

Superintendent's Technology Advisory Committee Recommendations for HWRSD Technology

Submitted by D. Scanlon, Assistant Superintendent, September 2004

The Charge

The Superintendent's Technology Advisory Committee convened upon the invitation of Superintendent Paul Gagliarducci on February 4, 2004. Dr. Gagliarducci's initial message to the group was consistent with this excerpt from his written statement Hampden-Wilbraham Regional School District and The Digital World: Time for Investment (November, 2002).

The key, as I view it, is how we integrate technology into the teaching and learning process so that technology becomes an invisible partner. To date I do not believe this has happened in our nation's schools. We have been at the "technology game" for over 20 years and yet we still deal with the same issues:

- Reluctance to utilize technology in an integrative way.
- Funding to provide a sufficient number of desk tops and peripherals
- Resources both in terms of personnel and materials to support the total cost of ownership
- Reliable infrastructure that can be supported over time from a public budget
- Adequate and consistent training that matches skill with tasks, as well as ever-changing instructional demands

To be effective in our future, we must determine how our district can eliminate, or in the least confront, these universal issues that also affect us.

My plan is to address this problem over time. I realize that we have limited funds, which forces us to be patient in our attempts to improve. Therefore, there needs to be a systematic approach that combines (1) a constant infusion of funds; (2) a coordinated plan to address the integration of technology; and (3) an effective organizational structure that is accountable for the implementation of the plan and efficient operation of the system.

He also shared his vision of how

“...the building based information center transforms the traditional concept of a school library into the new focal point of the school. Integrating print, media, and the digital world, the school information center becomes more than a place to visit. Instead, instruction in all content areas is supported by the staff, materials, and equipment located in the center. There is an outreach to utilize the learning resources available and a commitment to teach students how to become better learners through research, exploration, and the acquisition of skills necessary to compete in our technological world.”

The charge of the Superintendent's Advisory Committee was to draw upon the technology backgrounds and expertise of local community members in order to develop a set of recommendations designed to revitalize the HWRSD technology program.

The Process

The first step in this process was to provide the Committee with a knowledge base about the current state of technology in HWRSD. The Superintendent's comments as well as verbal and written status reports from district staff served to develop knowledge and understanding among committee members regarding the current state of technology in HWRSD. This was followed by a series of meetings, visitations (Shrewsbury, STCC), and explorations that helped the group develop a vision of a model school/classroom.

The committee investigated and discussed issues such as advantage and disadvantages of Mac versus PC. We learned about statewide initiatives in New Hampshire and in Maine, the only states with 1 student to 1 computer projects, where Macintosh computers were selected over PC's. The Committee learned that networking on a Mac is built on the same technologies used by PCs. As a result, the Mac is compatible with PC networks, making operations such as sharing files and printers with PCs simple and painless. Also important, is the fact that viruses are not an issue in a Mac environment. The information gathered reassured the group, as well as internal technology support staff, that Apple has viable and cost-effective options for us at this point in time.

The recommendations in this report are based on the Superintendent's Advisory Committee's understanding of the gap between the current and desired state, where technology is an effective tool for everyday learning. The recommendations are intended to be considered a start rather than endpoint for technology planning in HWRSD.

The Participants

Superintendent's Technology Advisory Committee

- ☆ Wesley Crouch, Director of Information System, Lenox
- ☆ Mike Ginsberg, IBM - Client Unit Executive
- ☆ Tom Moran, President and CEO, Financial Partners
- ☆ Jim Ross, President and Chief Operating Officer, Optasite, Inc.
- ☆ D. John McCarthy, School Committee Member and Field Marketing Manager, Fuji Photo Film
- ☆ Vin Yacavone, Director of Instructional Media Production, STCC

Technology Advisory Committee Meeting Dates (See Appendix A for minutes of meetings.)

February 4, 2004	April 1, 2004
May 1, 2004	June 3, 2004
July 1, 2004	July 21, 2004
August 18, 2004	September 2, 2004 (Writing Subcommittee)
September 21, 2004	

HWRSD Internal Representatives

Ed Bigos, Consultant
Rose Brosnan, Principal, Soule Road School
Nancy Dugre, Computer Science and Mathematics Teacher, MRHS
Bart Gilley, Network Administrator and Technology Coordinator
Bob McCray, Technician
Steve Nembirkow, Director of Business Services
Donna Scanlon, Assistant Superintendent

Recommendations

I. Network

The recommendations in this report are based on the premise that the network and band width issues are addressed.

A stable network (Internet access/connectivity/speed as well as local and wide area network) with appropriate band width is of primary importance. If the network is not adequate, it limits the effectiveness of expenditures on hardware or applications; Internet access is sluggish; and e-mail access can be sporadic.

- A. Since options for **portable technology** are clearly increasing, **wireless technology** must be seriously considered. Installing wireless networks allows teachers and students to surf the Internet from various locations, and allows users to take the machines home at night.
- B. Decide upon a **centralized or distributed model** for a local area network. A distributed model would provide us with the most flexibility, and is the model within which we are currently working.

Given financial considerations, however, we should investigate the possibilities within a centralized system. This would require redundancy (adequate back-up systems) to mitigate data loss or to prevent lack of access. The Citrix solution, which is being piloted at Soule Road School, is an example of a centralized model for the deployment of applications.

As explained on Citrix in Education literature,

“...With Citrix, application installation, execution, and administration take place on central servers rather than individual desktops. The desktop computer simply displays the graphical interface and sends keystrokes to the server, allowing the student to view and work with the application as if it were running locally. The result? The brand, age and operating system of the computer become irrelevant—virtually any device can be used. Plus you eliminate the time, cost, and security problems of distributing software by disk.”

This type of system can potentially extend the life of computers, allow older hardware to be used with the latest applications, increase standardization of applications, and increase the possibility of simplified management and efficient tech support. Ensuring cross-platform (PC, PDA, Mac) access is a key strength of this system.

There are advantages and disadvantages with either system. The pilot program will help us determine how well a centralized system could work for us. We are aware of the fact that academic freedom and flexibility would be major considerations as would the risk involved with all systems being dependent upon the centralized server(s).

- C. The District should have ongoing involvement during the **cable negotiations** process. The cable company should be pressured to set up fiber as an institutional network. The Wilbraham contract is due to expire in two years (2006). Hampden negotiations are on a similar timeline. Some innovative ideas to consider are:

1. Join forces with neighboring towns to maximize the negotiation process and potential enhancements.
2. Towns have been known to purchase their own Competitive Local Exchange Carrier (CLEC) switch so they have their own cable company and Internet Service Provider. In Shrewsbury, the switch paid for itself in less than 16 months and they are now making a good deal of profit. They have voice, video and data on their own lines.
3. Investigate the convergence of data, telephone, internet, video services to save money and increase quality of service. (Cost benefit analysis is needed.)

II. Hardware

Leasing vs. purchasing of hardware should be considered. There should be a way for a phased in purchasing plan for structured refresh of equipment every three years, with manageable, effective tech support and an extended service contract. Standardized equipment is more cost-effective to maintain, yet it has been impossible to purchase enough units at a time in order to take advantage of this due to budget constraints.

- A. Office staff needs optimal machines for administrative uses to increase productivity and communication. Too many secretaries and clerks currently have outdated machines.
- B. Every teacher should have a laptop to maximize opportunities for planning and designing learning environments and experiences and teaching with technology.
- C. Each school should have at least one area set up for wireless capability and video/audio presentations (MRHS needs more than one).
- D. Consider other options for printers; high speed, networked printers; multi-function printer/copier/scanner.
- E. Donated equipment creates a myriad of tech support issues and a policy is needed.
- F. Assistive technology for universal access must be developed.

III. Model Classroom/School

Research tells us that technology makes learning more interactive, enjoyable, and customizable, and this improves students' attitudes toward the subject and their interest in learning. Technology offers opportunities for learner-control, increased motivation, and connections to the real world. Currently, the learning process in school is unrelated to the learning process outside of school, where access to information is always available. Technology outside of school is pervasive. It works quickly and effectively. Currently, access to information technology in school is limited at best.

In addition to the **building based information center** or school library, each school should have at least one area set up for **wireless capability** and **video/audio presentations**.

A model classroom learning environment:

- A. Every teacher should have a laptop to maximize opportunities for planning and designing learning environments and experiences and teaching with technology.
- B. Each classroom needs projection/presentation capability.
- C. Student access to adequate hardware should be tailored as required by instructional demands. One size does not fit all. Needs differ at various levels of schooling and within subject areas, yet equity to access must be addressed.
- D. Consider fewer student workstations and more wireless laptop carts or other mobile units.

IV. Professional Development

Imbedded, school-based professional development is recommended. Teachers need help that is customized to meet their needs in contrast to the workshop model where the information that is transmitted may or may not apply to their everyday needs and tasks.

- C. Communicate teacher competencies as identified by state.
- D. Provide in-time support and school based activities based on identified needs.
- E. Develop and communicate specific expectations for HWRSD staff (as in web-based communications portal and curriculum/instructional expectations).

V. Staffing

In his report on the Shrewsbury (enrollment: 5562 students) visit on July 9, 2004, John McCarthy writes:

Another important commitment to the technology program is the personnel support dedicated to it. It is not enough to buy state of the art hardware without the human resources to implement and use it. Shrewsbury made this commitment with a staff of 28 people including six techs, and technology integration people. They placed more support at the elementary schools than the higher grades using tech integration specialist in them. They have an on site specialist two days per week.

A commitment to appropriate staffing and leadership is needed in order to have a vibrant and responsive information technology program. The following positions are recommended.

A. Full Time Technology Director

- This champion of technology establishes, plans, and administers the overall policies and goals for the information technology department. This administrator analyzes the needs of schools/departments and establishes priorities for feasibility studies, systems design and implementation to develop new and/or modify the District's information processing systems. This position requires a background in education and licensure in instructional technology or related field and reports to Superintendent/Designee.
- Examples of anticipated projects: Develop student interns and college co-op; develop a policy/protocol for donations; develop, implement, and evaluate results of long-term plan; oversee Student Information Management Systems; oversee Teacher Information Management Systems.

B. Site Based Library/Media Specialists

- Support the use of instructional technology at each site. Oversee the development, organization, management, and evaluation of school library media programs and resource centers. Instructs staff and students in using appropriate equipment for using information resources.

C. Technicians

- The network administrator and two technicians we currently have are extremely stretched. They are needed for purchase, repairs, maintenance, and regular upgrades. They are also providing service and support, networking, security, user training, and software licensing. They are accepting donations and getting them ready for HWRSD usage. The District should increase the number technicians capable of managing the network and hardware needs.

D. Initial help desk and online support for triage

- On line support and liaison to provide an immediate response to problems and to forward needs to technicians is needed.

E. Additional Needs

- In order to have a responsive, well-managed website an adequate amount of time must be dedicated to this task. The Student Information Management System, which will soon be expanded by the State to include teachers, takes coordination among all schools and, again, an adequate amount of time must be dedicated to it.

APPENDIX A

MINUTES OF TECH ADVISORY COMMITTEE MEETINGS



Technology Planning Committee
Minutes from 4/1/04
Submitted by D. Scanlon

Present: Wesley Crouch, Bart Gilley, Mike Ginsberg, Tom Moran, Paul Gagliarducci, Donna Scanlon

Absent: Vin Yacavone, Jim Ross

1. Wes described some possible donations that are still unconfirmed but sound promising. We look forward to learning more. In the event that something does happen, it will happen quickly and will require a plan for transportation and storage.
2. Wes shared two articles: Balanced Scorecard and Measurement and Management in the Information Age. He also presented a teaming structure for student tech support. It involved a ninth, tenth, eleventh, and twelfth grade team assigned to provide tech support to a few schools. The multi-grade structure would provide automatic mentoring of less experienced students by those who are more experienced. The experience could someday become part of the computer science curriculum and A+ certification process if it was well-planned and appropriately developed.
3. Bart walked us through the network/cable diagrams for the district and inventory for each school. It was noted that maybe we need some reorganization of resources since our student to computer ratio is quite good, though many computers are outdated. The age of many of our computers is becoming a problem, but this problem could be mitigated with Citrix since there would be much less wear and tear on hard drives, etc. The tech support necessary for 1200 aging computers was also noted, and again, the idea of Citrix as a solution was explained.
4. Bart explained that the cable contract is in the process of being renegotiated with the two towns and that this committee may wish to assertively make known the connectivity needs of the schools in both towns.
5. Tom proposed an action item: Contact the selectboard to leverage bargaining power while the cable contract is being renegotiated.
6. Tom proposed that we have one rule: No one is allowed to say that you can't do it without money. Everyone agreed to this idea as important for creative solution seeking.
7. Mike emphasized the need to think about conditions 5 years down the road. Clearly, portable units of all types will be pervasive and we don't want to create structures that are unable to respond to future tech needs. He brought forth the notion of leverage buying at a tremendous discount, ways to motivate students to have mobile form factors (I'm not sure of my vocabulary use here), and the need to be clear about the desired model.
8. Paul described his vision for the appropriately staffed information centers to become the hub of the school, enriching opportunities to gain and apply knowledge, as well as the changing and improving culture of our organization. We all agreed that technology itself would not necessarily improve learning, but that the whole system needed re-engineering and then apply the technology.
9. We discussed the expansion of the committee to include a principal, a teacher, and a tech support staff person.
10. Donna talked about the disconnect between the nature of inquiry for students and for teachers at home (easy access to web) and at school (difficult, ineffective access to web).

The subject of the ability for everyone to depend on e-mail for communication was also discussed as a problem.

11. Next Step: The information presented and the ensuing discussion generated many questions. Tom will start a list of questions and e-mail it to others who will add to the list. This will provide us with an agenda of issues to pursue.

Action Items:

- ☆ Contact the selectboard to leverage bargaining power while the cable contract is being re-negotiated. (Person/s responsible not yet identified.)
- ☆ Respond to Tom's e-mail and add to his questions.
- ☆ Recruit a principal, teacher, and a tech support staff person for the committee.



Technology Planning Committee
Minutes from 5/6/04
Submitted by D. Scanlon

Present: Wesley Crouch, Jim Ross, Vin Yacavone, Rose Brosnan, Tom Moran, Paul Gagliarducci, Donna Scanlon

Absent: Jim Ross, Bart Gilley, Mike Ginsberg, Nancy Dugre

1. The possibility of saving funds on telephone lines through a centralized phone system was discussed. How much money is spent on communication each year? Rich Scortino will be asked for information.
2. A walk through to determine if this building is tech friendly (i.e. accommodating to future tech needs as highlighted by facilities committee) was suggested. Early in the morning prior to next meeting seemed like a good time.
3. Disposal issues for PCs were discussed.
4. Vin Yacavone invited interested member to see tech rich learning labs at STCC.
5. Tom distributed a hard copy of the questions he generated so that members could add to the list.
6. Donna explained that on-line registration for district workshops and asking teachers to take a Technology Self Assessment Survey through Virtual Education Space could reasonably occur in the near future.
7. The need for fat band width was highlighted.

Action Items:

Schedule tour.

Get phone system info



Technology Planning Committee
Minutes from 6/3/04
Submitted by D. Scanlon

Present: Wesley Crouch, Mike Ginsberg, Vin Yacavone, Rose Brosnan, Nancy Dugre, John McCarthy, Paul Gagliarducci, Donna Scanlon
Absent: Jim Ross, Bart Gilley, Tom Moran

1. The possibility of saving funds on telephone lines through a centralized phone system was discussed again. The idea would be to try to combine data and telecommunications. Dr. G. will see if LPVEC is involved with Pioneer Valley Connect, a group that is pursuing negotiating telecommunication fees for area businesses.
2. How much money is spent on telecommunication each year? Through the e-rate the District is reimbursed for \$28,000 this fiscal year.
3. Mike shared his perceptions of the technology walk-through. He mentioned the assortment of equipment in 2 well-used labs, 3 or 4 new servers waiting to be installed, and the strong possibility that thin client solutions would be very useful, efficient, and cost-effective. (Note from Donna: We didn't go to the math lab that uses the sophisticated Carnegie software for learning algebra and geometry. This is one of the few courses that we have where technology is fully integrated into the learning process. It may have been interesting to see how this works. Maybe next time!)
4. We had a lengthy discussion about student tech assistance. Wes explained his knowledge management system that involved multiple levels of sophistication in various content areas (quadrants) and how it could be applied to train students as they worked their way through grades 9-12 and acquired more and more experience. Wes thought that private industry could help train them.
Nancy said that at this point in time only three juniors would be ready for this type of project but that their schedules are full during the school day. She also talked about the 12 year old computers that she was using to run her courses, which were primarily oriented toward computer programming. She also mentioned that it took her 9 months to get an e-mail address. Donna said she will look into this. We have been assured that all teachers have access to e-mail but that it is often not convenient and thus not necessarily checked regularly.
Dr. G explained that we'd have to create a career pathway and a set of courses to support this type of system.
5. Donna explained that on-line registration for district workshops and teachers' Technology Self Assessment Survey through Virtual Education Space will occur in the near future.
6. Mike made us aware that the only place that IBM will donate is for equipment for educational purposes.
7. Dr. G explained that there is a possibility that he will be able to invest in some hardware at two needy schools this summer, TWB and Memorial.
8. John brought up the idea of computers on wheels (vs. lab) and leasing contracts (vs. purchase). Return-ability and fees were issues that were raised in relation to this topic.

Action Items:

Look into Pioneer Valley Connect (Dr. G.).
Update on Soule Road Citrix project (Rose, Wes, Tom).
Clarify the specifics of e-rate eligibility (Donna)

Find out the specifics of e-mail status for staff at high school.



Technology Planning Committee
Minutes from 7/1/04
Location: STCC Tech Park, Scibelli Enterprise Center, 3rd
Floor, Deliso Video Conference Center
Submitted by D. Scanlon

Present: Vin Yacavone, Rose Brosnan, John McCarthy, Wesley Crouch, Donna Scanlon
Absent: Jim Ross, Bart Gilley, Tom Moran, Nancy Dugre, Paul Gagliarducci,

1. Everyone agreed that the Deliso Video Conference Center was an enviable, state-of-the-art, well-designed, presentation/workshop space. One room had a computer, document camera to display drawings and transparencies, VCR, DVD, CDROM, projector, movable furniture, video cameras, 4 TV monitors, sound engineering (muffled air conditioners, etc.), connectivity (fiber using ATM network), and wireless controller. They do allow for school districts and local businesses to rent the space.

We talked about the excellent, dependable, connectivity and video-streaming capabilities and the band widths this requires. We also talked about the importance of flexibility, including furniture placements for maximum possibilities.

2. Wes updated us on the Citrix installation, which was partially complete.
3. We had a question about whether Hampden and Wilbraham were doing the cable negotiations the same way and whether T-1 lines and voice/data/video were part of the conversation.
4. The next meeting will be held at Soule Road School at 6:30 PM on July 21. We decided to invite an Apple rep (Christos Pedakis) to expose us to some ed solutions from his perspective.



Technology Planning Committee
Minutes from 7/21/04
Location: Soule Road
Submitted by D. Scanlon

Present: Vin Yacavone, Jim Ross, Rose Brosnan, John McCarthy, Donna Scanlon, Nancy Dugre,
(Guests: Bob McCray, HWRSD Technician; Karen Kielb, HWRSD Tech Support and
Webmaster; Ed Bigos, Consultant; Christos Pedakis, Apple Sales Rep)
Absent: Bart Gilley, Tom Moran, Paul Gagliarducci, Wesley Crouch

5. Rose updated us on the successful Citrix installation and test on one computer. The software and server was donated through Wes Crouch. Bob McCray expressed concerns about the inadequacy of the infrastructure to support smooth performance as well as a need for training of technicians and tech support staff. Also, it was acknowledged that if the hardware is poor, the performance will still be disappointing. The advantages, however, are clear: a standardized system, easier tech support, and maximized use of available hardware (which allows us to better use what is donated).
6. Jim Ross updated us on the delayed Wilbraham cable negotiation process due to difficulties scheduling summer meetings. The contract is due to expire in two years. Hampden negotiations are on a similar timeline. The need for certain items related to the school district being discussed in tandem was again highlighted. (Note from Donna: Dr. G. is going to tackle the task of communicating this need to appropriate people.) Jim also mentioned that since East Longmeadow is on the same time line it might be worth connecting with them to maximize enhancements.
7. Christos Pedakis addressed some of the advantages of leasing/financing vs. owning so that you are able to buy larger quantities of the same unit. He emphasized that a robust network needs to be a top priority and that you need at a minimum “10 – 100 switched at every machine.” We are aware that we are closer to .42 at many machines.

He also shared stories and examples from Maine’s research study as well as Shrewsbury. (Please see John McCarthy’s summary of the visit to Shrewsbury attached.)

Items of interest from Shrewsbury:

- a. They bought the own CLEC switch so they have their own cable company and ISP. It all paid for itself in less than 16 months and they are now making a good deal of profit. They have voice, video and data on their own lines.
- b. They chose to provide every teacher with a laptop and invest savings earned from large quantity purchase to pay teachers a \$1,000 stipend to attend summer training. When teachers want to upgrade their laptop they buy their own and then turn in the one they were provided.
- c. When state funds were decreased, they laid off teachers rather than reduce tech budget.

- d. They have adequate staffing: Technology Director, instructional tech specialist in every building, 4 people for break/fix, a network manager/SIMS specialist, and a help desk.
8. Nancy updated us on the Manhattan Project, which will train five MRHS teachers in distance learning possibilities for one of their courses.

