

ENUMCLAW SCHOOL DISTRICT TECHNOLOGY PROGRAM REVIEW

RECOMMENDATION # 1 – VISION AND LEADERSHIP

A. Build vision that is district-based, Technology implemented

Use of technology must be driven by instructional and administrative needs, not based on the latest technology that has become available or based on the squeaky wheel. New initiatives should be a response to identifiable, prioritized needs of the district.

1. Create a vision that is understandable and easy to grasp.
 - a. May have a longer horizon for the district than a technology plan
 - b. Provides staff and community with a technology roadmap that can be contained on a single page or a few web pages
2. Drive use of technology in the classroom by instructional goals.
 - a. Create similar experience by students within a building and across the district
 - b. Scaffold skills learned in each grade to develop greater skills progressing to higher order thinking
3. Drive use of technology across the district by administrative goals.
 - a. Provide consistent technology resources and systems to all staff
 - b. Provide comprehensive support and training

B. Continue transition of technology model from support to leadership

In the current support model, Technology manages district technology resources but doesn't have a clear way to participate in district decision-making. Technology resources have become integral to all facets of district work. As such, the district should implement a strategy for including technology in district decision-making.

1. Continue Human Resources Director as Cabinet-level technology administrator and supervisor of the Technology Coordinator.
 - a. Changes the dynamics of the technology role in the district
 - b. Creates greater visibility and communication
2. Continue the Technology Oversight Committee as a decision-making body.
 - a. Provides recommendations to the Human Resources Director and Technology Coordinator
 - b. Communicates decisions to district and community.
3. Include technology as a regular Cabinet agenda item.
 - a. During time district technology vision being established, then as needed
 - b. Invite the Technology Coordinator when appropriate for specific updates and status reports to be included in Cabinet agenda

C. Establish district wide technology expectations

For the purpose of increased student learning and effective implementation of district technologies, provide clear district goals to staff. A consistent technology implementation across the district makes it significantly easier to integrate technology into curricular practice and professional development, and to coordinate technology use across grades and content areas.

1. Determine that the district values equity of access to technology for all students.
 - a. Establish policies and/or administrative procedures
 - b. Create an oversight and feedback model to ensure equity
2. Establish classroom level equipment standard.
 - a. Classroom set
 - i. make it known that each classroom will be populated with certain technologies and work toward that end
 - ii. recommendations should come from the Technology Oversight Committee described below (for specific technologies see Recommendation #2).
 - b. Instructional practices
 - i. the Technology Coordinator should work closely with Curriculum & Instruction to develop specific technology use that supports district instructional practices (see Recommendation #6)
3. Implement Technology integration expectations for teachers.
 - a. Develop district technology goals and strategies from Recommendation #6
 - b. Make well known and support through professional development

D. Develop vision and oversee implementation through the Technology Oversight Committee

Continue the Technology Oversight Committee (TOC) for planning and oversight. The TOC in concert with Technology will oversee district technology as a single set of district resources, providing an enterprise perspective. The TOC enhances the leadership model by providing the vehicle for district-wide inclusion in district decision-making for technology planning and use. The TOC complements the role of Technology by creating greater visibility and better communication regarding technology initiatives throughout the district.

The Technology Oversight Committee will:

1. Include representation from:
 - a. Administrators (CIA, HR, Special Education, principals, auxiliary enterprises)
 - b. Certificated (classroom teachers, special education, and librarians)
 - c. Classified staff (central office and building)
 - d. Paraeducators
 - e. Community
 - f. The HR Director and Technology Coordinator serve as staff

2. Develop plans for technology implementation.
 - a. Project future technology needs based on a forward-looking plan
 - i. considers new technologies to be used
 - ii. based on the district's growth and expansion in use of technology
 - b. Develop district vision and plan
 - i. communicate vision with staff and community through the technology roadmap (see Recommendation 1-A-1-b)
 - c. Approve technology standards and replacement cycles
 - i. annual standards updates based on instructional and administrative needs to the TOC
 - d. Develop a phased implementation plan
 - e. Incorporate plans for training and support.
 - f. Recommend reallocation of existing resources
 - g. Recommend Technology levy or bond
 - h. Recommend acquisition of other new resources
3. Conduct an improvement planning process.
 - a. Monitor implementation
 - i. develop priorities
 - ii. ensure adequate resources
 - iii. evaluate impact on student learning & business processes
 - b. Adjust for the future
4. Create and support job-alike user groups for the purpose of creating effective communication and feedback on district plans

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RECOMMENDATION # 2 – INFRASTRUCTURE

A. Upgrade District Wide Area Network

The capacity of the WAN must be adequate to support the district vision and goals and to provide equitable access to district resources.

1. Increase WAN capacity for all sites to 1 Gbps (including Black Diamond).
2. Standardize network (LAN and WAN) components.
3. Upgrade the packet shaper to allocate the full 15 Mbps capacity of K-20 bandwidth now assigned.
4. Provide differentiated filtering between adults, high school students, junior high students, and elementary students.
5. Implement dynamic override for teachers and administrators for specific instructional purposes.
6. Project future WAN bandwidth requirements to support the changes in requirements of district-provided network resources.
7. Continue to monitor K-20 bandwidth over time to support the changes in district Internet-provided resources.

B. Upgrade Local Area Networks at Each Site

1. Use DHCP to allocate IP addresses and discontinue static addressing for workstations.
2. Use Virtual Server and Network Attached Storage/Storage Area Networks to consolidate and create efficiencies for district servers.
 - a. Current servers have low usage of storage creating inefficient use of resource
 - b. NAS/SAN devices will address this situation
3. Increase capacity of the backup tape system to restore data for a period of six months.
4. Accommodate substitute office staff and teachers with needed network resources (e.g., logins, printers, files, Internet, email).

C. Develop Software and Hardware Standards

Adopting a list of supported software and hardware standards and implementing a replacement cycle allows for consistent user experience and more effective support.

1. Establish district-wide software standards.
 - a. Technology should document the existing software applications in use throughout the district.
 - b. The Technology Oversight Committee should develop criteria for identifying a set of core software applications to be used on all district computers. Core software applications
 - i. drive minimum hardware standards
 - ii. are able to be installed on any supported computer
 - c. The TOC should develop criteria for identifying appropriate software to support the needs of:
 - i. certificated staff at all grade levels and content areas
 - ii. administrators
 - iii. students
 - iv. classified staff by type (as it makes sense)
 - d. Using these criteria, the TOC should create an initial list of software standards for these groups. This list should include a methodology for exceptions to standard for the purpose of path finding.
 - e. The TOC should review the software standards list annually and determine which titles should be supported, and communicate this decision to the district.
 - f. The TOC should determine what actions should be taken regarding unsupported software (leave or remove from district computers).
2. Establish district-wide hardware standards.
 - a. Hardware standards are determined by the needs of the district (OSPI's published hardware standards provide useful guidelines).
 - b. Consider software standards, instructional applications and network performance among the factors to determine hardware standards.
 - c. The Oversight committee should review the proposed standards, adjust as needed and communicate its decisions to the district.
 - d. Update hardware standards annually.
3. Define hardware standards to include:
 - a. New-purchase.
 - i. designed to last 3-5 years
 - ii. runs all supported software efficiently
 - b. Adequate
 - i. runs standard list of software efficiently
 - c. Minimal
 - i. capable of running all "core" software, but productivity is significantly impacted
 - ii. replace during the next cycle
 - d. Sub-standard
 - i. does not run full list of core software
 - ii. should not be connected to the network or repaired
 - iii. surplus at the first opportunity
4. Evaluate hardware inventory against standards annually to maintain equity among sites and report results to TOC.

5. Include Macintosh and Windows computers in new-purchase hardware standards.
 - a. Windows computers should be limited to a single manufacturer and operating system.
 - b. Windows and Macintosh computers should be limited to as few models/configurations as adequately meet user needs.
 - c. Offer at least two laptop options, with one focused primarily on small size and ease of transport.
6. Develop replacement cycles for all classes of hardware.
 - a. Desktop and laptop computers
 - b. Standard presentation station
 - c. Servers
 - d. Network components
 - e. Remove from use hardware which is no longer supported.

D. Provide Consistent Access for Students

1. Adopt standard student-to-computer ratios for elementary, middle and high schools.
 - a. Differentiate between classroom and non-classroom computers.
 - b. Ensure that the ratio is maintained at each site over time.
2. Establish comprehensive classroom equipment set that is based on instructional needs. This may include equipment such as;
 - a. Student computers (based on a ratio of computers to students)
 - b. Printer(s)
 - c. Presentation equipment (see 3 below)
 - d. Assisted listening devices
 - e. Microphones
 - f. Associated furniture
3. Adopt a standard district presentation station to be located in all instructional spaces and conference rooms across the district. Presentation station includes:
 - a. Computer
 - b. Projector
 - c. Document camera
 - d. Amplification system

E. Implement Other Infrastructure Needs

1. Replace current ISDN-based videoconference system with IP-based systems at each site.
 - a. K20 OSPI has determined that districts should replace ISDN systems as soon as possible but no later than 24 months.
 - b. Disconnect the ISDN line, saving \$2,500 annually and add this capacity to existing K20 data connection.
2. Develop policies and plan for implementing wireless networking

3. Provide Adequate Facilities and Tools for Technology Department
 - a. Provide space needed for technology function in one physical location to:
 - i. Warehouse new computers
 - ii. Support computer surplus operations
 - iii. Set up new computers
 - b. Begin imaging all computers (desktop and laptop).
 - i. New equipment should come imaged from the vendor
 - ii. Develop internal capacity to image computers that have encountered problems or need to be relocated

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RECOMMENDATION # 3 – SUPPORT

A. Determine level of support required to implement the technology vision

Technology has become essential for every employee's job. Currently, the district has not defined the support levels that are possible with current resources. In this environment, user expectations become unrealistic and staff morale suffers. Once the vision and infrastructure have been developed, effective support is critical to maintaining forward momentum of technology implementation. Many of the systems already in place have become mission-critical in nature, and staff needs to feel secure that they will have the help they need to be successful in their work.

1. Determine level of support possible with current level of funding and technology inventory by developing a Service Level Agreement (SLA).
 - a. Developed by Technology
 - b. Defines the relationship between Technology and their customers
2. The SLA is an important item of documentation for both parties as it:
 - a. Identifies and defines the customer's needs
 - b. Provides a framework for understanding
 - c. Simplifies complex issues
 - d. Reduces areas of conflict
 - e. Encourages dialog in the event of disputes
 - f. Eliminates unrealistic expectations
3. The SLA includes a wide range of issues, such as:
 - a. Services to be delivered
 - b. Performance, Tracking and Reporting
 - c. Problem Resolution and Escalation
 - d. Customer Duties and Responsibilities
 - e. Security
4. The TOC reviews SLA for appropriateness to meet district needs and approves or requests further development by Technology department.
5. Post the SLA on the district website and made known to all customers.
6. Review the SLA on an annual basis to reflect changes in district vision, resources, applications, and technology inventory.

B. Continue using outsourcing as a strategy to provide specialized, high-end and project-oriented support.

The district use of contracted services has clear goals and oversight. Contracted staff provides timely and high-end support to mission-critical functions such as network and telephones. Professional services such as web design and online applications are used for project development, with district staff providing on-going operations and support. The district should consider using contracting in other areas such as technology integration and professional development.

C. Change technology organizational structure to improve the efficiency and effectiveness of the department

Staff should be organized to provide specialization in network support, customer service, and desktop support. Time should be factored in for Technology staff to engage in long term planning and projects to meet district technology goals.

1. Organize staff into functional teams
 - a. Create “lead” positions to provide direction, prioritization and mentoring to team members.
 - b. Leads should meet regularly with the Technology Coordinator to manage activities and discuss longer term issues.

DEPARTMENTAL ORGANIZATIONAL MAP

Technology Coordinator

- Develop environment that creates shared vision and fosters collaboration among Technology teams
- Ensure effective collaboration with other Central Office departments for service delivery to schools
- Ensure effective operations of Technology department

Customer Services

Network Services

- Lead oversees customer service activities for the district, researches new customer service strategies, and advocates user support needs to Technology Coordinator.
- 1st Level support and primary communication with customers
- training
- phone and email response
- trouble ticket management
- dispatch techs as needed
- ad hoc reporting
- account management
- pre-purchase consulting
- quality assurance for customer feedback
- website support for Technology

- Lead provides project management for network and desktop support activities, researches new technologies, and advocates new solutions to Technology Coordinator.
- Network Support
 - Dispatched by Customer Services
 - Responsible for meeting network SLAs.
 - LAN, WAN, and Phones
 - Server Admin
 - Data mining
 - Automation and Script writing
 - Domain policies
 - Network security
 - Administration of applications such as web, VersaTrans, Follett, SQL.
 - Escalation of desktop issues related to network.
- Desktop Support
 - Techs dispatched by Customer Services
 - Responsible for meeting desktop SLAs.
 - Desktop support, installation, repair and inventory
 - Hardware/software
 - Desktop “architect”
 - Provide second level desktop support
 - Draft annual hardware and software standards for TOC review and adoption
 - Develop inventory status/replacement cycle information
 - Imaging desktops with standard software
 - Students
 - Teachers
 - Administrators
 - Classified staff
 - Escalate network problems to Network team

2. Develop differentiated job descriptions with:
 - a. Clearly defined skill levels, providing an incentive and upgrade path (e.g., desktop and customer service functions usually provide entry level positions, with more experience staff advancing to lead or Network positions).
 - b. Specialization of responsibilities, creating efficiencies.
 - i. While some specialization does exist for network support, job descriptions that have a defined skill set are important to help delineate workflow and reduce redundancies.
3. Adopt ratio staffing for determining the FTE required to adequately support the district.
 - a. A ratio of 1 support technician to 250 computers is minimal
 - b. Consider factors including: SLA time to resolution, desired impact of technology in instruction; skill levels of user community; and the age and variety of hardware and software. (See references for support staffing ratios and comparison to other districts.)
4. Determine level of support needed to meet future needs as the district moves forward with technology vision and initiatives.

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RECOMMENDATION # 4 – PROFESSIONAL DEVELOPMENT

A. Develop Consistent Staff Skill Base

In order for technology to be used to its fullest capacity, staff needs access to effective professional development. For teaching staff, training needs to cover technical skills and when necessary changing instructional practice to improve student academic achievement. All staff needs professional development for current applications. Whenever possible, training should be provided during the normal workday, but many staff are willing to use online training.

1. Create a prioritized list of applications and devices for which professional development is needed.
 - a. Based on goals and technology standards developed by the TOC
 - b. Focus resources on the highest priority topics first
2. Provide targeted professional development for building administrators to understand:
 - a. The district vision for instructional technology and how it applies to their building and community.
 - b. How to support teachers in implementing the vision through:
 - i. modeling effective use of technology
 - ii. annual goals and evaluation for teachers
 - iii. classroom observation
 - iv. support for professional development
3. Explore self-study online learning systems such as Element K (for general technical skills) and Atomic Learning (for classroom technologies). Many of these programs can have custom content to facilitate district-specific needs.
4. Develop or purchase print-based guides for commonly used software.
5. Provide peer-instruction and sharing opportunities through job-alike user groups developed and supported by the TOC.
6. Provide face-to-face professional development during paid time whenever possible. This is the most consistently cited concern by staff in all districts reviewed.
7. Implement a coordinated training program for technology staff.
 - a. Create an intentional professional development program
 - i. adequate knowledge and skills necessary to manage current technology infrastructure effectively
 - ii. on-going and future oriented
 - b. Encourage Technology staff to become certified in specialty areas adopted by the district and maintain knowledge levels in these specialties over time.

- c. Involve Technology staff in district-supported training programs, including certifications where appropriate.
 - i. in advance of implementing district initiatives (e.g. Educator Access, wireless, VPN).
 - ii. in greater technical depth than end user training.
- d. Provide Technology staff with training needed to perform account management in email, Skyward and Active Directory.

B. Keep Staff Skills Current

Once a consistent base of skills are in place for existing applications, long-range planning should reflect the need to support keeping staff skills current in the face of changing software, hardware and new professional expectations.

1. Work with Puget Sound ESD to explore
 - a. Use of customized face-to face and online workshops
 - b. Implementing The Coaching Initiative
 - i. to develop the skills of building-based instructional staff to support the district vision and plan
 - ii. coaching has been demonstrated to be an effective professional development model for technology integration
 - c. Use of a learning management systems such as Moodle to provide in-district professional development
2. Use PILOT system to inventory and monitor staff technology skills over time and to assess teacher technology integration in instruction. (See Recommendation #6).
3. Include funding for professional development when budgeting for new hardware or software purchases.
 - a. Federal guidelines for grants require that training costs represent a minimum of 25% of a total project's budget.

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RECOMMENDATION # 5 – APPLICATIONS

A. *Work with WSIPC and NWRDC to enhance usability of Skyward*

Currently, the district is following best practice by outsourcing several of its mission-critical applications, including Skyward. However, this results in a limited ability to customize the applications. The district is responsible for ensuring that any negative impact on end user productivity is minimized and must lobby for improving the end user experience.

1. Work with NWRDC/WSIPC to define all needed end user roles. End user permissions should not exceed those needed for job function.
2. Work with NWRDC/WSIPC to streamline the logon process, reducing the steps to as few as possible.
3. Provide end user training which addresses security and timeout provisions of Skyward. End users should understand the rationale behind these provisions and should know that the district will continue to lobby for improvement.

B. *Establish Core Applications to be used by staff*

Once a consistent infrastructure is in place, the TOC will identify core applications that will be used across the district and that staff will be expected to use.

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RECOMMENDATION # 6 – STUDENT-CENTERED LEARNING

A. Drive District Instructional Technology Goals by Instructional Goals

The use of technology in the classroom should be driven by instructional goals. The experience of students within a building and across the district should be consistent, so that skills learned in each grade scaffold greater skills and application in higher grades.

1. Authorize the Technology Coordinator to:
 - a. Provide targeted professional development for district and building administrators
 - i. to understand the district vision for technology
 - ii. how to support their staff in implementing the vision (see Recommendation #4).
 - b. Serve as Technology liaison with other departments.
 - c. Coordinate professional development programs as listed in Recommendation #4.
 2. Adopt the ISTE National Educational Technology Standards for teachers and administrators. The district can benchmark teacher and administrator NETS competencies through PILOT (<http://www.edtech.wednet.edu/pilot/index.cfm>).
 3. Adopt the Three-Tier model to establish a framework for a district expectation for technology integration (<http://www.k12.wa.us/EdTech/TechIntTiers.aspx>).
 - a. Create coherent expectations for classroom integration within buildings and across the district.
 - b. Driven by and aligned to instructional goals.
 4. Establish the Peer Coaching program to develop instructional technology leadership at each building (see Recommendation #4).
 5. Provide a mechanism for pioneering staff to try out “non-standard” technologies that may prove promising.
 - a. Standards can impede innovation, therefore a clear process should be in place that allows the opportunity for motivated teachers to pilot new technologies that may be unproven but hold potential.
 - b. This can be further enhanced through the use of an in-district mini-grant program to financially support path-finding activities. An example of this is the Vashon Island Partners in Education program. (For more information, see <http://www.vashonPIE.org>.)
 6. Develop a system for teachers to share resources and lessons learned through user groups and online systems.
 - a. A system for sharing materials and classroom-related technology tips will increase the productivity of the staff as well as provide recognition and validation to those who contribute.
 - b. This should be coordinated with the job-alike groups mentioned in Recommendation #4.
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