



Technology Plan 2020-2023

Prepared for: Frontier Central School District

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Approved by BOE:



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District Mission Statement

The Frontier Central School District is located in the Town of Hamburg, along the beautiful shores of Lake Erie and in the shadow of the Peace Bridge to Canada. The District, with an estimated population of 38,000 comprises a suburban area of approximately 39 miles in the southern portion of Erie County, New York.

Approximately 4,700 students attend Frontier's six schools, making the District one of the larger suburban districts in Western New York. The District employs approximately 1,000 staff members, including teachers, support staff, administrators and school related personnel.

The Frontier School/Community consistently strives to remain among the top rated in Western New York in terms of academic and athletic achievement as evidenced by our vision statement:

“The Frontier School Community values and expects a Frontier education to provide life skills and academic skills that allow our students to be successful in any endeavor. A Frontier education will lead to a sense of value of charity, service and community.”

Executive Summary

The basis for establishing a technology plan partially rests in that a district technology plan is required by the New York State Department of Education along with state and federal technology grants. In addition, future technology funding is driven by a well thought out and developed district technology plan. Most importantly, a district technology plan provides a guide to enhance learning through the use of technology.

“A technology planning document is to technology planning as a road map or navigational chart is to a journey but the planning document is neither the journey nor the adventure. It is a device that helps explain the various points of interest and destinations to travelers involved in the process of realizing their dreams. The purpose of technology planning is not just to produce a document, but to produce continuous action that creates and maintains a technology-rich educational environment. The plan is a clear, written description of the plan that is put into action by members of the community.”

Guidebook for Developing an Effective Instructional Technology Plan, Mississippi State University, 1996.

To successfully carry out the educational tenets of our vision, in partnership with all stakeholders, we seek to provide:

- An atmosphere conducive to learning, for all children, which is both challenging and safe.
 - Information, role models, and opportunities for appropriate decision-making.
 - A diversified program which offers curricular and extra-curricular activities and encourages productive use of leisure time and development of the whole child.
 - Information, role models, and opportunities for appropriate decision-making.
 - An educationally sound system of assessment, feedback and evaluation.
 - Training to continually support and enhance the professional expertise of all staff.
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Instructional Technology Mission Statement

To meet the requirements set forth by state and federal agencies, in addition to the district vision statement, **“The Frontier Central School District will empower all students to be life-long learners and responsible citizens prepared with the critical skills to enter the technological society of today as well as tomorrow.”** The implementation of this mission statement is based on the following philosophies and beliefs:

- Use technology to motivate and inspire students to create, think, problem solve, question, evaluate, and connect to real-world experiences.
- Facilitate communication and collaboration between classmates, peers, educators and members of the global community.
- Empower students and employees by integrating interactive technology into the daily learning process.
- Address the instructional needs of all students through technology to create a personalized learning experience in an equitable manner.
- Prepare students with the skills to not only master the latest technology but to use those skills to continually further their understanding and application of technology in our world.
- Provide technology in a manner that is cost-effective to our local communities and taxpayers.
- Assure that all students, faculty and staff will be provided with and have equal access to minimum standards of hardware and software.

Purpose of the Educational Technology Plan

The intent of the instructional technology plan is to meet the instructional needs of students while developing digital literacy and strong computer research skills. The instructional technology plan also reflects the district’s mission statement and goals:

- Assure that all students, staff and sites will be provided with and have equal access to minimum standards of hardware and software.
- Enable 24-7 access to school learning resources, lessons, assignments, school information and electronic communications for students, parents, staff and community members.
- Reinforce technology integration into the pedagogical practices across all grade levels.
- Identify professional development needs and planning to equip faculty.
- Recognize technical skill sets to ensure student success in both pre and post-graduation.
- Explore, evaluate and apply emerging technologies as they relate to pedagogy.
- Establish an ongoing replacement plan to renew aged and expired equipment within budgetary and logistical considerations.

Technology Committees

The Frontier Central School District has a Technology Committees at both the district and building levels. The main objective of the district technology team is to address the needs of the district as a whole. These committees consist of a well-represented cross-section of our district. Members include: Elementary Principals, Middle School Principal, High School Principal, Library Media Specialist, Teachers representing all buildings, parents, Director of Finance, Assistant Superintendent of Curriculum and Instruction, BOCES Technology and Curriculum Specialist and the Superintendent of Schools.

Technology Committee objectives include:

- To create a long-term vision for how technology will improve and differentiate learning for our students based on their individual needs. The tool should match the needs of the learning.
- To prioritize resources, including but not limited to infrastructure, device/software, and professional development to support student learning.
- To provide recommendations for Board of Education policy development to support the integration and student use of technology.
- To shift the paradigm that the use of learning and technology occurs separately and away from the regular classroom.
- To provide educators with the necessary support to take risks that will positively impact our students.

Specific measurable goals are developed on an annual basis through a needs analysis at both the district and building levels. Input for goal development is gathered in both formal and informal processes from internal and community stakeholders including but not limited to teachers, staff, students, administrators, parents and other community members. Goals are distinguished and differentiated from wants. All goals are then assessed against the district mission and technology plan. The district and building level technology committees meet at least quarterly with meetings normally every month during the academic school year and at least once during the summer.

Current State of Technology

The current state of technology at Frontier Central School District is reflective of past budgetary allocations and prioritization. Previously, there was not any formal plans for hardware lifecycle replacement with computers, Smartboards, printers and related equipment. As a result, the district fell into a state of aged computers that needed to be updated.

In the past, the technology short-term needs were minimally met to adequately get staff through the school year. However, this process of making what is available work that rendered the district with extremely aged equipment, thus becoming an increasingly larger issue. Logistically speaking, this added to the difficulty of maintenance and support from technical, coordination and pedagogical perspectives. The overall status of classroom technology computers is as stated earlier, in various states of functionality, compatibility and reliability. Classroom Smartboards and Smartboard projectors are beginning to fail across the district.

The district infrastructure/network is currently in a sufficient operational state, but does have outdated network closets, cabling and switches that need to be addressed in future purchases. Wi-Fi is functioning well throughout the district but may need further expansion to fully support a 1:1 environment. Redundancy for the network is lacking but will be addressed in the upcoming Smart Schools Bond Act project.

Future Direction for District Technology

Hardware

Conceptually the understanding of computer hardware consisted of a tower, display, keyboard and mouse. While these characteristics still remain, their convergence into a single form factor has been manifested in laptops and streamlined desktops. The need for these units is dependent

upon the intended outcomes of the user such as desktops to be utilized in specific spaces that call for their use in offices and lab spaces. Portable and mobile units will serve as the primary tool for student use in classrooms and specific settings in both a 1:1 and BYOD (Bring your own device) environment. We need to retain the Windows platform for office staff, lab spaces, and instructional mobile devices, while also including iOS for iPad units and possibly the inclusion Chrome OS for Chromebooks. We foresee the further removal of classroom cluster desktop computers, with their replacement being iPad/Chromebook carts to address personalized student needs.

Software

Software subscriptions, specialized titles and onboard platform specific applications must be identified and communicated as available toolsets. Each specific software set offers users with multiple outcomes. Standard software sets also need to be identified as such and adopted as universal production tools. Application sets such as Microsoft Office have been a standard suite of production applications for a variety of outcomes. With the rapid development and deployment of application updates, it is difficult to maintain a standard, consistent level of software versioning and compatibility. In addition, software licensing costs are increasing as the needs for computer technology increases. We need to continue to identify a usable suite of applications that are universally utilized across multiple devices and platforms. Alternative and free options exist that replace these toolsets, allowing us to utilize existing revenues in other areas. This can be accomplished through the adoption of either open source tools such as the Google apps for Education (GAFE) on all student machines. Google apps inherently encourage collaboration by their cloud-based integrated features. Use of a single sign-on option, such as Classlink, we allow the district to measure software use and provide easy pushout of new applications.

Learning Spaces

Our classrooms, labs and shared learning spaces must be updated. Most classrooms are outfitted with Smartboards. As we move forward the need for both interactive whiteboards and wireless projection systems will continue to grow. All classrooms should be outfitted with such units, dependent upon the learning needs of the students at the given grade level. Learning spaces themselves need to be outfitted with updated technology and configurations which allow adaptability to provide differentiated activities. Learning environments such as the library and STEAM rooms also need to be modified in order to accommodate portable and mobile devices, and digitally delivered content for consumption and instruction. In addition, opportunities for students to create and design through the use of technology are needed. This would include creation and/or expansion of maker space areas outfitted with items such as 3-D printers. Lego Robotics, Spheros and other applications should also be included to allow students to learn and apply coding and computer science principals.

Mobility

The ubiquitous presence of mobile devices is undeniably the most commonly utilized device among students and staff. We need to continue to embrace their presence and seek additional ways to expand and harness the affordances of these devices and incorporate them into both policy and practice. This will require re our current regular updates of policy language and

inclusion of both personal and institutionally owned devices as a means to address issues in equity and access. Faculty are encouraged to implement personal devices such as iPads and Chromebooks into their instruction as a means to augment current teaching and learning. This also provides additional learning opportunities for students to utilize current and future technologies. We need to encourage student utilization by modeling best practices in order to produce effective instruction with relevant tools. Classrooms need to be outfitted with displays capable of providing interactive content from mobile devices in support of the educational goals associated with the district and technology mission statements.

Printing

In regards to printing across the district, we need to move to a centralized printing model. Currently we have a mix of ink, solid ink and toner based units. By standardizing on one printer model with printers placed around each school and not in individual classrooms, ordering supplies will be simpler and the consumable parts will be interchangeable. We need to standardize our printers as a whole and reduce the volume of printing within classrooms. This change will result in a reduction of available printers within the district but provide access to a high quality printing solution. In isolated cases, the need for office printing will still occur in classrooms such as printing confidential student and staff information. All bulk printing will need to occur at the building copiers. Color printing will be restricted to office spaces and specialized lab locations. Printing from mobile devices should also be incorporated into the existing infrastructure.

Professional Development

Faculty and staff must be seen as knowledgeable practitioners and positive models of technology utilization. The Frontier Central School District has a comprehensive professional development plan to assist in this process. With many new changes in policy and regulations, we need to account for their needs in relation to the content, curriculum and students they serve. Faculty need to be provided with options for training in multiple formats. Opportunities currently exist with the Model Schools Program, the Southtown Teachers' Center and trainings provided by Erie 1 BOCES and other specialized organizations. Internal offering needs will be continually researched and expanded by identifying internal turnkey trainers to share their knowledge and expertise with their colleagues. Idea sharing and internal collaborations need to be encouraged across the curriculum and district. Methods of delivery include face-to-face, webinars, peer-to-peer, and online courses. The district utilizes an online program, My Learning Plan, to assist staff in registering for professional development and tracking courses taken.

By utilizing updated equipment (mobile, portable and varied platforms) we broaden student learning experiences and offer diverse learning opportunities that prepare them for greater success no matter their disability. Faculty need to feel confident with these tools and adapt existing curriculum to reflect these updates so that students may benefit. We need to provide consistent Professional Development to provide the staff and students with the necessary knowledge to use provided classroom technology and to integrate the instructional technology into their curriculum and lesson planning to positively impact student learning and growth.

Google Apps for Education and Software Infrastructure

Frontier is a Google Apps for Education (GAFE) school district. Google Apps for Education (GAFE) (<http://www.google.com/enterprise/apps/education/>) is a free web-based platform in which students, faculty and staff can communicate and collaborate both during and outside of school hours. The google app suite is included with GAFE and is equivalent to office, but is stored online through Google Drive. Documents, presentations, and spreadsheets that are created in Drive can be shared to other users with either limited or unlimited access. Documents, presentations, and spreadsheets can be edited simultaneously by multiple (invited) editors. There are no costs associated with Google Apps for Education, which includes Google Drive etc. Google mail of Gmail is also included with Google Apps for Education. Since Google Apps for Education is web based, it is device agnostic and can be accessed throughout either a web browser or app.

Each user is provided storage space in Google Drive, including students throughout their academic career at Frontier Central School. Confidential or private data should not be stored within the Google Drive space. This would include sensitive materials related to students and staff.

The district begun to move away from desktop MACs and continue to move to Chromebooks/iPads for student use outside of Lab spaces to conduct research and create content for academic purpose. This required a change in purchasing focus but afforded fiscal savings as the cost of these units are far less than the cost of a previous desktops. Imaging and viruses are no longer an issue as the Chromebooks run Chrome OS with the apps centrally controlled and deployed via the web and Classlink. All files and documents generated in Drive can be exported in standard office formats. The biggest challenge will be the communication and training for staff in relation to understanding the differences between Apple products, Chromebooks and cloud-based file storage.

Technology Replacement Lifecycle Plan

All district technology must be replaced in a planned and consistent way. This has not been done in the past but the Frontier Central School District is committed to funding the Technology Plan. Pending budget approval by the residents, the following resources will be available:

Budget Plan (3 Year Replacement Plan) – currently being developed in conjunction with Frontier 2030 Capital Project Plan and the Smart Schools Bond Act.

District Implementation Goals

Goal 1: Network Closet Upgrades and Redundancy

The current network is able to meet the technology needs of district. Servers and the Server Room were rebuilt in 2019. Network closet throughout the district must be upgraded. Work also includes improving proper ventilation, temperature control and security access. A backup server and fiber will be added to the Middle School to provide redundancy in case of a catastrophic incident at the High School campus.

Goal 2: Personalized Learning

The district historically utilized a minimal replacement plan technology as a means of meeting the needs of students and staff. As a result, it was difficult to provide consistent experiences for both students and staff alike. This proved to be a challenge in regards to support and service.

The ubiquitous presence of mobile devices is undeniably the most commonly utilized device among students and staff. We need to embrace their presence and seek additional ways to expand and harness the affordances of these devices and continue to incorporate them into both policy and practice. Faculty are encouraged to implement personal devices such as iPads and Chromebooks into their instruction as a means to augment teaching, learning and assessment. This also provides additional learning opportunities for students to utilize current and future technologies. We will encourage student utilization by modeling best practices in order to produce effective instruction with relevant tools. Classrooms will be outfitted with displays capable of providing interactive content from mobile devices to provide all students with formative assessment opportunities as means to individual growth. Digital connectivity, when fully realized, will allow us to create a personalized learning experience for every student no matter their economic background or disability.

Goal 3: Improve Equitable Access to Technology for Students with Disabilities

The needs of students with disabilities will be addressed to ensure equitable access to instruction, materials, and assessments. During meetings of the Committee on Special Education, the needs of students who receive services in both general and special education classrooms for a universal design for learning, assistive technology, and assessable instructional materials are considered, determined, and written into their Individualized Education Plans. The Committee on Special Education, in conjunction with the District Technology Committee will research new resources and professional development opportunities regarding assistive technologies. This information will be shared with the full faculty during professional development opportunities.

During meetings of the Committee on Preschool and Special Education, the assistive technology needs of students who receive services in both general and special education classrooms, whether they are placed at Frontier Central School District, at Erie 1 BOCES at another approved program, or in a non-public school by their parents will be considered, determined and written into their Individualized Education Plans. The Committee on Special Education, in conjunction with the District Technology Committee will research new resources and professional development opportunities regarding assistive technologies. This information will be shared with the full faculty during professional development opportunities.

Goal 4: Enhance Faculty/Staff Technology Skills

Training for faculty, students and staff will be as crucial as an updated network infrastructure, new computer equipment and software. Support will be necessary to update and integrate these technologies into pedagogical applications. Trainings will need to be developed, delivered and supported throughout the learning process. Trainings need to include a focus new applications, resources and best practices to identify student growth and deliver learning in multiple formats throughout the entire school year. Training opportunities will foster the need for curricular development in which to apply these new tools in meaningful ways. We need to look at how we

are currently using existing district time in which to provide additional opportunities for faculty to collaborate and enhance curriculum. We need to partner with Erie 1 BOCES, WNYRIC and others to determine our needs for trainings and workshops.

Topic	Audience	Method of Delivery
Google Apps for Education	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
iReady	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
Personalized Learning including Blended and Online Learning	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
Modern Classroom Project	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
Curriculum Writing	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
Microsoft Office	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
New Teacher Induction	Teachers, Staff, and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
Assistive Technologies	Teachers and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;
SMART Notebook	Teachers and/or Administrators	Face-to-Face; Blended Learning; Peer-to-Peer; Webinars;

Goal 5: Update Existing Technology Polices

As technology continues to become more integral in the delivery, assessment and communication of the educational process, the policies which outline and govern the use of technology constantly be updated. Technology is a dynamic and amorphous necessity. The needs which currently exist will not be the same in the future. Our policies need to clearly outline expectations of use, but also be flexible enough to adapt and incorporate new technologies.

Instructional Technology Plan Implementation

Dates	Actions	Desired Outcomes
Summer 2020	<ul style="list-style-type: none"> • Smart Schools Bond Act implementation • Summer technology workshops • Install and setup additional Chromebooks to complete 1:1 rollout 3-12 	<ul style="list-style-type: none"> • Begin rebuilding of network closets, replace cabling, create redundant server at Middle School • Begin Modern Classroom Project initiative to provide a personalized learning experience for each and every child. • Continue promotion of technology integration based on district priorities such as Google classroom, Castle Learning, iReady, Smart Notebook and formative assessment tools. • Complete plan to provide 1:1 Chromebooks at High School and Middle School, cart based at grades 3-5

<p>Fall 2020</p>	<ul style="list-style-type: none"> • Smart Schools Bond Act implementation • Technology workshops • High School 1:1 Chromebook deployment 	<ul style="list-style-type: none"> • Continue rebuilding of network closets, replacement cabling, creation of redundant server at Middle School • Adjust camera and security plans and begin project (SSBA) • Begin Modern Classroom Project initiative to provide a personalized learning experience for each and every child. • Continue promotion of technology integration based on district priorities such as Google classroom, Castle Learning, iReady, Smart Notebook and formative assessment tools.
<p>Winter 2020- Spring 2021</p>	<ul style="list-style-type: none"> • Smart Schools Bond Act implementation • Technology workshops 	<ul style="list-style-type: none"> • Complete rebuilding of network closets, replacement cabling, creation of redundant server at Middle School • Continue Modern Classroom Project cohort to provide a personalized learning experience for each and every child. • Continue promotion of technology integration based on district priorities such as Google classroom, Castle Learning, iReady, Smart
<p>Summer 2021</p>	<ul style="list-style-type: none"> • Replace aged teacher desktops w docked laptops • Begin replacement of displays • Summer technology workshops • Begin transition to centralized printing. 	<ul style="list-style-type: none"> • Replace antiquated classroom technology based on life cycle district replacement plan. • Expand Modern Classroom Project initiative to new cohort while supporting previous cohort • Continue promotion of technology integration based on district priorities.
<p>Fall 2021- Spring 2022</p>	<ul style="list-style-type: none"> • Technology workshops 	<ul style="list-style-type: none"> • Continue promotion of technology integration based on district priorities. • Students able to learn anytime and anywhere regardless of means. Teachers becoming turnkey trainers to expand personalized learning.
<p>Summer 2022</p>	<ul style="list-style-type: none"> • Replace aged teacher desktops w docked laptops • Replace student devices as per device cycle • Continue replacement of displays • Summer technology workshops • Begin transition to centralized printing. 	<ul style="list-style-type: none"> • Replace antiquated classroom technology based on life cycle district replacement plan. • Expand Modern Classroom Project initiative to new cohort while supporting previous cohort • Continue promotion of technology integration based on district priorities.
<p>Fall 2022- Spring 2023</p>	<ul style="list-style-type: none"> • Technology workshops 	<ul style="list-style-type: none"> • Continue promotion of technology integration based on district priorities. • Students able to learn anytime and anywhere

		regardless of means. Teachers becoming turnkey trainers to expand personalized learning.
Summer 2023	<ul style="list-style-type: none"> • Replace desktops, laptops, iPads, etc. • Install additional video endpoints. • Summer technology workshops • Complete transition to centralized printing. 	<ul style="list-style-type: none"> • Replace antiquated classroom technology based on life cycle district replacement plan. • Continue promotion of technology integration based on district priorities.

Technology Standards - ISTE

Students	http://www.iste.org/standards/iste-standards/standards-for-students
Teachers	http://www.iste.org/standards/iste-standards/standards-for-educators
Administrators	http://www.iste.org/standards/iste-standards/standards-for-education-leaders
Coaches	https://www.iste.org/standards/for-coaches
Computational Thinking	https://www.iste.org/standards/computational-thinking

Technology Plan Evaluation Process

An important component in the development of the Frontier Central School District Technology Plan is the evaluation and assessment of Technology Plan. This process will be both formal and informal. Feedback and suggestions will continuously be solicited from building technology committees and all stakeholder groups. Data collected through various evaluation processes will be compared to this document. As an example, bi-annual assessment of the yearly goals will be developed and electronically distributed to all stakeholders. This will take place after the second marking period and at the end of the year. The developed survey will include questions focused upon the planned technology goals for the given year. Questions will also focus upon how well each goal was implemented, how faculty use of technology in teaching and learning and ways in which to improve. This information would then serve as a feedback mechanism for the District Technology Committee to assess and make revisions accordingly.

Survey given at end of second marking period	Distribute survey link to staff, and give appropriate time to complete survey. Go over survey results with District Technology team, and advise building level technology team on goals, directions, and obtained feedback	Outcome would be to review results, assess goals, and make adjustments for the following marking period.
Survey given at the end of the year	Distribute survey link to staff, and give appropriate time to complete survey. Go over survey results with District Technology team, and advise building level technology team on goals, directions, and obtained feedback.	Outcome would be to review results, assess goals, and make adjustments for the following marking period.