

Beekmantown Central School District Technology Plan

Adopted October 2008
Covering 2008 -2011



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EXECUTIVE SUMMARY

Student learning is at the heart of all we do in the Beekmantown Central School District. It is our belief that student learning is improved with the use of computers and other digital technologies. This plan begins with our vision for student learning, a statement of beliefs, and a rationale for creating and continuing to build networked learning environments. It continues with the current status for technology in our district and details strategies which we plan to implement to attain our goals. Lastly, we provide a plan to continually assess and evaluate our program.

In 1997, educators and community members created a vision to implement the use of computer technologies in the Beekmantown Central School District, based on increasing student skills in communication, information processing, and productivity. Since then, considerable work has been accomplished. Students and staff work within a networked environment in which many classrooms and work areas are equipped with networked computers. Most of these computers are equipped with a suite of applications used by all members of the learning community. Increasingly staff has access to email accounts within the district. The district is linked in a campus-wide network. The Internet is available to every networked classroom, lab and office.

In 2004 the District was given approval to continue with Phase III of the ongoing Capital Project, and as a result there has been an even greater infusion of technology throughout the district. This included an updated fast Ethernet network, Voice over IP (VOIP) phone system, the addition and/or refreshing of nine computer labs, and the procurement of computers for every instructional and administrative space. Much was accomplished during because of this Capital Project, great gains have been seen since that time, and this technology plan seeks to outline what lies ahead for the future of technology in the Beekmantown Central School District in the years ahead.

MISSION

Our mission is to provide a dynamic learning community in which:

- Learning will take place anywhere, anytime.
- Technology will be seamlessly integrated into all aspects of teaching and learning.
- Technology is a tool to improve student motivation and learning.
- Through teacher guidance, students will utilize technology to become more active participants in their own learning.
- Diverse learning styles of students are better served.
- New ways to evaluate learning will be available through the use of technology.
- All students will have access to computers and computer-based technology.
- All students will be prepared for the challenge of an information-based society. They will be able to create, access, exchange, and analyze information readily from electronic sources.
- Teachers in the district will be able to use state-of-the-art technologies to prepare and deliver their lessons.
- Technology is a tool to assist students in meeting the New York State Learning Standards and District Goals.
- It is essential for all learners, including educators, to process and manage information through the skillful use of technology.
- Skillful use of technology supports the development of process skills such as flexibility, adaptability, critical thinking, problem solving and collaboration.
- Networked technology systems permit efficient and effective communications within and outside the district.
- Technology maximizes productivity and efficiency and enables schools to better prepare students

for future learning.

- Students become better prepared for today's workplace and the workplace of the future.
- Our schools must prepare students to be lifelong learners who are responsible for their own learning, skilled in accessing and processing information, confident in using technological tools, able to solve complex problems alone or collaboratively, capable of being creative and innovative, and able to communicate locally as well as globally.

GOALS

To accomplish our mission for increased student learning with the use of technologies, our plan must include and lead to success in the following areas:

1. Equal access for the learning community

- Establishes basic technological networking capabilities provided at all sites.
- Provides for minimum standards of hardware and software for all students, staff, and sites.
- Assures that all students, staff and sites will be provided with and have equal access to minimum standards of hardware and software.
- Implements grade level specific technology goals identified to insure equity of delivery to all students.
- Expand and enhance voice communications to provide parents/community greater access to school information, to school staff and the capability to leave messages.
- Via telecommunications, enables any time access to school learning resources, classroom lessons and assignments, school information and electronic messages for students, parents, staff, and community members.
- Provides the learning community with greater opportunity for interaction, collaboration and information exchange. The school will become a vital meeting place for a host of community services.
- Promotes equitable access to learning technology as a community investment and encourages an active partnership among schools, businesses, homes and the community.
- Provide suitable assistive devices for special needs students.
- Develop a replacement plan for outdated computers and equipment.

2. Development of Lifelong learners

- Assures skillful use of technology to support the development of lifelong learning skills and process skills such as: flexibility, adaptability, critical thinking, problem solving, and collaboration, which are essential to success in our rapidly changing information age.

3. Integration of technology in the classroom

- Expands classroom tools for teaching and learning.
- Provides for the integration of multiple resources for existing and emerging curriculum.
- Enables the learning community to communicate more effectively, access and process information, and work productively.
- Links the classroom with educational resources within the building, community and worldwide.
- Creates a collaborative environment for project-oriented activities.
- Increases the productivity of students as they work toward attaining learning outcomes.
- Encourages the use of multimedia tools, enabling students to become active and experiential learners.
- Enables learning to involve partnerships within the school, among schools, and with other

organizations.

4. Build a culture of continuous learning for staff

- Establish guidelines and specifications for staff development and training.
- Develops school-based technology planning and learning.
- Builds online learning opportunities.
- Provides introduction to networked systems.
- Incorporates learning new curriculum (math, writing, etc.) with technology applications.
- Offer incentives for staff to complete technology training.
- Use the North Country Teachers resource Center as well as inside expertise for inservice training.
- Seek out and win grants such as NYS Learning Technology and Title III Tech Literacy.
- Provide information and funds for conferences and workshops.

5. Support for instructional change

- Facilitates access to collegial support and best practice information from a wide variety of resources.
- Expands the variety of teaching tools and strategies to support diverse learning styles.
- Supports productive and efficient management of student assessment and portfolio data.
- Increases support for emerging instructional strategies: inter-disciplinary, collaborative, and active learning options.
- Enables curriculum, instruction and assessment to be developed and aligned with each other.
- Provides a system that helps students, parents and teachers work together to support educational outcomes.
- Pilot new teaching strategies, technologies, and instructional resources.
- Investigates emerging possibilities for electronic learning resources such as e-books and enhanced personal digital assistants (PDA) for each student.

6. Technical support for all equipment and software

- Maintain a District-Wide Help Desk.
- Maintain a multi-level system to support all uses of educational technology.
- Staffing will include a Technology Coordinator/Trainer, a Network Administrator, District Technicians and School Level Computer Lab Assistants.

7. Library Media Centers as hubs for technology use

- Professionally staffed by Library Media Specialist.
- Promote information literacy.
- Prepare students, teachers and community with the skills and knowledge needed to retrieve, evaluate and ethically use electronic sources of information.
- Provide access to resources beyond the school.
- Provide access to and assistance with the available technologies.
- Function as an integral resource for all content area instruction.

8. Monitoring Technology Plan

- Provide on-going development and exploration of emerging, as well as existing technologies and policies.
- Continue District Technology Committee.
- Continue and expand Building Technology Committees.
- Develop tools that can be used to assess progress in implementation of this plan.
- Expand the peer review process.
- Establish an evaluation process for Learning Experiences.

STAFF DEVELOPMENT

A thriving learning community focuses on improving learning for all of its youth and adult members. In order for staff members to create powerful learning experiences for children, they need to be engaged in the same. The professional development strategies for improving learning and teaching with technology are a part of numerous district and school-based strategic plans and curriculum initiatives.

Areas for implementing technology goals:

1. Productivity

- Increase teaching time by using a Student Information System management program to streamline grades, attendance, health records, test scores and more.
- Use report card programs, databases, and spreadsheets to manage student data.
- Prepare high quality teaching materials at the desktop.

2. Communication

- Use electronic mail systems to communicate within the building and district.
- Use network access to link up with other educators on specific topics through online discussion groups and professional listserves.
- Increase communication with parents by phone and email exchanges, and by posting information on classroom and school websites.
- Collaborate with distant learning partners via online global projects and distance learning opportunities.

3. Information

- Access current information to supplement teaching resources with electronic sources and online services.
- Access professional journals, primary source documents and other information online.

4. Assessment

- Evaluate individual work and class progress with reporting options available on software programs.
- Report student achievement to parents.
- Review portfolios of student work and writing saved on the network.
- Prepare written assessments of student progress with report card programs.

5. Instructional Resources

- Use a variety of multi-media materials to more effectively differentiate instruction to reach students with diverse learning styles and needs.
- Plan individualized learning programs based on assessment data.
- Increase student motivation with expanded multi-media resources for classwork and assignments.
- Provide opportunities for students to work collaboratively and actively.
- Guide student use of the Internet by creating and using curriculum pages on school and district websites. Teachers or teacher teams search through numerous sites to find a few select sources, which support the district curriculum and are appropriate for students.
- Continue to create resources for each other.
- Guide students to deeper investigations by collaborating with other teachers to create online student research projects.

6. Staff Needs Assessment

Our district will develop and employ a Needs Assessment to plan for staff development opportunities.

7. Building a culture of continuous Staff Learning

- Tech Committees identify in-school “experts” or “lead learners” who assist colleagues with new programs or ongoing learning.
- Tech “experts” in each school offer building-level support and inservice classes.
- The Educational Technology Center supports staff learners with phone and email Help lines.
- A Technology Trainer answers specific questions and designs and offers workshops.
- The Educational Technology Center builds a professional library of books, videos, and resources to support staff learning.
- Teachers regularly attend and present at conferences (state and local)
- The district website is a rich resource for staff learners. Students and staff are both consumers and creators of curriculum resources online.

8. Funding for Staff Development

Funding for staff development has been understood by the Beekmantown Central School District to be critical to the successful implementation of technology throughout the district. To date the district has primarily funded staff development through district operating funds, NYS Learning Technology Grants, and Title I Technology Grants. This should continue for the foreseeable future. NERIC and CVES (BOCES) also provide help through state-aided support.

NETWORK AND TELECOMMUNICATIONS SERVICES

Kind of Wiring

All instructional and administrative spaces which require them have been equipped with Category 5e Unshielded Twisted standard certified to 622 Megabits per second. Every classroom and administrative workspace is and will continue to be provided with six to fifteen network connections. Fiber riser and backbone connections will be provided to telecommunication closets to replace copper backbone connections and enhance bandwidth. Fiber star topology is the target architecture to connect remote buildings to the district central office for voice, data, and video digital communications.

Network Standard

ATM, GigaBit Ethernet or other subsequent standards has been applied in the design of WAN and LAN backbone connections. The objective system requires minimum 100 Megabit per second connections to all nodes using either copper or fiber. The network infrastructure will naturally evolve to higher bandwidth standards as media and supporting equipment become proven and economically feasible. Ultimately, there will be a single, composite signal path for voice, data and video into end terminal equipment

LAN Protocols

The district will adopt ATM, IP/IPV6 and/or other high-bandwidth, quality of service protocols as evolving standards certify them for use and common acceptance drives their price into affordable ranges. The availability of public service facilities will be closely monitored as the area infrastructure evolves to ensure that adequate provisions are made for upgrade of the school district wide area network at minimum cost.

District Area Network

The planning goal for the District Area Network (DAN) is connected via fiber providing connectivity to all schools. The use of wireless full duplex Ethernet has been evaluated to provide DAN connectivity for areas not able to be serviced by fiber and bandwidth demands exceed the limitations of T-1 circuits. Digital lines comprising single or multiple T-1 voice connections will be implemented at the district office site, and through the DAN connectivity will be allocated out to each building in the network. Newer routing technologies, protocols, and higher bandwidths will require upgrades to routing devices, repeaters, hubs, switches, network interface cards and other elements of the network infrastructure.

Services

File Services

The district has and will continue to experience significant changes in its need for server-based resources in the next two to three years. This will be a direct result of the continuing evolution of both Microsoft Windows 2000 and 2003 file services and Apple OS X Servers, and the growing demand for data services for streaming media applications, video servers, graphic servers, audio servers, and data sharing services for collaborative applications. Continuing trends toward specialization of server platforms will eventually put high-end servers in place for file services alone.

Other Services

The district will continue to increase the functionality and inherent complexity of its World Wide Web presence using emerging technologies. There will be a high demand for a robust intranet presence with increasing DAN bandwidth in order to provide distance learning opportunities and administrative software applications, including Web-based, back-end database access for student and HR programs. The district will provide continued maintenance of DNS services, including integration with the Microsoft TCP/IP protocol implementations. Similarly, there will be continuing use and upkeep of DHCP or evolving dynamic configuration schemes with ensuing versions of Internet Protocols. New implementations will be required for specialized servers with ever-increasing content demands such as central library databases, security, streaming media servers, and application servers. GroupWare and productivity software, such as calendars and schedulers will become integrated with voice messaging and teleconferencing applications. Industry migration toward specialized servers will require new server hardware acquisitions. Centralizing the delivery of software applications through the use of Windows 2003 Group Policies will reduce the resource burden associated with installation and maintenance of software.

Internet Connection

The district currently utilizes a fiber linked DS3 data link to the NERIC/Verizon Frame cloud, and thence to the Internet via NERIC and Applied Theory's T-3 connections. This has eliminated many of the connectivity issues that restricted the effective use of the Internet as a learning resource. This result has been a proliferation of Internet browser software as a standard application for use by students and staff. Such usage increases will necessitate a continuous review of how available bandwidth is being used and what changes need to be made to accommodate the expanding use of technology in the curriculum.

Clients

The district's Educational Technology Department on an ongoing basis will upgrade client workstation inventory to meet current platform standards. These hardware upgrades and evolving minimum standards will ensure that the district keeps pace with industry standards for next generation software applications. Multimedia systems are the minimum platform for instructional use. Portable computers and notebooks will become more widely used as technology matures which will in turn generate increased demand for remote access services.

Software

The district will continue to maintain and update a standard set of contemporary software for educational, personal productivity and administrative uses. The Microsoft Office XP Professional suite/Microsoft Office 2003/2004 suite has become the district standard. Migration to the 2007/2008 packages will occur as the need arises. Client software will be upgraded to keep pace with evolving Windows standards; server software will parallel this evolution. Hardware upgrades will be a continuing necessity to meet the ever-increasing processor and memory requirements of more demanding client and server software implementations. All software will be maintained at a functional revision level. The district has implemented a decentralized, distributed processing, client-server model student record system residing on a remote, NERIC hosted server with some components at the desktop level. This will place smaller demands on the DAN infrastructure. Backups will be accomplished across the network each night. These backups will also include individual machines on a rotating basis.

Telephone

The district's telephone system needs has also changed dramatically with the introduction of new Voice Over IP (VOIP) technologies

District Telco will be newly installed using the DAN connectivity. The District utilizes 2 PRI lines from an approved State vendor to distribute to the buildings in our district. This has given the district 46 lines to share within the district. This has eliminated PBX's at each site. It will also allow for integration into the network as technologies evolve. Enhanced 911 and caller ID services is now coupled to the PRI's and will be kept up by the District for location specific information.

Broadcast Video

Greater emphasis will be placed on digital signaling for classroom video systems. Displays will originate from digital sources in greater proportion to traditional VCR or cable television feeds. For example, educators will be able to transmit PowerPoint slides or cached Web pages into the classroom LCD Projection or television systems. This system is being eyed to replace conventional blackboards in newly remodeled classrooms.

Electrical Capacity

The district will continue applying electrical standards to its sites to provide adequate levels of service and to afford adequate protection of equipment. Planning for new construction and existing building renovations includes provisions for a comprehensive review of electrical capacity requirements to ensure that technology enhancements are considered and included in project engineering and design. Procurement documents will specify the use of energy saving technology for workstations and peripherals wherever possible.

CURRENT INVENTORY

Computers	Computer Labs	Classrooms	Library Media Ctr	Admin Off
Macintosh	31	135	0	0
Dell	270	390	34	26
Other	0	8	0	3
Internet Ready	301	533	34	29
Multimedia	301	533	34	29

Classroom computers will continue to be added on a yearly basis as funding permits. The goal of this Technology Plan is to include one teacher computer and at least one student computer per classroom.

Network Equipment	Total
Switches/Hubs	28
Routers	2
Servers	16

CURRENT & PROJECTED BUDGETS

TECHNOLOGY BUDGET 2008-2009

Total District EdTech Personnel Salaries	\$204,615
NERIC Connectivity & Support Services	333,428
Hardware	80,000
Software	20,000
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Total	\$638,043

TECHNOLOGY BUDGET 2009-2010 (PROJECTED)

Total District EdTech Personnel Salaries	\$212,800
NERIC Connectivity & Support Services	346,765
Hardware	83,200
Software	20,800
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Total	\$663,565

TECHNOLOGY BUDGET 2010-2011 (PROJECTED)

Total District EdTech Personnel Salaries	\$221,312
NERIC Connectivity & Support Services	360,636
Hardware	86,528
Software	21,632
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Total	\$690,107

EVALUATION PROCESS

The Beekmantown Central School District regularly collects data in order to improve services and learning and teaching. Evaluation of the Technology Plan falls into three areas: technology implementation and support, use of technology to achieve learning goals and staff development. Many evaluative processes have been discussed earlier in the document. Here is an overview:

Technology Implementation and Support

- District Technology Committee meets monthly to monitor the Technology Plan.
- Review of annual budget for technology.
- Database of all technology-related equipment.
- Evaluate district technology via a national standards tool (ISTE).

Use of Technology to Achieve Learning Goals

- Student rubrics will be established for monitoring technology-related skills.
- State testing results will be monitored for technology skills.
- Evaluate student technology skills with a national assessment test.
- Develop learning goals based on the test results.
- Classroom teachers will evaluate student technology skills.

Staff Development

- Staff rubrics and Needs Assessments will be developed to monitor technology skills.
- Workshop and conferences regarding technology will be advertised and encouraged.
- A Technology Self-Assessment test will be developed.
- Courses will be provided in-district for skills and curriculum integration. Learning Experiences will be evaluative piece.
- Pilot Projects incorporating the Peer Review Process will continue.
- Continue to develop incentives for administrative, faculty and staff participation in staff development opportunities.