student training on the use of AI tools is critical to understanding both the potential and limitations of these applications. As AI use expands in education, staff from IT and Teaching and Learning will continue to develop resources to guide responsible use.

Customer Service

A strength of the IT Department is that in addition to high levels of technology skills and knowledge, IT Department staff understand and embrace the importance of their work supporting the teaching and learning of our students. As a result, the IT Department staff continues to maintain excellent levels of service aligned to the IT Department Customer Service Standard.

At the end of every IT Help Desk ticket submitted, there is a chance for staff to provide feedback on how quickly IT resolved issues, the level of approachability and professionalism displayed, and our communication throughout troubleshooting the issue. Survey results on each question from July 1, 2022 through June 30, 2023 are above 92% ranking staff as excellent in each area.



As BSD IT department staff members, we strive to be **approachable, patient and reassuring.**

We should **solve issues quickly, communicate frequently and verify resolution.**



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SCHOOL DISTRICT

BSD IT Standard of Service