

A: Introduction:

At the request of Framingham's Superintendent of Schools a three – five year technology plan was commissioned for the district.

During November and December , 2007, 24 interviews were conducted with the principals of all schools and their staffs, and with various department heads and their staffs in the district. Over 50 people participated in the interview process.

These interviews produced input about the strengths and deficits of the current state of technology in the district, as well as about future needs and wants relating to technology services to maintain and enhance the district's education services.

What follows is an outline of the goals and strategies of such a plan. The plan is intended to support the school system's mission, core beliefs and overall goals.

In order to evaluate the plan the following criteria are offered:

Criteria for Elements of a Technology Plan

The technology plan must

1. Establish clear goals and realistic strategies for using telecommunications and information technology to improve education services.
2. Include an assessment of telecommunication services, hardware, software, and other services needed to improve education services.
3. Allocate sufficient funds to acquire and support elements of the plan , including telecommunications, hardware, software, professional development, and other support needed to implement the strategies.
4. Provide professional development strategies to ensure the staff knows how to use new technologies to improve education services
5. include an evaluation process to monitor progress toward the goals and a process that allows for mid course correction in response to new developments and opportunities as they arise.

Key departments and schools should fill in the details of the 5 year plan . Guidelines should be issued from the Technology department covering input requirements and due dates. Recommendations gathered from interviewees are contained in the Summary section.

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Section B: Administration and Management

Goal:

Have appropriate data in the school district readily accessible to all who should have access over a fast and reliable wide area network .

Strategies:

1. Purchase all necessary devices and services to allow connectivity among all district buildings
2. Maintain necessary devices and services to allow connectivity among district buildings
3. Secure necessary storage to support various data collections and maintenance.
4. Provide adequate security to prevent access and tampering from unauthorized sources.
5. Implement remote backup for all critical systems
6. Assess the speed and reliability routinely through monitoring programs that benchmark speed, response time and reliability

Goal:

Develop and maintain a “common language” and unified district databases for the following areas: student records, health, special education, human resources, finance (including purchasing and budget). Provide access for all district employees to the information needed to do their jobs regardless of location. The systems used must be robust and reliable, with a backup and recovery plan. Security and permissions must be appropriate.

Strategies:

1. Keep systems current and maintained
2. Purchase annual maintenance for systems where feasible.
3. Keep up with current versions of software and hardware that will be used over the period of the plan.
4. Hire a systems manager who is expert at the system to
 - a. provide professional development to users.
 - b. keep up to date with new system developments
5. Utilize a document management and information sharing system
 - a. To promote district wide communication between similar groups such as 4th grade teachers, science teachers, secretaries, administrators etc..
 - b. To promote online learning either through document or information sharing or a commercial system specifically designed for the learning goal.
 - c. Expand communication with parents through available systems.

Section C: Communications and Information Access

Goal:

Improve and maintain a network structure interconnecting all district buildings, school offices and classrooms.

Strategies:

1. Review and update design of LANs in each building. Evaluate and upgrade wireless within buildings
2. Review and update connections from each building to outside and from each building to the district network
3. Document all layouts, connections and inventory.
4. Implement a network replacement schedule for network devices to upgrade performance and disperse costs over time.

Goal:

Create information management strategies for exchanging and storing all information resources within the district

Strategies:

1. Maintain all necessary networking software/hardware for information exchange (OS licenses and server application upgrades)
2. Design and maintain procedures, services hardware and software needed to backup informational data generated by both administrative and academic entities.
3. Maintain network configuration, asset management, and inventory control systems.
4. Create standard forms for use throughout the district
5. Maintain e-mail system for all staff
6. Maintain network accounts for students where needed and appropriate
7. Develop and maintain district and local school web pages
 - a. Utilize websites as a key component of communication with the greater school community and town.
 - b. Endorse consistent content and format among school websites so a user can move comfortably between websites.
 - c. Promote websites for teachers.
8. Explore the development and maintenance of a system for electronic teleconferencing

Section D: Inventory of equipment, software, services

Goal:

Maintain a ratio of instructional computers to students which is favorable to that recommended by the DOE (current recommendation is 5:1). The intent is not to just maintain the ratio numbers but to have the equipment current and in good condition.

Strategies:

1. Implement and update district wide hardware, software and services inventories including age of equipment, status of warranties and licenses.
2. Purchase computers with three year warranties where appropriate so that equipment is serviced under warranty by authorized vendors
3. Develop a detailed plan to replace/upgrade computers on a 3-5 year cycle
4. Manage technology support through a district help desk.

Goal:

Explore various options for allowing students to have their own laptops that can be used in school and at home for their individual use

Strategies:

1. Explore possibilities of underwriting individual laptops for one class per year (at least at the high school level)
2. Explore subsidizing computers for those students who do not have computers at home.

Goal:

Explore a more robust system with dramatically expanded bandwidth. New and expanded usages will necessitate the action.

Strategies:

1. Provide availability for new applications
 - a. Provide high speed connection between schools (Gb+ school to school)
 - b. Provide high speed connection inside of schools (100 Mb+ workstation to switch; Gb+ server to switch; Gb+ switch to switch)
 - c. Provide high speed internet access (both download and upload)
 - d. Plan to have wireless available in all schools.
2. Provide stability across the network.

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- a. Provide internal routing backup (between schools)
 - b. Provide internet access backup
3. Manage networks and devices
- a. Remote control – have the ability to manage servers over the network remotely with security in place to assure control.
 - b. Monitoring – have ability to monitor response time and other network factors.
 - c. Full control capability of all systems (using systems like Altiris and GroupPolicy for PC; ARD and WorkGroupManager for Mac)
 - d. Other devices
 - i. Majority of printers should be area networked laser printers
 - ii. All copy systems and scanners should be networkable.
 - e. Phones
 - i. Stabilize and push ahead with implementation with VoIP for voice and teleconferencing
 - ii. Plan cost effective use of cell and mobile messaging to increase communication particularly with administrators
 - f. Disaster Recovery Plan
 - i. Data Backup – on site and off site
 - ii. Server redundancy setup

Section E: Instructional and Curricular Technology Integration

Goal:

Implement a scope and sequence for grades K-12 for the development of technology utilization skills within the appropriate academic disciplines

Strategies:

1. Collect technology related scope and sequence curriculum information from the district.
2. Follow scope and sequence grades K-12 as needed to reflect evolving changes in DOE standards and current technology initiatives.

Goal:

Align technology applications and hardware with appropriate curriculum goals /objectives

Strategies:

1. Inform teachers about technology applications related to curricular goals and objectives. Solicit from teachers their needs in this area
2. Assist teachers by updating district adopted software to “current” versions
3. Pilot, then implement innovative hardware into all curricular areas
4. Pilot, then implement innovative software and applications into all curricular areas.
5. Maintain a high level of accessibility for all students.
6. Maintain hardware/peripherals at or above an acceptable level (all elements should be available for use at least 90% of the time scheduled.)

Section F: Professional Development

Goal:

Develop and institute a comprehensive staff professional development program for technology to support student learning and educational reform initiatives.

Strategies:

1. Identify staff development needs to support further integration of technology in classrooms using both district staff and outside sources.
2. Tailor staff development programs to meet the needs of teachers.
3. Expand offerings of technology training in the district to include online courses and streaming video
4. Provide focused professional development on integration of technology.
5. Sustain the professional development with coaching, modeling best practices, district based mentoring, and user groups.

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Section G: Technology Staffing

Goal:

Provide technology support in each school through a combination of building and district personnel that meets or exceeds DOE staffing recommendations for the integration of instructional technology

Strategies:

1. Hire and maintain necessary personnel to meet DOE minimal standard of one FTE for every 120 staff members
2. Hire and maintain necessary personnel to meet DOE minimal standard of one FTE for every 200 computers. Include support received from outside repair vendors.
3. Hire and maintain technology instructors so every child receives at least one session of computer instruction per week.
4. Provide network training for instructional technology and district technology staff

Goal:

Provide district level support and leadership staffing to assist in the design, purchase, and maintenance of infrastructure, hardware, software, and training needed for administrative and classroom success

Strategies:

1. Hire and maintain a Director of Educational Technology.
2. Maintain position of Network Manager to facilitate the design, implementation, maintenance and utilization of servers and network infrastructure.
3. Maintain necessary personnel for the general maintenance of administrative and educational technologies including databases used for internal and external reporting.
4. Utilize students to work with technology assistants during and after school.

Section H: Advanced Technology for Students

Goal:

Provide opportunities and equipment to explore advanced and state-of-the-art uses of technology

Strategies:

1. Explore pilot projects utilizing advanced technologies in the classrooms (i.e. electronic books, sound, streaming video, multimedia)
2. Partner with area technology businesses to establish yearly grants for projects and equipment.
3. Explore grants for advanced uses of technology
4. Provide classes either on campus or on-line for students with specialized interest in technology

Goal:

Provide opportunities for high-achieving students in technology to further explore the field of study.

Strategies:

1. Establish multiple paths for students interested in technology
2. Ensure that those interested in both “hard and soft” disciplines are addressed

Section I:

Funding

Goal:

Work with the town to maintain adequate funding levels to execute the plan

Strategies:

1. Keep the community informed of technology plans and needs.
2. Invite the community to events where technology is showcased as part of the learning experience.
3. Form a technology advisory group of community members to help guide the technology program as well as to be ambassadors to the community regarding technology needs.

Goal:

Make use of sources of funding that are available to communities outside of the town budget process.

Strategies:

1. File for Erate and other government funds for services and products.
2. Watch for grants from federal, state, regional, non-profit and corporate organizations
3. Actively seek partnerships with the business and college communities to aid in meeting the technology goals.

Summary:

Due to insufficient time and knowledge of each operation, it is not possible to provide details of a long range plan. The schools and departments with guidance from the Technology Department are best equipped to provide the details covering each of the goals and strategies in the long range plan.

As a result of the study period , the following set of recommendations and thoughts are offered:

- Three years have been lost without active leadership, hence a search for , interview and hiring of a Director of Technology who has up-to-date knowledge of technology as well as educational processes is a top priority. This individual must be able to set the District's technology direction consistent with educational plans and budget. This person must have the communications skills necessary to interact with staff and community people.
- Create a detailed hardware and software upgrade and/or replacement schedule consistent with budget plans. Hardware upgrades should be considered where equipment is in good shape but possibly needing memory or other inexpensive upgrades. This may the case in many administrative and student areas where there is limited usage. Equipment should be purchased with appropriate software licensing where needs can not be met with present equipment and/or software. Replaced equipment should be considered for relocation within the district if it can meet the needs. Web-based programs and "open systems" such as "Open Office" should be considered for student use. Much of this software is free.
- Instructional applications should be implemented by joint teams made up of people knowledgeable in the technical details and individuals versed in the educational details. The responsibility of each team will be to install, instruct the local staff, and review the effectiveness of the application (both technically and educationally) . Before applications are approved for district implementation, appropriate departments should commit to the plan.
- An upgrade to the phone service and data network should be given priority in the allocation of funds.
- Administrative systems should be reviewed to minimize duplicate inputs. Access to reporting should be broadened to include authorized people who have been trained in the query software. One or more persons should be trained in MUNIS to support the school needs. The library system needs review and recommendation regarding conversion to Destiny.
- Funding will be a serious challenge for the foreseeable future. The budget should be geared toward achieving a \$400-\$500/ student expenditure for technology. The expenditure during the last 2 years has been approximately \$100/student. Previous to that it was close to \$150/student. This year's budget (including grants and gifts) is close to \$150/student but questions remain as to the use of grant and gift funds.