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ABSTRACT

This guide assists Minnesota school districts and libraries in technology planning by providing information for meeting the requirements for federal assistance through the Universal Service Fund E-rate program and gaining approval from the Minnesota Department of Children, Families & Learning. Fourteen technology plan criteria needing to be addressed for approval by the CFL are detailed. The following criteria are as follows: Executive leadership, organization, and partnerships; technology planning steering committee; overall organizational mission and technology vision statement; needs assessment to meet the technology vision statement; objectives for the use of technology to address needs; measurable benefits to stakeholders; policy and procedure development and revision; technology inventory; technology operations management requirements; technology support staff and skills; educational development and staff training; budget development and planning for funding; action plan; and evaluation and benefit analysis. Final comments address the submission of technology plans to the CFL, and provide a checklist for technology planning and a list of suggested Web resources that cover each of the guideline criteria. (GR)

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MINNESOTA DEPARTMENT OF

Children, Families & Learning

TECHNOLOGY PLANNING GUIDE

FOR MINNESOTA SCHOOL DISTRICTS, SCHOOLS AND PUBLIC LIBRARIES

Minnesota Department of Children, Families & Learning

September 2000

Available at:
http://cfl.state.mn.us

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Upon request, this information will be made available in an alternative format. TTY: (651) 582-8201.

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TECHNOLOGY PLANNING GUIDE FOR MINNESOTA SCHOOL DISTRICTS, SCHOOLS, AND PUBLIC LIBRARIES

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INTRODUCTION

The Minnesota Department of Children, Families & Learning (CFL) believes that technology planning is both beneficial and necessary to ensure best use of state and local technology resources, successful integration of technology with instruction and library practices, and integration of technology as a tool to assist students in achieving Minnesota's graduation standards.

Technology planning is also necessary for obtaining federal assistance for technology initiatives. The Federal Communications Commission (FCC) has established the Universal Service Fund E-rate (Education Rate) program for public and nonpublic schools and libraries. This program provides discounts of 20 to 90 percent on all commercially available telecommunications services, including Internet access, to schools and libraries. CFL considers technology plans as a factor in the award and distribution of federal Technology Literacy Challenge Fund (TLCF) grants.

One requirement for accessing the FCC's E-rates discounts is that schools and libraries have an approved technology plan in place. **Application for E-rate discounts to maximize state resources is also a requirement of public school districts who wish to receive funds from the Telecommunications Access Revenue Program (TARP), enacted by the Legislature in 2000. Libraries are also required to apply for E-rate discounts on services funded through the Regional Library Telecommunications Aid Program (RLTA), enacted by the Legislature in 1999.**

In order to assist school districts, nonpublic schools, and public libraries in meeting the requirements of the E-rate program and related state programs, and to conduct effective technology planning, CFL has worked with a number of stakeholders to establish technology planning criteria and an approval process. These criteria may need to be altered to address any changes made by the federal government related to the E-rate program or changes to state programs enacted by the Minnesota Legislature.

Schools and libraries with existing technology plans are not expected to recreate their entire planning process, but should use this "Technology Planning Guide" as a resource. Schools and libraries should review their technology plans against the criteria outlined in this guide and make modifications as needed to ensure that a good faith effort has been made to address **all 14** criteria within their plan. While schools and libraries need to develop three-year plans in conjunction with the E-rate application cycle, technology planning documents should be considered "living" or "fluid." Technology plans should be periodically reviewed and altered so that they are responsive to changes in the school or library environment and the technology industry. Technology plans should be based on defined objectives for the school or library organization using technology as a tool to support those basic objectives. Measurable benefits to be attained through the use of technology must be identified and are critical to successful implementation of the technology plan and effective evaluation of progress.

The "Technology Planning Guide" is available on-line at http://cfl.state.mn.us. The "Technology Planning Guide" incorporates references to technology planning information and resources from other organizations, including links (URLs) to sites on the World Wide Web. These contain information that will assist school districts and libraries in technology planning and will be periodically updated as new resources are discovered. While print copies will be made available to those who request them, CFL **strongly** recommends using the on-line version, which will be continually updated with additional resources.

E-RATE TECHNOLOGY PLANNING CRITERIA

The E-rate discount program was instituted by the Federal Communications Commission (FCC) in 1996 as one of several Universal Service telecommunications initiatives. The E-rate discount program is administered by the Universal Service Administrative Company (USAC), Schools & Libraries Division (SLD) on behalf of the FCC.

Schools and libraries may apply each year to receive discounts of 20-90 percent on telecommunications services. The discounts are based on participation of students in the federal Free and Reduced Price Lunch Program and whether the schools and libraries are located in an urban or rural location. (See http://www.sl.universalservice.org for details).

Public school districts are **required** by state law to apply for E-rate discounts in order to be eligible for the state Telecommunications Access Revenue Program (TARP). Public libraries are **required** to apply for E-rate discounts in order to be eligible for the state Regional Library Telecommunications Aid Program (RLTA).

Minnesota school districts, nonpublic schools, and public libraries are required to submit a three-year technology plan to the Department of Children, Families & Learning for approval in order to be eligible for E-rate discounts. The SLD has established the following five general criteria for technology planning:

1. The plan must establish clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services;
2. The plan must have a professional development strategy to ensure that staff know how to use these new technologies to improve education or library services;
3. The plan must include an assessment of the telecommunication services, hardware, software, and other services that will be needed to improve education or library services;
4. The plan must provide for a sufficient budget to acquire and support the non-discounted elements of the plan; the hardware, software, professional development, and other services that will be needed to implement the strategy; and
5. The plan must include an evaluation process that enables the school or library to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.

In response to this requirement, the CFL has worked with various stakeholders to develop and define 14 criteria for technology planning which incorporate SLD concepts, address state priorities, and provide a comprehensive approach for schools and public libraries in technology planning.

Schools and public libraries applying for E-rate discounts for telecommunications services expenditures will need to submit their technology plans to CFL. The plan must include the "Technology Planning Guide Checklist" which includes specific page references that clearly indicate where each of the essential technology planning criteria are addressed within the school or public library technology plan. CFL will use the technology plan checklist as a reference during the technology plan review and certification process.

RELATIONSHIP OF E-RATE TECHNOLOGY CRITERIA TO MINNESOTA'S "TECHNOLOGY PLANNING GUIDE"

The table below illustrates the relationship between the five criteria identified by the Schools & Libraries Division (SLD) of the Universal Service Administrative Company (USAC) for technology planning and the 14 criteria identified by CFL and its stakeholders for technology plan review and approval in Minnesota.

E-Rate Technology Planning Requirements	Applicable "Technology Planning Guide" Criteria
1. The plan must establish clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services;	(1) Executive Leadership, Organization, and Partnerships; (2) Technology Planning Steering Committee; (3) Overall Organizational Mission and Technology Vision Statement; (4) Needs Assessment to Meet the Technology Vision Statement; (5) Objectives for the Use of Technology and Addressing Needs; (6) Measurable Benefits to Stakeholders; (9) Technology Operations Management Requirements; (10) Technology Support Staff and Skills; (12) Budget Development and Planning for Funding; (13) Action Plan; and (14) Evaluation and Benefit Analysis.
2. The plan must have a professional development strategy to ensure that staff know how to use these new technologies to improve education or library services;	(10) Technology Support Staff and Skills; (11) Educational Development and Training for Users; (12) Budget Development and Planning for Funding; (13) Action Plan; and (14) Evaluation and Benefit Analysis.
3. The plan must include an assessment of the telecommunication services, hardware, software, and other services that will be needed to improve education or library services;	(4) Needs Assessment to Meet the Technology Vision Statement; (5) Objectives for the Use of Technology and Addressing Needs; (6) Measurable Benefits to Stakeholders; (8) Technology Inventory; (9) Technology Operations Management Requirements; (10) Technology Support Staff and Skills; (12) Budget Development and Planning for Funding; (13) Action Plan; and (14) Evaluation and Benefit Analysis.
4. The plan must provide for a sufficient budget to acquire and support the non-discounted elements of the plan; the hardware, software, professional development, and other services that will be needed to implement the strategy; and	(4) Needs Assessment to Meet the Technology Vision Statement; (8) Technology Inventory; (9) Technology Operations Management Requirements; (10) Technology Support Staff and Skills; (11) Educational Development and Training for Users; (12) Budget Development and Planning for Funding

E-Rate Technology Planning Requirements	Applicable "Technology Planning Guide" Criteria
5. The plan must include an evaluation process that enables the school or library to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.	(4) Needs Assessment to Meet the Technology Vision Statement; (5) Objectives for the Use of Technology and Addressing Needs; (6) Measurable Benefits to Stakeholders; (14) Evaluation and Benefit Analysis

OUTLINE OF THE TECHNOLOGY PLANNING GUIDE

1. Executive Leadership, Organization, and Partnerships
2. Technology Planning Steering Committee
3. Overall Organizational Mission and Technology Vision Statement
4. Needs Assessment to Meet the Technology Vision Statement
5. Objectives for the Use of Technology to Address Needs
6. Measurable Benefits to Stakeholders
7. Policy and Procedure Development and Revision
   - Equitable Access for Students and Library Customers with Exceptional Needs
   - Data Privacy/Data Security/Acceptable Use
   - Disaster Recovery Planning
8. Technology Inventory
9. Technology Operations Management Requirements
10. Technology Support Staff and Skills
11. Educational Development and Staff Training
12. Budget Development and Planning for Funding
13. Action Plan
14. Evaluation and Benefit Analysis

Checklist for Technology Planning.

Web Resources and Samples. The "Technology Planning Guide" includes planning resource material references and samples to assist school districts, charter schools, nonpublic schools, and public libraries in completing the technology planning process. These resources are included at the end of the document under the subject heading of the criterion to which they apply and will be continually updated on the on-line version of the "Technology Planning Guide" as more resources and exemplary samples are discovered.

TECHNOLOGY PLAN SUBMISSION AND APPROVAL PROCESS

CFL will be evaluating the technology plans submitted by Minnesota public school districts, nonpublic schools, charter schools, and public libraries. Plans will be reviewed against the 14 planning criteria outlined in the "Technology Planning Guide." Each school district, nonpublic school, charter school, and public library is expected to make a good faith effort to address **all** of the criteria; however, CFL does recognize that the level of effort involved may differ based on demographic factors, the scope of the organization, and operational practices.

For public school districts, CFL requests that a technology plan be submitted for the entire district. Charter schools should submit an individual technology plan for their school.

Nonpublic schools should submit individual plans, unless CFL is notified in advance that they will be submitted as part of a consortium, such as a diocese. For public libraries, plans may be submitted by a regional public library system if they follow SLD guidelines for applications by library consortia or by individual libraries. CFL Library Development and Services should be contacted for questions on the library consortia application process.

Many school districts, charter schools, nonpublic schools, and public libraries created technology plans within the last three years in response to the requirement by the federal government for a technology plan to qualify for E-rate discounts and Technology Literacy Challenge Fund (TLCF) Grants. It is strongly recommended that the previous plan be evaluated and used as a starting point for developing a revised technology plan which will encompass the next three-year period (2001-2004).

When submitting your technology plan, please complete and include the "Technology Planning Checklist" to ensure that all criteria have been addressed. Indicate clearly on which pages in your technology plan each criteria is addressed.

Please direct any questions to the following staff at the Department of Children, Families & Learning. The telephone numbers and e-mail addresses for the appropriate staff are included:

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EXECUTIVE SUMMARY

Each of the following criteria **must** be addressed in the technology plans in order to be approved by CFL.

1. Executive Leadership, Organization, and Partnerships

The scope of a technology plan should encompass both the organization level; i.e., school district or library administrative entity, and the building/site level; i.e., individual school or library outlet. The organization-level plan should identify the mission and vision of the entire organization and should address all of the remaining plan elements identified in the "Technology Planning Guide."

a) **Executive Leadership**. Identify an organization-wide sponsor or advocate such as a school district superintendent, principal, technology coordinator, or library administrator. This individual will provide organization-wide leadership and communication, as well as direct guidance for other technology staff at the building level.

b) **Organization**. Briefly describe the overall organization of the school district, school, or library system, the buildings or sites within the organization, and the size of student or library customer population served. Also include information on how technology is procured, organized, and managed within the school district or library outlet or system.

c) **Partnerships**. The technology plan should identify any relevant inter-organizational or community partnerships which involve technology. The technology planning process should ensure that input is solicited from partners who have a stake in the implementation of the technology plan by the organization.

2. Technology Planning Steering Committee

Create a technology planning steering committee which will be **actively** involved in technology planning and implementation strategy. This group should represent stakeholders, develop and recommend the technology plan for the organization, and oversee implementation of the action plan.

3. Overall Organizational Mission and Technology Vision Statement

Create the organizational (and/or individual building or site, if appropriate) mission and a corresponding vision statement which supports the organizational mission. The overall mission of the organization should be identified and agreed upon by the executive leadership with input from the Technology Planning Steering Committee. The mission statement of the organization should address the organization's purpose, served/targeted populations, products, and services. The technology vision should address the relevance and use of technology to accomplish the mission.

4. Needs Assessment to Meet the Technology Vision Statement

Assess and identify the needs of the organization and its stakeholders which will be addressed through the use of technology. Progress towards meeting needs identified in the previous technology plan should be evaluated. The needs assessment should relate the current status of the organization to what will be necessary to achieve the technology vision statement.

5. Objectives for the Use of Technology and Addressing Needs

The discussion and review process for these objectives should involve the Technology Planning Steering Committee and stakeholders. Again, progress towards objectives outlined in the previous technology plan should be assessed. Participation by the organization's administration, staff, and stakeholders in these discussions are essential to achieving "buy-in" and developing realistic objectives. The objectives should relate to the needs identified during the needs assessment process in **Criteria # 4, Needs Assessment to Meet the Technology Vision Statement**. Objectives should address the following concepts:

- Education/library service and re-engineering objectives to be accomplished. This may include new programs and services delivered, stakeholder service improvements in existing programs and services, improvement of communication with stakeholders, (such as use of the Internet), and process improvements from the perspective of students, teachers, school media center/library staff, administrators, and public library staff and customers.

- Technology integration program objectives. For schools, this includes appropriate and effective use of technology in classrooms and incorporation within curriculum, including graduation standards, as a supporting tool. For public libraries, this is likely to involve electronic access to reference materials and services and information services.

- Potential delivery of school or library services/information electronically, also known as Electronic Government Services (EGS) using the Internet and World Wide Web or other on-line delivery technologies. This includes development of school, public library, or community web sites, electronic communication with students or library customers, and distance learning opportunities.

- Technology performance objectives which may necessitate upgrading or replacing existing technology, deploying new technology, or improving the efficiency and effectiveness of existing technology.

6. Measurable Benefits to Stakeholders

Benefits to stakeholders from the use of technology should be identified as measurable outcomes or results. Measurable outcomes, benefits, and results are also critical in order to effectively evaluate progress toward implementing the goals and objectives of the technology plan. Define measurable outcomes that include:

- A brief description of the benchmarks;
- A baseline of the current position for the identified benefits; and
- A target future position for the identified benefit.

Evaluation of the measures identified in the previous technology plan can provide guidance and establish benchmarks for the new plan.

7. Policy and Procedure Development and Revision

a. Equitable Access for Students and Library Customers with Exceptional Needs
b. Data Privacy, Data Security, and Acceptable Use
c. Disaster Recovery Planning

Standard policies and procedures are a key to successful technology plan implementation. They establish the parameters and guidelines needed for resolving critical technology issues and reflect compliance with statutory, legal, and administrative requirements. For example, school districts and public libraries who receive state telecommunications funding are governed by statutory requirements relating to Internet access and use (See Appendix) enacted by the 2000 Legislature.

At a minimum, school districts and public libraries must develop policies and procedures for providing: equitable access for students and library customers, including state and federal requirements for equitable access and assistive or adaptive technology for students and library customers with exceptional needs; state data privacy; data security; acceptable use of the Internet requirements; and proactive disaster recovery planning. These policies may be a natural outgrowth of identifying the needs associated with the requirements in **Criteria # 9, Technology Operations Management Requirements**. Other policies and procedures related to the technology plan and use of technology may need to be developed based on the organizational environment and circumstances. Develop new or revise existing policies and procedures as needed.

8. Technology Inventory

The technology inventory should reflect the elements of the definition of technology adopted by the organization. Describe and list existing technology which encompasses hardware, instruments and equipment, software, networks, facilities, telecommunications capacity, and voice communications. Identify processors and operating systems, network operating systems, protocols and telecommunications links.

It may be helpful to develop technology schematics, or diagrams, which provide a graphical illustration of the organization's existing technology infrastructure and the links between geographic locations. Due to security concerns, submission of such schematics as part of the technology plan is not required; however, the development of schematics is encouraged as an effective planning exercise.

9. Technology Operations Management Requirements

Identify present and future technology operations requirements. The technology plan must address those requirements, which include elements such as security, life-cycle planning and replacement schedules, disaster recovery, technical and user support, hardware and software upgrades, and hardware and software maintenance contracts. Many of these items may also require the development of related policies for the organization. (See **Criteria #7, Policy and Procedure Development and Revision.**)

10. Technology Support Staff and Skills

The technology plan must address staff needs for the support of the technology infrastructure, including plans to acquire and maintain the necessary staff levels. Identify staff dedicated to the support of technology and the skills which these staff require in order to effectively develop and maintain technology for the school district or public library.

11. Educational Development and Training

Identify technology and training requirements needed for internal and external users. The technology plan should address solutions to provide professional development for internal users such as teachers, school media center/library staff, administrators and other school staff, public library staff, and for external users such as students, parents, and public library customers. The technology plan must also include staff development plans which ensure staff will have the knowledge needed to apply technology and improve the delivery of education and library services. Educational development and training plans for these individuals should also be related to the measurable benefits that are identified for all stakeholders.

12. Budget Development and Planning for Funding

Identify existing and potential technology funding sources, and create a budget summary of projected expenditures for technology. Include items such as hardware, instruments and equipment, software, consulting contracts, telecommunications, staff, training and staff development, supplies, and facilities.

The technology plan must also address strategies to monitor actual expenditures for technology and adjust budgets when necessary.

13. Action Plan

Create an action plan for technology implementation activities for the next three years. The Action Plan should include schedules and timelines, budget commitments, equipment to be purchased, public relations and communications strategies, tasks to be completed, milestones to be reached, staff assignments for each task, and time estimates for tasks.

14. Evaluation and Benefit Analysis

Evaluation and outcome measurement is an integral part of technology planning and is essential to the successful implementation of any technology plan. Progress should be measured annually, with a more complete analysis near the end of the three-year period of the technology plan. Doing the benefit analysis will assist in the initial phases of the following three-year period.

- The evaluation should include an analysis of the results of the previous three-year technology plan (if one existed) to measure the objectives reached, objectives not reached, and the benefits to end users reflected in the previous plan.
- The evaluation should include a method for reviewing, measuring, and reporting expenditures on a periodic basis.
- The evaluation should include a method to review, measure, revise, and report progress on the action plans on a periodic basis.

MINNESOTA SCHOOL DISTRICT, NONPUBLIC SCHOOL, AND PUBLIC LIBRARY TECHNOLOGY PLANNING CRITERIA

The following section includes a more comprehensive description and definition of each technology planning criterion. At the end of each criterion's description is very general guidance relating to what CFL reviewers will be looking for and considering as a "good faith effort" in each organization's technology plan. Approval of the technology plan by CFL will be based upon a good faith effort to address **all 14 criteria** in this "Technology Planning Guide."

1. Executive Leadership, Organization and Partnerships

Criteria:

a) Executive Leadership.

Identify an organization-wide sponsor or advocate such as a school district superintendent, principal, technology coordinator, or library administrator. This individual or group of individuals will provide organization-wide leadership and communication, as well as direct guidance for other technology staff at the building level.

b) Organization

Briefly describe the overall organization of the school district or library system, the buildings or sites within the organization, and the size of student or public library customer population served. Also include information on how technology is procured, organized and managed within the school district, school, or library system or outlet.

c) Partnerships

The technology plan should identify any relevant inter-organizational or community partnerships which involve technology. The technology planning process should ensure that input is solicited from identified partners who have a stake in the implementation of the technology plan by the organization.

Description and Further Definition:

Technology should be used to support curriculum development and delivery, learning activities, achievement of the Minnesota graduation standards, school district business processes, library administration, and public library programs and services made available to customers. Technology planning is critical to effective utilization, prioritization, and leverage of resources.

The exercise of technology planning assists an organization in the following ways:

- Clearly identifies school and library program objectives and corresponding technology priorities;
- Provides long-term direction for the integration of technology with instruction;
- Fosters partnerships and collaborations for both schools and libraries (for example, Technology and Information Education Services (TIES), colleges and universities, service cooperatives, technical schools, community programs, community groups, etc.).
- Provides and assists delivery of instruction;
- Provides library services and programs;
- Supports and improves management practices through data-driven decision-making;
- Supports Electronic Government Services (EGS) delivery through prioritized automation of district business functions and state reporting;
- Guides and improves effective daily use of technology in schools and libraries;
- Assists with the technology decision-making process;
- Reduces the risks related to technology purchase and implementation activities; and
- Assists school and library administrators in the daily business operations of schools and libraries.

The scope of a technology plan should include both the organization-level (i.e., school district or library administrative entity) and the building/site level (i.e., individual school or library outlet). The associated "Technology Planning Guide Checklist" contains the 14 criteria established by CFL for an effective technology plan. Most of these criteria are appropriate for both the organizational and building site levels.

The organization-level plan should identify the mission and vision of the entire organization and should contain all of the remaining plan elements listed in this checklist. The organization-level plan can be used as a guide for building/site level planning.

The building/site-level plan should include most of the same plan elements as the organization-level plan. They may exclude items such as steering committee and policy development in cases where schools are represented by a school district technology plan or a public library outlet by a system plan.

Note: Individual schools within public K-12 school districts may develop an individual technology plan; however, for purposes of the technology plan approval associated with the E-rates discount program, CFL will collect and approve only school district level plans. Charter schools and nonpublic schools will need to submit their own individual plan, except in cases where nonpublic schools are represented by a consortium organization and CFL has been notified that a consortium plan will be presented. Plans from both individual library sites and public library systems will be acceptable; however, libraries should consult with the CFL Library Development & Services for further guidance on this requirement. Questions on this can be directed to the appropriate CFL staff listed in the front of the guide.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Executive leadership has been identified.**
2. **The scope, target populations, stakeholders, and size of the organization is described.**
3. **Demographics on the area and population encompassed by the organization.**
4. **Clear descriptions of how decisions regarding technology procurement, organization, and management are made.**
5. **Partnerships between organizations are identified and the roles of the partners are clearly delineated.**

2. Technology Planning Steering Committee

Criteria: Establish a technology planning steering committee which will be **actively** involved in technology planning and implementation strategy. This group should represent stakeholders involved with the organization, develop and recommend the technology plan, and oversee the implementation of the action plan.

Description and Further Definition: The charge to provide leadership in the integration of technology by an organization lies within the structure of the Technology Planning Steering Committee. The committee should represent all groups (stakeholders) within and impacted by the organization. In school districts and schools, this includes students, parents, teachers (including special education teachers), support staff, key administrative staff, and community members. In public libraries, stakeholders include customers of all ages, librarians, local officials, funding entities, and administration. The inclusion of people/groups representing and impacted by the organization will build support and assist with achieving the organization's technology vision.

The responsibilities of the Technology Planning Steering Committee include:

- Providing input to the creation of the organizational mission statement;
- Providing input to the creation of the vision statement for the use of technology;
- Reviewing the previous technology plan, assessing progress made, and establishing the benchmarks for the development of the new plan;
- Providing input to the creation of a new technology plan for the organization to follow in developing strategies for integrating technology into all phases of the organizational environment;
- Overseeing the implementation of the technology plan; and
- Evaluating the progress of the plan, including annual reviews of the action plan, revisions as needed, and the final benefit analysis.

The first task of the Technology Planning Steering Committee is to set its own planning goals with input from all members of the committee. Included in these goals should be a timeline for the planning process and a public relations plan for reporting progress to the staff and administration. The committee should also establish where the organization is in terms of technology integration and where they want to go. Baseline data should be collected and reviewed. The planning process should be allotted ample time to get input from all the necessary stakeholders and sources. CFL recognizes that the time parameters affecting approval of technology plans in conjunction with the E-rate discount process are short and for some organizations this may impact the amount of time available to gain input from stakeholders.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Description of the Technology Planning Steering Committee membership and areas of representation.**
2. **Timelines/plans established for the Technology Planning Steering Committee to formulate the new technology plan.**
3. **Timelines/plans established for the Technology Planning Steering Committee to periodically review progress on the technology plan.**
4. **Description of processes, priority discussion items, and ongoing and future activities of the Technology Planning Steering Committee.**

3. Overall Organizational Mission and Technology Vision Statement

Criteria: Create the organizational (and individual building or site, if appropriate) mission and create a corresponding technology vision statement which supports the overall organizational mission. The organization's technology vision should be identified and agreed upon by the executive leadership with input from the Technology Planning Steering Committee. The mission statement of the organization should address the organization's purpose, served/targeted populations, products and services. The technology vision should address the relevance and use of technology to accomplish the mission. Participation by stakeholders in this process will assist in generating stakeholder buy-in to the technology planning process and implementation of the technology plan.

The technology plan should include the organization's definition and use of technology as it applies to management, instruction, services, and communications. Technology applications for management may include information management (classroom, school, district, library), business and operations, and infrastructure management. Technology is understood comprehensively to include purchases, leases, maintenance, training, and supporting supplies including:

- Telecommunications equipment, access, and capacity;
- Computers, printers, and related materials, interactive television equipment;
- Assistive and/or adaptive technology;
- Other equipment for instructional programs;
- Copying machines, facsimile machines, and other non-instructional equipment;

Description and Further Definition: A critical step in the planning process is establishing the mission for the organization and creating a vision for technology deployment which will improve the organization's ability to deliver service and programs. For schools, the mission generally speaks to teaching, learning and the educational process. For libraries, the mission relates to meeting the informational and lifelong learning needs of customers. Stakeholder agreement and understanding of the overall mission of the organization and how a cohesive vision of technology may be deployed to enhance the education process or improve delivery of library services is essential. Without it, there is little hope that technology will improve service delivery in either case. The technology plan should address and support the direction of the organization for the next three years.

The purpose of the technology vision statement is to provide a target or driver for the Technology Planning Steering Committee in making decisions during the planning process. The technology vision statement should be currently meaningful, but should also be ambitious and futuristic enough to encompass future change. The ultimate vision of how technology will be applied must realistically reflect the needs of the stakeholders served, the resources available, and the commitment and willingness of the staff and customers to use technology.

To guide the process of creating the vision, begin with the overall mission or purpose of the organization. The process of creating a vision begins with individual ideas and concludes with a

vision shared by the group. Begin the process by asking how the organization will look in three years (through at least the year 2004) if the vision is successful. The following questions might be helpful:

- What would an observer see in the school or library which indicates that students or library customers are actively engaged in the learning process and achieving set goals at high levels?
- How is the vision different from what is occurring now?
- What is the definition of technology in the organization?
- How can the application of technology improve the learning process or customer service?

Brainstorm answers to these and other questions. Allow each Technology Planning Steering Committee member to contribute ideas before drawing a group consensus. Edit and revise the statement until all members agree with the vision statement. It is important that all Committee members embrace the final version because this statement will be the driver for developing the rest of the plan.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Inclusion of the mission statement for the organization.**
2. **Inclusion of a corresponding technology vision statement that supports the mission of the organization.**

4. Needs Assessment to Meet the Technology Vision Statement

Criteria: A needs assessment should address all stakeholders and what they perceive to be the technology needs to achieve the organizational mission and the corresponding technology vision of the organization. The assessment should identify the needs which will be addressed through the use of technology. The needs assessment should address the current status of the organization in relationship to where the organization needs to go to achieve the technology vision statement.

Description and Further Definition: Research and experience indicate that implementing technology for technology's sake, or letting the technology drive learning and information management processes is not effective and will most likely reinforce the status quo. Technology should be planned and deployed to address specific needs of the student or library customer in support of the organization's vision. Technology should be planned and deployed to address the specific needs of all stakeholders in support of the organization.

Conducting a needs assessment is the process of identifying the present status and unmet needs in relation to the vision. The process should evaluate the whole program and include representatives of all stakeholders in the organization. Suggested areas for assessment may include:

Customers:

- Student and/or library customer technology skills, knowledge, and attitudes;
- Student and/or library customer ability to access, process, interpret, and present information;
- Student and/or library customer access to information services; and
- State and federal program administrators and policy-makers.

Staff:

- Technology support staffing;
- Staff technology skills, knowledge, and attitudes;
- Staff development programs relating to technology; and
- Technology support for staff responsible for school district and/or public library business functions.

Other Issues:

- Instructional delivery which integrates technology and promotes engaged learning;
- Information management and administrative applications (MARSS, STARS, UFARS, and other business functions associated with schools and/or libraries);
- Equipment needs;
- Software requirements;
- Facilities;

- Networking and telecommunication requirements;
- Cost effectiveness;
- Budget and funding resources; and
- Technology planning processes.

Obviously each school district, school, or library organization may have other areas which are identified for needs assessment.

Needs assessments may be conducted using surveys, interviews, focus groups, and inventories. The scope of the assessment activities may vary from inclusion of the entire organization population to representative samplings, depending on time and resources available. The final product of the needs assessment process is a realistic, prioritized picture of what stakeholders need to integrate technology and achieve the organization's technology vision .

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Summary of the needs identified and assessed by the organization.**
2. **Description of processes used in the needs assessment.**
3. **Comparison information from the needs assessment conducted as part of the previous plan (if one existed) with the current needs assessment.**
4. **Description of participant populations encompassed by the needs assessment; i.e., focus group members, numbers of staff, students, or library customers responding to surveys, and so forth.**

5. Objectives for the Use of Technology to Address Needs

Criteria: Using information gathered from the needs assessment (**Criteria #4, Needs Assessment to Meet the Technology Vision Statement**), create objectives related to the use of technology which include:

- Education and library service delivery and re-engineering objectives, such as new programs and services delivered, customer service improvements in existing programs and services, improvement of communication with stakeholders, and process improvements from the perspective of students, teachers, administrators, library staff, and library customers. Re-engineering is defined as improvement of the program management or processes, for example, collecting and maintaining student record information.

- Technology integration objectives for classrooms and curriculum, including support of the graduation standards, use of technology for tracking learning program outcomes, or use of technology in the delivery of reference and information resources and services for library customers.

- Technology performance objectives to be accomplished; such as upgrading or replacing existing technology, deploying new technology, or improving the efficiency and effectiveness of existing technology.

- Automation of school district, school, and library business functions.

- Potential delivery of services/information electronically, also known as Electronic Government Services (EGS) using the Internet and World Wide Web or other on-line delivery technologies.

- Other priorities identified by the school or library organization.

Using the mission statement, vision statement, (**Criteria #3, Overall Organizational Mission and Technology Vision Statement**) and needs assessment data (**Criteria #4, Needs Assessment to Meet the Technology Vision Statement**), and evaluation information from the previous technology plan, the Technology Planning Steering Committee will develop objectives and create benchmarks for implementing technology throughout the organization to achieve objectives identified through the needs assessment process. The discussion and review process that created the objectives will help generate support from the stakeholders to ensure final governing board approval.

Description and Further Definition: Technology should not drive decision-making. Rather, decisions should be made based on the learning and teaching needs of the student, the need to improve management of the school or library organization, or information access needs of library customers. Examples of objectives related to the use of technology would likely include:

- The improvement of student learning and expansion of learning opportunities through the use of technology to promote student achievement and assist students in meeting Minnesota Graduation Standards and national standards.
- The improvement of library customer access to reference and information resources and services.
- Definition of student, teacher, librarian, and staff skills, including administrative skills, relative to the use of technology.

The following are guiding questions for consideration in the development of technology-supported objectives. (Based on material developed by the North Central Regional Education Laboratory – NCREL.)

- How will technology be used to provide and support a challenging curriculum by engaging instructional practices?
- What educational technology skills will be a part of your curriculum, and how will teaching these skills to students and staff enhance and support your broader instructional goals?
- How will technology be used to support changes in the roles and responsibilities of students, teachers/staff, administrators, parents, community members, and public library customers?
- How will technology be used to support organizational and governance structures that are consistent with your vision statement?
- How will technology be used to support and provide meaningful professional development experiences for staff?
- How will technology be used to support your school's or library's accountability and assessment system?
- How will technology be used to support positive home to school or library to community collaborations and communication?
- How will technology be used to support the provision of comprehensive services?

Resources for implementing all aspects of the technology plan will probably not be available up front. Objectives will need to be assigned priorities to ensure that the most important or critical objectives are implemented first. Representatives of all stakeholders need to be involved in the process of setting priorities.

Electronic Government Services. Governor Ventura has made delivery of government services using technology, or Electronic Government Services (EGS) a priority for his administration and has incorporated it as part of his "Big Plan" for the state of Minnesota.

The ability to deliver information to customers and conduct business (electronic commerce) over the Internet is the centerpiece of the global information revolution. In the case of schools and libraries, customers can be defined as students, parents, staff, school board members, business people, legislators, state and local government, and other interested parties.

Because citizens are going on-line at a rapidly increasing rate, electronic commerce is global, national, and local in both scope and impact. Establishing effective policy for development is essential for both the Internet and on-line commerce to reach their full potential. This requires a partnership among all the individuals and groups who have an interest in the creation of technology policy within the state and does not lend itself to the traditional "top-down" model that provides solutions dictated by government to industry. The legal framework which supports commercial transactions on the Internet should be governed by consistent principles across state, national, and international boundaries that lead to predictable results regardless of the jurisdiction in which a particular buyer or seller resides. School registration, purchasing of school and library supplies, maintaining enrollment records, submitting school assignments, communications among various parties such as students, teachers, administrators of schools, library administrators and customers, and submitting and receiving information, including data from the state and local government, and internal communications can potentially all be conducted on-line. Such initiatives will increase school and library efficiency, provide for a comprehensive and coordinated information management system, and create avenues for citizen communication and participation with their government. Such initiatives will be deployed to increase service levels and speed up transactions throughout state government agencies, while permitting both government and business to maintain consistency in commercial transactions.

As part of the technology planning process, CFL requests that school districts, schools, and public libraries provide information about how EGS is used or will be used as a method to support schools and libraries. Organizations are asked to discuss constraints to electronic service delivery, challenges and risks in using EGS, and how the state, local, and/or federal government could provide schools and libraries with assistance in order to make this a better method. Please respond to the following questions in your technology plan:

1. Does your school district, school, or public library have a web page?
2. If so, how often is it updated?
3. Who is responsible for maintaining the web site; i.e., students, staff members, business partners, volunteers from the community?
4. Is the web page a stand-alone site or is it integrated with a community web site?
5. Who does your organization provide e-mail accounts to; i.e., students, staff, school or library board members, community partners, others?
6. Is the web site a preferred method for disseminating information to your community? What other methods are used? Is information sent out to school or library board members electronically?
7. Do you now purchase supplies electronically? If yes, briefly describe how this is accomplished. If no, does your organization have any plans to migrate towards this method?
8. Do you post staffing openings on your website?
9. Do you hold classes using interactive television?
10. Do you hold classes on-line using the Internet?
11. Can students submit assignments electronically?
12. Can students obtain assignment information electronically?

13. Can students or library customers pay fees over the Internet for school or library programs?
14. How can the state assist your school or library to facilitate this method of delivery? For example, could the state provide software, hardware, telecommunications capacity, or more technology-related financial assistance, etc?
15. Does your school district, school, or library report federal and state data electronically?
16. Is your school district, school, or library capable of receiving communication from the state and other governmental entities in an electronic format?

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Evidence of the relationship between the defined objectives for technology, the needs assessment, the mission of the organization, and the technology vision statement.**
2. **Clear descriptions of how technology will be deployed to improve stakeholder access to school or library services.**
3. **Descriptions of how technology will be deployed to improve the quality of school or library programs and services.**
4. **Descriptions of how data is used for decision-making.**
5. **For schools, emphasis on how technology will be integrated with classroom instruction to promote enhanced learning experiences and increase learning opportunities.**
6. **Descriptions of how technology will be deployed to improve management and operational practices.**
7. **Descriptions of how technology will be deployed to improve communication with stakeholders.**
8. **Definition of objectives for increasing the technology skill level of staff and end users.**
9. **Responses to the questions on EGS/plans for future EGS-related initiatives, automation of business processes, and state and federal reporting.**

6. Measurable Benefits to Stakeholders (Measurable Outcomes/Results from the Use of Technology)

Criteria: Benefits to the stakeholder from the use of technology should be identified as measurable outcomes or results. Measurable outcomes, benefits, and results are critical to an effective evaluation (**See Criteria #14, Evaluation and Benefit Analysis**) of progress towards implementing the school or library technology plan. Identify measures related to the use of technology which include:

- A brief description of measurable benefits.
- A baseline of the current position for the identified benefit.
- A target future position for the identified benefit.

Description and Further Definition: Identifying and measuring benefits helps to answer these questions:

- How does the technology help the organization serve customers/stakeholders better?
- How does the technology help you leverage resources (getting more bang for your buck)?

Benefits are:

- Outcomes and results which help the organization achieve its goals and objectives.
- Positive changes which affect the organization, its customers, or its employees.
- Improvements in how the organization can work towards fulfilling its mission, which would not otherwise be possible without the deployment of technology that produced the improvements.
- Evidence that the right tasks were done.
- Evidence that the technology deployed achieved desired results.

Examples of benefits include:

- Improved delivery of products and services (reduced time to accomplish tasks or transactions, greater efficiency, ability to offer new or better products and services, etc.).
- Improvements in financial condition; i.e., reduced cost or reallocation of monies to higher priority objectives.
- Improved ability to communicate or share information with others, including students, parents, customers, other districts, libraries, administrative staff, and state agencies.
- Improved services to citizens (more citizens served, faster service, more convenient for customers).
- Ability to use data effectively for decision-making; i.e., testing data for determining areas of program emphasis.

In addition to identifying benefits and measurements, benchmarks are also needed. Benchmarks help to measure the progress in achieving the benefits and provide a quantitative standard to measure improvements. A current position is identified and a future target position is stated. The benchmark data is monitored over time to document progress toward the target position. For example, how many more students are using the Internet? How many more library staff have developed Internet skills, or how many administrative staff use e-mail and calendaring systems to schedule meetings? The previous technology plan can be assessed to establish a starting point for benchmarks.

Examples of benchmarks include:

- Number of students receiving training in technology;
- Number of teachers receiving training in technology;
- Number of training courses conducted in technology;
- Number of students demonstrating proficiency in the use of technology;
- Number of students using technology tools to enhance learning, increase productivity, and promote creativity;
- Number of teachers able to use office productivity tools such as word processing, spreadsheets, data bases, and other software;
- Number of teachers that use computers and technology resources to deliver classroom activities;
- Number of school media center or public library staff receiving training in technology;
- Number of library staff able to use computer technology to locate on-line resources;
- Number of library staff able to use office productivity tools such as word processing, spreadsheets, and other software;
- Number of library staff able to use the Internet to navigate using browsing software, use search engines to locate and print desired information;
- Number of library customers using technology to obtain services; and
- Number of library customers receiving training in technology.

The Technology Planning Steering Committee should establish initial benchmarks for both the current status and targets for the future.

The following is a sample matrix for identifying objectives and associated benefits and benchmarks:

Area	Objective	Expected Benefit	Measurement Criteria/Benchmark	Current Benchmark Position	Future Benchmark Position
Schools	Increase student use of Internet	Students will access information for research and reports	Portfolio of student research reports listing Internet references	30% of students in X grade 50% of students in Y grade	60% of students in X grade 85% of students in Y grade
Schools	Increase teacher use of Internet	Teachers will use computers and the Internet to deliver classroom activities	Number of teachers using the Internet (per time period, such as a three-month sample).	40% of teachers....	75% of teachers
Library	Increase use of Internet by library staff	Library staff will use the Internet to conduct research, locate resources to assist patrons	Number of library staff using the Internet (per time period, such as a three month sample).	25% of current staff	60% of current staff
Library	Increase use of Internet by library customers	Customers will access information & on-line library resources on the Internet	Number of customers using the Internet (per time period, for example a one-month sample)	250 customers use the Internet in the sample month	400 customers use the Internet in the sample month
Admin	Increase productivity of administrative staff	Reduce the time for administrative staff to schedule meetings, distribute agendas and meeting minutes, thus providing time for other duties.	Number of staff using e-mail to accomplish those tasks, OR Number of meetings that are supported by e-mail for scheduling, agenda and minutes distribution Amount of time saved	4 out of 10 staff OR 25 out of 200 meetings Minutes or hours saved per time period	8 out of 10 OR 75 out of 200 meetings X minutes or X hours saved per time period
Admin	Improve delivery time and quality of documents and reports	Reduce the time for Admin staff to provide documents, reports etc. Improve quality of documents produced	Number of staff using PC productivity tools (could use levels of competence) OR Number of documents and reports produced using PC productivity tools Turnaround time for documents Quality improvements in format	5 out of 20 OR 50 documents out of 250 Minutes/hours/days to produce specific documents Specific formatting improvements needed	10 out of 20 OR 175 documents out of 250 X minutes/hours/days to produce specific documents Specific formatting improvements obtained

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WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Description of progress from previous technology plan benefits/outcomes and what target benchmarks were reached.**
2. **Clearly identified, measurable benefits for the deployment of technology within the organization.**
3. **Clearly identified current and future target benchmarks for the benefits.**
4. **Evaluation strategies for identified measurable benefits in the Evaluation and Benefit Analysis (Criteria #14, Evaluation and Benefit Analysis).**

7. Policy and Procedure Development and Revision

a. **Equitable Access for Students and Library Customers with Exceptional Needs**
b. **Data Privacy/Data Security/Acceptable Use**
c. **Disaster Recovery Planning**

Criteria: Standard policies and procedures are a key to successful technology implementation. They establish parameters and guidelines needed for resolving critical technology issues and reflect compliance with statutory, legal, and administrative requirements. For example, school districts and libraries who receive state telecommunications funding are governed by statutory requirements relating to Internet access and use enacted by the 2000 Legislature.

At a **minimum**, school districts and libraries should develop policies and procedures for providing: equitable access for students/customers, including state and federal requirements for equitable access and assistive or adaptive technology for students/customers with exceptional needs; data privacy; data security; acceptable use of the Internet; and proactive disaster recovery planning. Many policies and procedures may be natural outgrowths of identifying the requirements in **Criteria # 9, Technology Operations Management Requirements**. Other policies and procedures related to the technology plan and use of technology may need to be developed based on the organizational environment and circumstances. Develop new or revise existing policies and procedures as needed.

Examples of some technology-related policies are:

- Student use of the Internet;
- Security;
- Legal software;
- Copyright;
- Disaster recovery;
- Filtering;
- Purchasing;
- Advertising; and
- Web publishing.

Description and Further Definition:

a. Equitable Access for Students and Library Customers with Exceptional Needs

The Technology Planning Steering Committee needs to include provisions in the plan which provide equitable access to students/library customers, including those with exceptional needs. Universal access to both the physical setting and to computers capable of multi-sensory input and output should be considered in the plan, based on the organization's mission.

Information from the Center for Applied Special Technology (CAST) web site http://www.cast.org/ advises the following for schools:

> "Applying universal design to learning materials and activities can increase access for learners with wide disparities in their abilities to see, hear, speak, move, read, write, understand English, attend, organize, focus, engage, and remember. For example, history texts provided in standard print formats are inaccessible to students who are blind and present barriers to students who are dyslexic, or to students for whom English is a second language. The same material in universally designed electronic form can offer options for different learners: it can be read aloud by a computer or screen reader, printed on a Braille printer, offered in spoken or written translation, and/or presented with highlighted main points and organizational supports."

School districts need to ensure that the educational technology they purchase and use in their districts is accessible to all students, including students with disabilities. Purchasing and installing technology and the physical infrastructure to support it that is designed for equitable access is both responsive to students' needs and cost effective. Advance planning for equitable access can help avoid the waste of retrofitting systems that have not been designed to meet the accessibility and compatibility needs of all students.

There are several points during the planning and implementation process that are key to ensuring that educational technology is accessible:

- Planning. School district technology plans must address access issues to meet current and future needs of students with disabilities. It is imperative to include special education professionals on planning teams at both the district and individual school level. At all levels, the question should be asked how students with disabilities will be able to both access and use the technology.

- Purchasing. Accessibility should be a consideration when purchasing any educational technology: i.e., wiring, hardware, or software, for the school's instructional program. Schools need to determine if the technology they are considering is powerful and flexible enough to support accommodation needs.

- Support. Teachers need not only to be knowledgeable regarding technology accommodations, but also possess hands-on familiarity with assistive or adaptive technology. Schools that establish and maintain technology support services for teachers can boost adoption and integration of specific technology accommodations in classrooms.

b. Data Privacy, Data Security, and Acceptable Use

The areas of data privacy, data security, and acceptable use policies are interrelated. When developing these policies, school districts, schools, and public libraries should review the impact these policies will have on the other components prior to finalizing each individual policy.

Data Privacy:

Schools and libraries must develop and manage government data consistent with the public information policies and requirements of the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13, and the Family Educational Rights and Privacy Act (FERPA). This will ensure public access to government data, and the protection of rights of subjects of government data. The classification of data and issues of statutory compliance should begin during the early stages of the technology planning process. The effects of the data's classification and compliance with statutory requirements should continue through design, installation, maintenance, and retirement of the data.

Data Security:

It is the policy of the state of Minnesota to ensure the integrity of computerized information resources, protect them from unauthorized access, modification, destruction, or disclosure, and ensure the physical security of resources. Each organization shall ensure that formal procedures are established and documented in a written plan. The following elements should be addressed in that plan: party responsible for carrying out of the plan; organization security plan; user notification of and compliance requirements with the organization security policy and security plan; protection of computerized information; operating environment; physical environment; authorized software and hardware; access control and auditing, authentication; disaster recovery/backup and change management.

Acceptable Use:

The 2000 Legislature passed legislation requiring schools and libraries to take measures to restrict access to material that is "reasonably believed to be obscene or child pornography or material harmful to minors under federal or state law."

While the law promotes Internet filtering software as an option for providing such restriction, it does not require it of schools or libraries if the purchase of filtering technology would incur more than incidental expense for the organization making the purchase.

Any school district receiving state funds through the Telecommunications Access Revenue Program (TARP) or any public library receiving state funds through the Regional Library Telecommunications Aid (RLTA) Program must be in compliance with this law by taking some sort of measure to restrict access to questionable material. At a minimum, a school or library is encouraged to establish and enforce an acceptable use policy for students and/or customers.

c. Disaster Recovery Planning

Disaster recovery or business continuation planning is necessary to ensure that schools and libraries can survive disruptions in computer communications and processing. A disaster recovery or business continuation plan outlines the process of establishing strategies to

minimize the effects of outages and to ensure timely resumption of operations. The primary goal of business continuation planning is to reduce the risk of financial loss, including data loss, by improving the ability to recover and restore operations efficiently and effectively.

Developing a Disaster Recovery or Business Continuation Plan. The disaster recovery/business continuation planning process includes discussion of many activities and topics. The depth of investigation of these activities and topics in the plan can be adapted to the size and potential risks for the school district, school, or library. The process should include the following:

- Risk assessment. Evaluate potential threats, including natural, man-made, and technical threats. Assess consequences of loss of information and services, in financial terms, impact on operations, and legal and regulatory requirements. Analyze the costs associated with protective measures.
- Evaluate critical needs. Identify essential operations, staffing, information and vital records, computer-based processing, documentation, and procedures, etc.
- Set priorities for recovery of critical functions.
- Develop strategies for recovery of all essential functions, services, and capabilities.
- Secure written contracts/agreements for back-up services.
- Develop and organize a written plan with assigned responsibilities and documented strategies and procedures.
- Establish procedures for maintenance, revision, training, and testing of the plan.
- Submit plan and results to senior management for approval.

Because the underlying purpose of contingency planning is the resumption of operations, it is essential to consider the entire organization, not just data processing/technology services. Ideally, there should be an overall disaster recovery plan for the organization covering all organizational elements which identify essential services, provide alternatives for emergency operations, and assign responsibility for coordination.

Contents of the Disaster Recovery or Business Continuation Plan. A detailed and well-organized written plan must be developed to reflect the chosen strategies for operational resumption and to ensure prompt and proper reaction to service disruptions. The contents and depth of the plan can be adapted to the size and risks of the school district, school, or library. Items to be considered include:

- Assignment of individual and team responsibilities to expedite mobilization of personnel.
- Damage assessment and containment.
- Activation of short and long-term back-up plans.
- Access to data/technology back-up facilities.
- Recovery of critical systems and files.
- Notification to staff and stakeholders.

- Availability of alternative services.
- Restoration of primary data processing/information facility or movement to a new site.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Excerpts, outlines, or other documentation of policies in the areas of equitable access, data privacy, data security, acceptable use, and disaster recovery.**
2. **Excerpts, outlines, or other documentation of other technology-related policies developed by the school, school districts, nonpublic schools or public libraries.**
3. **Descriptions of plans and procedures for developing technology policy.**
4. **Descriptions of plans for periodic policy review and updates.**
5. **Descriptions of activities and procedures that evidence compliance with data security, data privacy, and acceptable use requirements outlined in Minnesota Statutes.**

8. Technology Inventory

Criteria: The technology inventory should include the elements that fall under the definition of technology adopted by your organization. Provide a detailed description of existing technology including hardware, instruments and equipment, telecommunications access and capacity, software, networks, facilities, and voice communications.

Description and Further Definition: The technology inventory should include the following types of technology:

- Computer workstations including base unit, monitor, keyboard and mouse;
- Assistive or adaptive technology;
- Processors, including network servers, storage and input/output capacity such as scanners and printers;
- Operating systems, security protocols, including virus protection software, and database management systems;
- Applications software for administration and instruction;
- Curriculum-related technology inventory;
- Wiring/cabling (voice, data, and video). Note: electrical load capacity must be in compliance with appropriate building/electrical codes;
- ITV equipment;
- Video equipment;
- Wireless technology;
- Routers, switches, hubs, bridges;
- Telecommunications capacity (protocols, bandwidth, speeds);
- Computer rooms, wiring closets (size, location, environmental conditions including security);
- PBX, central exchange; and
- Other technologies identified by the school or library.

A basic technology inventory might look something like this:

TYPE OF EQUIPMENT	DESCRIPTION OF USE	HOW MANY	REPLACEMENT CYCLE
ITV Codec	Provide classes via interactive television	2	3 years
PC Workstations	Computer Labs and classrooms – instructional support	28	3-5 years
PC Workstations	Administrative use	8	3 years
NT Servers	Processing administrative data; process graduation record-keeping data	5	5 years
LCD Panels	Classroom instruction	10	3 years
Etc…..			

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **A detailed inventory of the technology infrastructure in place in the school district, school, or public library.**
2. **Information on the telecommunications capacity of the school district, school, or library.**

9. Technology Operations Management Requirements

Criteria: Identify and describe present and future technology operations management requirements. The technology plan must include strategies and procedures for meeting those requirements, which include elements such as:

- Security;
- Life-Cycle Planning/Replacement Schedules;
- Disaster recovery;
- Technical and user support including help desk, as needed;
- Hardware and software upgrades; and
- Hardware and software maintenance contracts.

Identification of these requirements is also tied to **Criteria #7, Policy and Procedure Development and Revision**. Organizations will need to consider policy and procedures: for security, life-cycle planning, disaster recovery, and procurement.

Description and Further Definition:

General. These operational requirements should be in writing, hence the emphasis on policy development. Sometimes, activities such as security, support, and upgrades happen in organizations because of a need, a special project, or an individual. The development and implementation of these procedures should be part of the planning process, and maintained so that any knowledgeable person in the organization, or a consultant, can understand and implement these procedures.

Systems Development Life Cycle (SDLC). Most computer information systems are designed and constructed (or purchased) and implemented using a phased, systematic development process. In industry, this process is commonly called the Systems Development Life Cycle (SDLC). Over the past decade, the definition of SDLC has expanded to include not only the development of the system, but also on-going maintenance/enhancements, operations and eventual replacement. It is necessary to create and implement plans for the maintenance, operations, and replacement phases of the SDLC for each major application information system.

SDLC Glossary

Maintenance. Enhancements to a system that add features and functionality, either for the business or for the system.

Operations. Support of the system, on-line and batch processing, data base maintenance and storage, back-up/recovery capability, and security.

Replacement. The determination that the technology no longer meets the basic business or technical requirements.

Some questions to ask when creating an SDLC plan:

1. **Maintenance**. What types of school or library program changes can be expected, what enhancements will be needed to support those changes, how frequently, and in what magnitude?
2. **Operations**. What is the annual operating cost for the system? Staff? Physical facility? Hardware and software upgrades for processing, storage, and security?
3. **Technical Support**. How is technical support provided? Is it contracted?
4. **Replacement.** What criteria should be used to determine that the technology in place no longer meets operational needs or technical requirements? For example, the technology in place no longer handles new program practices (staff have been added to work around inadequacies) or the technology does not meet technical needs (system operating costs are escalating, outages are increasing, or hardware/software is obsolete and not supported by vendors).

Infrastructure Replacement Schedule. The computer industry is a rapidly changing industry. The expected useful life for computers and most other hardware and software is a maximum of three years. Therefore, it is necessary to maintain a schedule of constant replacement. Assuming a three-year life span, one third of the infrastructure hardware and software will need to be replaced each year.

The replacement schedule should be coordinated with industry or manufacturer new product introductions. For example, if a hardware manufacturer has announced an upcoming major technology upgrade, it may be prudent to synchronize the replacement schedule with the availability of the new technology—if the new technology is deemed necessary.

Why is the replacement schedule needed? The replacement schedule is needed in order to maintain technical feasibility, meet customer expectations for electronic services, and to avoid outages and breakdowns due to obsolescence. It also assists the school district, school, or library in planning for funding resources to replace technology in an organized and predictable fashion.

What is included in infrastructure?

- Desktop workstations, including the operating system;
- Servers, including the network operating system;
- Printers;
- Routers, switches, hubs, gateways, bridges;
- PC productivity software, including an integrated office suite, e-mail, calendaring and scheduling;
- Back-up hardware and software;
- Security hardware and software, including virus protection;

- Technical and staff training; and
- Installation costs.

For schools and libraries, it may be helpful to develop a planning continuum for infrastructure replacement in the technology plan that addresses life cycles for equipment associated with school or library functions. Certain functions, such as business education and general office use, would have about a three-year life cycle for the computers used to support those functions. Other functions might survive with a five-year cycle. These cycles can be determined in conjunction within the Technology Inventory **(see Criteria # 8, Technology Inventory)**, or within **Criteria 9, Technology Management Operations Requirements**. For an example of such a life-cycle continuum for equipment, see the Appendix.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Identification of operations management needs.**
2. **Evidence that the systems development life cycle, or variations of that concept, for any school or library management systems has been addressed.**
3. **Information that shows how the school or library provides for maintenance, operations, and technical support.**
4. **Detailed information on the school or library plans for infrastructure replacement in an organized, cycled fashion.**
5. **Evidence of policies and procedures relating to security, disaster recovery, procurement, and upgrades.**

10. Technology Support Staff and Skills

Criteria: Identify technology staff and the skills they need to develop and maintain technology for the school district or library. The technology plan must address strategies for acquiring and maintaining needed staff and skills.

Description and Further Definition: There is a total cost of ownership associated with technology that goes beyond equipment purchase. Technology requires support, and the technology support staff need a different kind of training and skill development path than the users in the organization. **Criteria #10, Technology Support Staff and Skills,** deals with planning for technology support staff. **Criteria #11, Educational Development and Staff Training,** addresses the training and skill development needs of the end users.

To adequately support an organization where members utilize technology at a high level, the support staff needs to be proficient in a number of technical areas such as:

- Security;
- Disaster recovery;
- Technical and user support including help desk, as needed;
- Hardware and software upgrades;
- Hardware and software maintenance contracts;
- Instructional support, curriculum integration, and coaching.

Specific job descriptions and development of staffing models are recommended.

The average end-user needs some familiarity with these topics, but does not need to be an expert.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **A reasonably detailed description of technology support staff needs, and how staff are dedicated for technology support throughout the school district, school, or public library.**
2. **Information on the types or levels of positions dedicated to technical support.**
3. **Strategies for providing professional development for these staff to maintain appropriate skill levels to serve the changing needs of the organization.**

11. Educational Development and Training

Criteria: Identify technology and training requirements needed for internal and external users. The technology plan must include ongoing professional development strategies for both internal users such as teachers, library staff, administrators, and other staff and external users such as students, parents, public library customers, and community members. This plan should also address measurable benefits identified for internal and external users (See **Criteria # 6, Measurable Benefits to Stakeholders**) associated with educational development and training and be periodically evaluated based on these measures for effectiveness (**See Criteria #15, Evaluation and Benefits Analysis**). Staff development plans must demonstrate that staff will have access to the training necessary to apply technology and improve the delivery of education and library services.

The success of the technology plan depends on the ability of all staff to implement the objectives. The needs assessment data and measurable benefits/outcomes will indicate the skills and knowledge needed by staff to be successful. The infusion of technology into every sphere of employment means a much greater demand on staff members to maintain technology literacy and associated skills. The staff will need time to experiment and to become comfortable with new job-related techniques and technologies. As members of organizations devoted to learning, school staff must be supported in their own learning process. They need to be confident that experimentation is encouraged. Schools and libraries also need to define educational development and training expectations for their staff.

Description and Further Definition: Purchasing hardware and software is only one step in technology implementation. To make effective use of technology, users need ongoing training and support to refine their skills and learn new applications. For schools, teachers need staff development opportunities that help them increase their abilities to integrate technology as a tool for instruction. For libraries, staff need professional development related to information management. In both cases, there is a tremendous need for staff training to demonstrate the potential of various technologies and for ongoing technical support to help staff identify and use particular technologies and applications that will serve their purposes. With the rapid pace of technological change and advancement, the flexibility for "just in time" learning for staff must also be a part of any educational development and training plan.

An educational or staff development plan will identify the skills and knowledge needed by staff members, including the strategies for building those skills. Consider the readiness of staff members to learn new skills and plan for appropriate activities. These might include:

- Building a knowledge base – School and library practitioners acquire new knowledge and information and build a conceptual understanding.
- Observing models and examples - Teachers study instructional examples in order to develop a practical understanding of the research. Librarians study information management and science principles to develop new skills relating to research and retrieval.
- Reflecting on practice - Learners analyze their instructional practice on the basis of new knowledge.

- Changing one's practice - New knowledge is translated into plans and actions for instructional change.
- Gaining and sharing expertise- Teachers and library staff continue to refine their instructional practice and share practical wisdom with their peers.
- Compliance with standards – Assessing staff development needs in conjunction with local, state, and national standards; i.e., state standards for licensure, and the International Society of Technology in Education (ISTE) Standards for teachers.

Other issues include time for training and practice, which conflict with employees' regular job duties. Incentives to participate in training during personal time may help to increase participation. Training is not just that which is provided by management; it is also a matter of individual initiative, exploration, and sharing with peers. Mentoring of less experienced staff by more experienced staff can also be built into the educational development scenario.

In a library setting, the mission is to provide information in the most efficient and economical format. Increasingly, information is available in an electronic format. It may be the best format, or it may be the only format. The public, however, may not be as universally familiar with electronic formats for information. The library must provide instruction for the public in how to find and evaluate the information, as well as how to use the equipment effectively.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Strategies for providing educational development for both staff and stakeholders in schools and libraries that are developed based on measurable benefits and clearly relate to the technologies to be deployed by the school or library during the course of the technology plan implementation.**
2. **Professional development plans for teachers that emphasize integration of technology as a tool for instruction.**
3. **Professional development plans for library staff which emphasize use of electronic tools for research, information retrieval, and management.**

12. Budget Development and Planning for Funding

Criteria: Identify existing and potential funding sources, and develop a budget summary of projected expenditures for implementing the technology plan.

Description and Further Definition: The following examples of budget items to be considered in the implementation of the technology plan include, but are not necessarily limited to:

- Hardware, instruments and equipment;
- Software;
- Hardware and software maintenance contracts;
- Consulting;
- Telecommunications;
- Instructional support (integration specialist or media specialist/generalist);
- Technical support, including staff;
- Educational development for technical support staff, school and library staff, and stakeholders, including costs associated with developing core skill sets, training incentives, and training stipends;
- Supplies (forms, disks, paper, toner, etc.);
- Furniture (workstation stands, chairs, etc.);
- Facilities (such as computer room, wiring closet, etc.); and
- Users (training costs, re-engineering costs, etc.).

The total cost of ownership associated with deploying technology goes beyond the purchase and maintenance of equipment. Consider the ongoing costs of staff development for both school and library technical support staff and the educational development of teachers, students, and library customers and ensure that these needs are budgeted adequately. Schools and libraries should also budget for regular or periodic replacement of equipment as needed.

The technology plan must also address plans to monitor technology expenditures.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **A summary budget for technology expenditures based on a three-year technology plan.**
2. **An adequate budget for educational development.**
3. **Evidence that the budget provides resources that will cover costs for items in the plan that are either not eligible for E-rate discounts or the non-discounted portion of E-rate eligible items.**
4. **Description of strategies for monitoring technology expenditures.**
5. **A budget that relates to the Action Plan (Criteria #13, Action Plan).**

13. Action Plan

Criteria: Create an action plan for technology implementation activities for the three years covered by the plan.

Description and Further Definition: The action plan for realizing the objectives of the technology plan should address the following:

- A schedule with starting and ending dates;
- A public relations plan for communicating activities and progress to the community;
- Budget commitment information that follows the scheduled time line;
- Equipment to be purchased and installed;
- Tasks to be completed;
- Milestones/benchmarks to be reached;
- Benefits to be achieved;
- Staff assignments for each task; and
- Time estimates prepared for each task.

For the purposes of submitting the technology plan to CFL, the action plan may be presented at a summary or general level. Schools and public libraries, however, should develop detailed action plans that are reviewed periodically to ensure responsibilities are effectively delegated to appropriate staff and that implementation of the overall objectives of the technology plan remain on track. Periodic review of progress on the action plan is a component of **Criteria #14, Evaluation and Benefit Analysis**.

Public Relations

Development of a public relations strategy as part of the technology plan is highly recommended. The Technology Planning Steering Committee will want to recognize work well done to the individuals and groups that are implementing the plan. Recognition may help to maintain long term commitment.

Communicating the progress to the stakeholders and the public is important in maintaining continued support for integration of technology throughout the district or library. Existing publications, and reporting methods, can be used to periodically communicate results and progress on the action plan on a periodic basis.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **A general action plan that addresses tasks, staff assignments, timelines, budget commitments, etc. and that encompasses the three-year period addressed by the technology plan.**

2. **Information on strategies for monitoring progress on the action plan throughout the cycle of the technology plan (this may be related to Criteria 14, Evaluation and Benefit Analysis).**

14. Evaluation and Benefit Analysis

Criteria: A **vital** component of the technology plan is evaluation of the effectiveness of the plan and assessment of progress in reaching technology plan objectives. The process should include both formative and summative evaluations relative to the measurement criteria in **Criteria # 6, Measurable Benefits to Stakeholders,** to report the progress of:

- New or improved services;
- Realization of benefits that accrue to the organization and stakeholders;
- Expenditures; and
- The action plan (**See Criteria #13, Action Plan**) and the quality improvement process.

School districts may want to combine this technology reporting with the required "Annual Report on Curriculum, Instruction and Student Performance," previously called the "PER Report."

CFL also recommends that school districts, schools, and public libraries include a review and evaluation of progress made on the previous technology plan as a part of the process for developing the new three-year plan.

Periodically, an analysis of the evaluation components should be conducted to determine if the assessment information is relevant and helpful to the organization.

Description and Further Definition: As the technology plan is implemented, an on-going or formative evaluation will ensure that the goals, objectives and action plan timelines are on schedule and realistic. The plan should be revised and improved as needed. This is a step in the continuous quality improvement process.

As implementation of the technology plan nears completion, a final or summative evaluation will determine if the objectives were accomplished and if not, why not. The formative evaluations conducted throughout the technology plan implementation will help in developing the summative evaluation.

The summative evaluation will be based on the answers to key questions and measurable benefits determined by the Technology Planning Steering Committee. The questions will be based on the evaluation or benchmark criteria.

The methods for gathering information for the evaluation will be related to those involved in the environmental analysis (i.e. needs analysis, inventories, etc.). A comparison of evaluation data to the original data will show the change which occurred through the implementation of the plan. The information from the evaluation will yield background information useful in beginning the continuous improvement process.

Evaluation strategies include:

- Reviewing progress made in achieving the objectives of the previous technology plan to determine a starting point for the next three-year cycle.
- Determining methods of evaluating the progress of the technology plan using the feedback from the groups responsible for implementation.
- Determining responsibility for conducting the formative evaluation.
- Determining methods for evaluating the final outcome of the technology plan goals and the target date for completion.
- Determining responsibility for conducting the summative evaluation.

WHAT CFL REVIEWERS WILL BE LOOKING FOR:

1. **Information on the evaluation of the previous technology plan (if one existed).**
2. **A strong, detailed evaluation scheme for the new technology plan that addresses strategies for ongoing formative evaluation and a final, summative evaluation.**
3. **Identification of measurable benefits/outcomes and benchmarks for progress.**
4. **Information on who is ultimately responsible for the evaluation.**

SUBMISSION OF TECHNOLOGY PLANS TO CFL

A completed Technology Plan Checklist MUST accompany the technology plan for school districts, charter schools, nonpublic schools, regional public library systems, and individual libraries.

SCHOOL DISTRICTS, CHARTER SCHOOLS, AND NONPUBLIC SCHOOLS

CFL will accept technology plans from school districts, charter schools, and nonpublic schools for review beginning **November 1, 2000** and will continue accepting plans through **March 1, 2001.** Plans may be submitted earlier than November 1 if they are ready. (These dates may need to be adjusted depending on E-rate timelines that have yet to be established by the Schools & Libraries Division.) Plans will be reviewed in the order received and notification of approval or disapproval will be sent. **Two (2) paper copies of the technology plan for school districts, nonpublic schools, and charter schools should be sent to: Mary Mehsikomer, Technology Partnerships – Information Technologies Division, Department of Children, Families & Learning, 1500 Highway 36 West , Roseville, Minnesota 55113**

CFL also requests that an electronic copy in a PC, Microsoft Word compatible format be e-mailed to: CFL.SCHOOLTECHPLAN@STATE.MN.US.

If providing the document in this format presents a significant hardship, please contact Mary Mehsikomer at (651) 582-8827.

PUBLIC LIBRARIES

CFL will accept technology plans from regional public library systems or individual libraries for review beginning **November 1, 2000** and will continue accepting plans through **February 1, 2001.** (These dates may need to be adjusted depending on E-rate timelines that have yet to be established by the Schools & Libraries Division.) Plans will be reviewed in the order received and notification of approval or disapproval will be sent. **Two (2) paper copies of the technology plan for regional public library systems or individual libraries should be submitted to: Nancy Walton, Library Development and Services, Department of Children, Families & Learning, 1500 Highway 36 West, Roseville, Minnesota 55113**

CFL also requests that an electronic copy in a PC, Microsoft Word compatible format be e-mailed to: CFL.LIBRARYTECHPLAN@STATE.MN.US.

If providing the document in this format presents a significant hardship, please contact Nancy Walton at (651) 582-8722.

CHECKLIST FOR TECHNOLOGY PLANNING

This checklist MUST be completed and accompany submission of your technology plan to CFL.

Organization Name: _____
(Name of school district, charter school, nonpublic school, regional public library system or individual library)

School District Number (if applicable): _____

CRITERIA	PAGE NUMBERS IN THE TECHNOLOGY PLAN WHERE EACH CRITERION IS ADDRESSED
1. Executive Leadership, Organization, and Partnerships	
2. Technology Planning Steering Committee	
3. Overall Organizational Mission and Technology Vision Statement	
4. Needs Assessment to Meet the Technology Vision Statement	
5. Objectives for the Use of Technology to Address Needs	
6. Measurable Benefits to Stakeholders	
7. Policy and Procedure Development and Revision	
8. Technology Inventory	
9. Technology Operations Management Requirements	
10. Technology Support Staff and Skills	
11. Educational Development and Staff Training	
12. Budget Development and Planning for Funding	
13. Action Plan	
14. Evaluation and Benefit Analysis	

Contact: _____
(Name of knowledgeable individual who can be contacted regarding this plan.)

Phone: _____

E-mail: _____

SAMPLES

TECHNOLOGY INVENTORY

Contributed by Patrick Plant, Anoka-Hennepin Public Schools

The district keeps a comprehensive inventory of its technology equipment. The inventory is reviewed annually to determine best-use policy for all equipment. Certain functions (like business education and general office use) for computers require a three-year life cycle; other functions can survive with a five-year cycle. These cycles are cross-referenced in our inventory as:

- M1 (MacIntosh Level 1): These are the newer computers, primarily one-year old technology, such as Mac G3s and G4s, as well as the iMac computers. These have a three to five year life cycle.
- M2 (MacIntosh Level 2): These computers, in use in our classrooms, are five to six year old technology. These models include all MacIntosh four-digit numbered (5200, 5400, 7200) computers. These computers need to be replaced for classroom use, but can have a useful life for a few more years in other curricular areas and office settings.
- M3 (MacIntosh Level 3): These computers are at least eight year old technology that is still being used in some classroom settings, and as office machines by some of our programs. These include three-digit model numbers, such as LC475, LCIII, and e-Mates, used primarily for teaching keyboarding, basic word processing, and MINIMAL Internet access.
- M4 (MacIntosh Level 4): These computers are at least ten year old technology and we are finding it hard to find useful applications for them. They are used for some keyboarding and basic word processing, with NO Internet access. They include LCs, IIsi, IIse, and classics.
- M5 (MacIntosh Level 5): These computers are the pre-MacIntosh computers, such as Apple IIgs, IIc, and Iie. They are being used for older, gs-based curriculum packages, such as older versions of *Oregon Trail*, and need to be replaced with newer technology.
- WI (Wintel Level 1): These computers are the newer Wintel computers with Pentium II and above processors.
- W3 (Wintel Level 3): These computers are used primarily in our media centers, and need to be replaced with newer technology. They have 040 and 030 processors (equivalent to a 486 machine).
- W4 (Wintel Level 4): These computers are at least 10 year old technology and, like the MacIntosh equivalent, their useful life is almost over. They are 286/386 machines.
- W5 (Wintel Level 5): These are the XT technology machines and have no real usefulness.

Other functions can be productive with even older equipment, like keyboarding labs that use computers just for teaching keyboarding skills, and walk-in labs that are used primarily for word processing functions. When determining best use of our computer equipment, we match functions with the computers that can do the job and reallocate computer use accordingly.

A sample summary of computer inventory is provided below:

BUILDING OR DEPARTMENT	MACHINE LEVEL	USE			TOTALS
		CURRICULUM DELIVERY	ADMINISTRATIVE	SPECIAL PROGRAM*	
Anoka High	M1	101	17	4	122
	M2	147	5		152
	M3	40			40
	M4	17			17
	M5				
	W1				
	W2	2	38	20	60
	W3	49		8	8
	W4	18	2	2	22
	W5				
Blaine High	M1				
	M2				
	M3				
	M4				
	M5				
	W1				
	W2				
	W3				
	W4				
	W5				
Secondary Totals	M1				
	M2				
	M3				
	M4				
	M5				
	W1				
	W2				
	W3				
	W4				
	W5				

Includes Special Education, Media Center, Video Studio, Community Education, etc.

SUGGESTED WEB RESOURCES

GENERAL

Resources for Guiding Questions for Technology Planning
http://www.ncrtec.org/capacity/guidewww/gqres.htm#3.1

The Minnesota Department of Children, Families & Learning
http://cfl.state.mn.us

Schools & Libraries Division (SLD) – E-Rates
http://www.sl.universalservice.org

1. **Executive Leadership, Organization, and Partnerships**

2. **Technology Planning Steering Committee**

   Technology Connections for School Improvement – Planner's Handbook and Teacher's Guide

   The Planner's Handbook
   http://www.ncrel.org/tplan/handbook.pdf

   The Teacher's Guide
   http://www.ncrel.org/tplan/guide.pdf

3. **Overall Organizational Mission and Technology Vision Statement**

4. **Needs Assessment to Meet the Technology Vision Statement**

   Minnesota e-Schools Program
   http://www.mneschools.org

   Self-Assessment Tool for Staff
   http://institute.sccoe.org/etc/DHS/index.html

5. **Objectives for the Use of Technology to Address Needs**

   The Learning with Technology Profile Tool
   http://www.ncrtec.org/capacity/profile/profile.htm

   The International Society for Technology in Education National Educational Technology Standards (NETS) and Performance Indicators for Teachers
   http://cnets.iste.org/teachstand.html

   Plano ISD Technology and Curriculum Integration
   http://k-12.pisd.edu/CurrInst/IC/techintg.html

6. **Measurable Benefits to Stakeholders**

7. **Policy and Procedure Development and Revision**

Center for Applied Technology
http://www.cast.org/

Integrating Concerns for Students with Disabilities with Technology Planning
http://www.resna.org/tap/aet_euge.htm

U.S. Department of Education "Tech Pack."
http://www.ed.gov/offices/OSERS/techpack.html

Basic Questions to Ask When Purchasing Technology
http://www.resna.org/tap/aet_bpqu.htm

Frequently Asked Questions About Access for Students with Disabilities
http://www.resna.org/tap/aet_sfaq.htm

Article on Technology Access for Students with Disabilities
http://www.resna.org/tap/aet_main.htm

Reference for Assistive Technology
http://www.closingthegap.org

Resource for Students with Learning Disabilities
http://www.ldonline.org

National Center to Improve Practice – effective use of technology to enhance outcomes for students with sensory, cognitive, physical, and social/emotional disabilities.
http://www2.edc.org/NCIP/

Resource on Universal Access for Technology Tools
http://www.cast.org/

Disaster Recovery – Standards and Guidelines for School-Based Systems
http://wwwits2.murdoch.edu.au/security/sg-DSOU.html

Computing & Networking Services – Disaster Recovery Planning
http://www.utoronto.ca/security/drp.htm

Kansas Department of Administration – Contingency Planning Outline
http://da.state.ks.us/disc/bcpoutline.htm

Components of a Successful LAN Disaster Recovery Plan
http://www.disaster-resource.com/articles/98px_7.htm

Soaring to Excellence – Disaster Recovery Plan
http://www.dupage.edu/soaring/disasterplan.html

Acceptable Use of Technology Resources – Anoka-Hennepin ISD #11
http://www.anoka.k12.mn.us/AHNet/schboard/AUP.Policy.html

Family Educational Rights and Privacy Act (FERPA)
http://nces.ed.gov/pubs/96859.html

Protecting the Privacy of Student Records – Guidelines for Education Agencies
National Center for Education Statistics, U.S. Department of Education
http://nces.ed.gov/pubs/96859.html

Internet Use in Schools and Public Libraries
http://cfl.state.mn.us/library/internet.html

8. Technology Inventory

9. Technology Operations Management Requirements

10. Technology Support Staff and Skills

The Technology Coordinator: Curriculum Leader or Electronic Janitor?
http://www.infotoday.com/MMSchools/may99/reilly.htm

11. Educational Development and Staff Training

National Staff Development Council Standards for Staff Development
http://www.nsdc.org/standards.htm

"To the Point – Pathways to School Improvement
http://www.ncrel.org/sdrs/thepoint/time.htm

12. Budget Development and Planning for Funding

Rule of Thumb Cost Estimates
http://www.ties.k12.mn.us/techplan/estimate22.html

13. Action Plan

14. Evaluation and Benefit Analysis

An Educators' Guide to Evaluating The Use of Technology in Schools and Classrooms – U.S. Department of Education
http://www.ed.gov/pubs/EdTechGuide/

STATUTORY REFERENCES

Telecommunications Access Revenue Program (TARP) – Laws of Minnesota 2000, Chapter 489, Article Article 4, Section 8 (M.S. 125B.25, Sections 8, 23, 28.)

Regional Library Telecommunications Aid (RLTA) - Laws of Minnesota 1999, Chapter 241, Article 8, Section 4, and Laws of 2000, Chapter 489, Article 8, Section 1, Subd. 4.

Internet Access for Students – Laws of Minnesota 2000, Chapter 489, Article 6, Section 25 (M.S. 125B.15)

Internet Access for Libraries – Laws of Minnesota 2000, Chapter 489, Article 6, Section 27 (M.S. 124.50)

Minnesota Data Practices Act – Minnesota Statutes, Chapter 13