Maine Department of Education

State Technology Plan

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Commissioner

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Goals 2000/TLCF

Maine Department of Education

State Technology Plan

A Picture of the Future

Maine is engaged in a ligning its public education system with its state standards, called *Learning Results*. Maine's state te chnolo gy plan des cribes how technology will be a primary tool in this alignment process . When the system is aligned to support the achievement of all students , we believe that it will have the following characteristics:

Each **student** will leave school with demonstrated skills as :

- A clear and effective communicator
- A self-directed and lifelong learner
- A creative and practical problem solver
- A responsible and involved citizen
- A collaborative and quality worker
- An integrative and informed thinker

Educators will:

- have the capacity to align curriculum, instruction and assessment with each other, with the state *Learning Results*, with the learning needs of each student, across grade spans, and throughout each school district .
- share a common understanding, and the corresponding application of related knowledge and skills by educators, of the best teaching and learning practices -- those which support the high achievement of all students .
- engage in continuous conversation about teaching and learning, share effective strategies, and teach and learn from each other .

At both the state and local levels the **system** will:

- have the capacity to collect, analyze, connect, communicate and use student achievement and other data from across the entire system to continuously set goals, evaluate progress, and make decisions at the state and local levels which support student learning .
- the structural flexibility to incorporate what works to increase the learning of each student and all students into the fabric of daily practice .
- be able to continu ously redirect resources and expertise across the entire public education system to support equal opportunit y for all students to achieve high standards.

The chart on the next page describes these conditions in more detail .

Students will be: (Maine's *Learning Results*)	In a learning environment designed to provide for: (best practices research)	In a district with: (Goals 2000/IASA self-assessment)	In a public education system which: (Goals 2000 State Plan)
1. Clear and effective communicators II. Self-directed and lifelong learners III. Creative and practical problem solvers IV. Responsible and involved citizens V. Collaborative and quality workers VI. Integrative and informed thinkers	-collaborative work, -creative communication and expression, -choice about approaches to and demonstration of learning, -access to multiple sources of information, -data collection and manipulation, -complex problem solving, -abundant opportunities to integrate knowledge and skills across disciplines, -flexibility to excel in areas of strength and to build new knowledge and skills. **and educators who** -have the capacity to align curriculum, instruction and assessment with each other, with the *Learning Results*, with the learning needs of each student, across grade spans, and throughout the district -flexibility to incorporate what works to increase the learning of each student and all students into the fabric of daily practice -engage in continuous conversation about teaching and learning, share effective strategies, and teach and learn from each other -have a common understanding of the best teaching and learning practices -- those which support the high achievement of all students -- and can routinely apply the related knowledge and skills	-a **school and community climate supportive of change** and flexibility in matching curriculum, instruction and assessment to student needs -student achievement and **student needs at the center** of practice and decision making **-curriculum, instruction and assessment aligned** with each other, with student needs and learning styles, with the *Learning Results* and across the district -a broad working definition of **professional development** which makes student learning the rationale for all training, development and discussion -a **picture of the future** which is shared by all staff and stakeholders -a decision making process which **aligns people, programs and resources** to support student learning	-has the structural flexibility to incorporate what works to increase the learning of each student and all students into the fabric of daily practice -has the capacity to collect, analyze, connect, communicate and use student achievement and other data from across the entire system to continuously set goals, evaluate progress, and make decisions at the state and local levels which support student learning -can continuously redirect resources and expertise across the entire public education system to support equal opportunity for all students to achieve high standards

Using Technology to Support a Standards-based System

Maine defines **technology** as current and emerging enabling electronic tools such as equipment, programs, communication, networks, and related systems that empower the learner or educator to access, manage, process, interpret, and communicate information. Technology use will be governed by these guiding ideas:

1. Technology is an essential tool for all Maine students to achieve the *Learning Results*, and as such, every student has equal access and opportunity to use it to support individual and district learning goals.
2. Technology planning is not just about equipment; it's about how and why people will use technology to make informed decisions to enhance student learning. Technology planning is dovetailed with all other school, district, and state planning.
3. The community plays an integral role in planning for and using technology to support learning.
4. Technology provides a means for sharing data and resources for making informed decisions to support quality teaching and learning.
5. Technology requires training to use it effectively and requires professional development to use it thoughtfully. Technology will always require support.
6. The evidence of effective use of technology is its integration into curriculum, instruction and assessment as a means to improve student performance.

Equity of access to technology is a primary consideration in implementation of the state's *Learning Results*. **Equity of access to technology** is defined as each student's ready access to technology which enables collaborative work, creative communication and expression, choice about approaches to and demonstration of learning, access to multiple sources of information, data collection and manipulation, complex problem solving, abundant opportunities to integrate knowledge and skills across disciplines, and which has the flexibility to help students excel in areas of strength and to build new knowledge and skills. Ensuring equity is the joint responsibility of state government and other state-level education and instructional technology organizations, each local community, school districts, and all educators. In a standards-based system, decisions about technology access and use are based on student learning needs. Technology is selected so that it:

- Connects students and educators to outside sources of information
- Is located in the places where students and teachers are learning most of the time, and conveniently accessible to individual students and teachers when they need it
- Provides for interaction among students and educators, within each school, each district, across the state and around the world
- Provides for the common collection, manipulation, and exchange of data by students working together, by teachers within grade spans and across the district and across the state
- Is transparent to all users, including adults (use does not require knowledge of how the hardware/software operates)
- Stimulates problem solving and further inquiry by students and educators

- Is of sufficient speed and capacity to make constant accessibility possible
- Is supported with technical helpers who understand both student learning goals, and the district's goals in helping students achieve the *Learning Results*
- Provides for random access, multiple points of entry, and different types and levels of information
- Provides tools that students can use creatively to express their ideas and to communicate effectively
- Enables educators to manage the large number of content standards and performance indicators, and links them to locally-developed curriculum, instruction and assessment

When decisions about technology selection and use are based on these student-centered criteria, the connections between technology and student achievement are easier to identify and to track. District decisions about technology must support these uses of technology to increase student achievement. The following are some of the practices and conditions which illustrate this level of district-wide support:

- Technology is used and continuously evaluated by a broad base of stakeholders in a variety of ways for program assessment and improvement
- Learning styles, needs of students and technologies have created diverse strategies in curriculum content and pacing
- Student exchange through the network is occurring continuously and is a natural part of the learning process
- Technology is fully implemented in the collection and analysis of data, student assessment and local implementation of the *Learning Results*
- Software to support aligned curriculum, instruction and assessment connected to the *Learning Results* is developed and shared throughout the district
- The hardware, facilities, network and software necessary to support *Learning Results* implementation for all students is in continual daily use.
- Time is provided to support professional development activities that encourage creativity, application and synthesis
- The district's vision is the basis for all decision making
- District inventories of people, programs and resources are used to find creative ways to make connections and to maximize technology to support student learning
- Training and technical support services come from within the district and the community
- The uses of staff time and local resources change continuously in response to changing student learning needs
- The district provides comprehensive support for facilities, hardware and their use by staff and community.
- The district has established a continuous cycle of data collection, cost analysis, and program and resource decision making based on them.

These are the "transforming" indicators from the three-part TLCF district self-assessment, which is the foundation for the state technology plan. **The purpose of the state's technology plan is to provide the state-level support necessary to create these conditions in every district.**

Context for Plan Development

Technology

Maine received its first Goals 2000 state grant in 1994. A task force, composed of educators, business leaders and state officials, used Goals 2000 funds to develop and disseminate the state's first technology plan in 1995. The plan was adopted by the State Board of Education and by the state's Goals 2000 panel. In October 1997 the Maine Department of Education consolidated its Goals 2000 and Technology Literacy Challenge Fund (TLCF) activities. Maine's progress in reaching the original technology plan goals was analyzed. We found that most of the technology infrastructure goals included in the first plan had been met, but that the state had just begun to address goals leading to technology integration. The complete progress report is included in Appendix A. The 1995 plan's goals were:

Goal 1. Technology will be used throughout the curriculum as a tool in the hands of learners in order to maximize their potential learning results.
Goal 2. Educators will be provided with the training, equipment, time, and ongoing support to enable them to use technology in their work.
Goal 3. All learners will be assured equitable access to technology, facilities, and training.
Goal 4. A technology infrastructure will be developed to identify minimum technical standards for building construction and/or renovation, equipment, support personnel, and system/network compatibility and interoperability.
Goal 5. State, district and school administrators will take leadership roles in bringing technology into Maine's education system.
Goal 6. Funding for technology and its application must be an essential priority at the state and local levels.
Goal 7. Local education agencies will be responsible for comprehensive technology planning.

The 1995 funding objectives were:

a. One contemporary workstation for every six Maine students (486 or better processor with adequate memory for multimedia applications).
b. One contemporary workstation for every teacher, administrator, and other education professional.
c. Adequate shared peripherals and special purpose equipment for each school.
d. School wide networks connecting every classroom and work area for voice, video, and data.
e. A wide-area network interconnecting all schools in each district.
f. A statewide telecommunications network accessible from every classroom and every work area in all schools with access to outside agencies and gateways to telecomputing resources such as the Internet.
g. Adequate training for all personnel.
h. Instructional, productivity, and administrative software.
I. Equipment and network maintenance.

The 1995 plan estimated the cost of infrastructure development at $210 million in state and local funds. The actual state level costs to meet the infrastructure funding objectives was $24 million. Maine accomplished the infrastructure goals with $826,000 in state funds to support district-level technology planning and training, $10 million from a Maine Public Utilities Commission ruling involving Bell Atlantic (with the potential of $10 million in additional support), and the passage of a $15 million bond issue to finance implementation of a statewide ATM (Asynchronous Transfer Mode) system.

The 1995 technology plan included goals to address technology as a tool to support teaching and learning. Progress has been made in reaching the teaching and learning goals in the 1995 plan, but most of the work in this area lies ahead. In 1995 the state's academic standards, were still in development, and there were few predictions about how they would subsequently change public education in Maine.

The Maine *Learning Results*

Maine has no state curriculum. The state's 1984 School Reform Act instituted or revised a number of minimum requirements, including graduation requirements and new certification standards, and instituted the state's first student assessment. In 1988 this assessment, called the Maine Educational Assessment (MEA), which is administered to all students in grades 4, 8 and 11, revealed a bi-modal distribution in scores at the eleventh grade level. College-bound students scored at the top, while non-college bound students scored at the bottom. In response, a state-level commission was convened to identify the knowledge and skills essential for all students before leaving school. In 1990 Maine's Common Core of Learning was completed. It was intended to be a tool for districts in developing local curriculum, instruction and assessment, but its use was not required.

In 1993 Maine's legislature enacted a statute which required the development of formal state standards based on the Common Core of Learning. In 1997 the development process was completed with enactment of a new state statute which requires implementation of the *Learning Results* in all districts by 2003. The entire text of the standards is now part of state law. The *Learning Results* are organized in three levels of increasing specificity. The most general level is that of the Guiding Principles, the characteristics and attributes all students should possess by the time they leave school (listed in the chart on page 3). The next, more specific level, describes content standards in eight areas: Career Preparation, English Language Arts, Health and Physical Education, Mathematics, Modern and Classical Languages, Science and Technology, Social Studies, and Visual and Performing Arts.

Technology standards are included in the descriptors of the Guiding Principles, in the science and technology content area, and are embedded throughout the other seven areas. Each standard is further described at four grade spans (pre-K-2, 3-4, 5-8, and secondary) with a set of performance indicators. Student achievement of the content standards and grade span performance indicators is designed to result in the knowledge, skills and attributes outlined in the Guiding Principles. Over 1000

standards and performance indicators are included in the *Learning Results* across all grade spans. (The complete text of the *Learning Results* and the associated state statutes are in Appendix B.)

The Maine Educational Assessment will be aligned with the *Learning Results* beginning in 1999. It will not, however, measure all of the *Learning Results* at all of the grade spans. Instead, the *Learning Results* statute describes the development of a comprehensive state and local assessment system, in which roughly 70% of student assessment to measure *Learning Results* achievement will take place at the local level.

The *Learning Results* formally define common results for all Maine students for the first time, but because of the early development of the state's Common Core of Learning, districts have been grappling with the implications of common standards since the beginning of the decade. The *Learning Results* development process included a large number of education stakeholders at both the state and local levels, and resulted in support for state standards by all of the state's education organizations (including the Maine Education Association) and by the business community. Much has been done by the Maine Department of Education and other state-level organizations to use existing resources to support local implementation of the Learning Results. State and local IASA program applications have been consolidated using the six self-assessment areas of the Goals 2000 grant application as the foundation for local planning. Goals 2000 grants to districts are called *Learning Results* Implementation Grants, and 120 of 188 districts currently receive Goals 2000 funding. The state legislature appropriated a per pupil fund allocation to support local professional development tied to student achievement of the *Learning Results*, and districts report on and apply for these funds with their Goals 2000 grant application.

Assessment of The Current Situation

The Assessment Framework

The heart of both the Goals 2000 *Learning Results* Implementation grant application and the consolidated IASA application is the six-part district-wide self-assessment. The six self-assessment components are listed in the third column on page 3. Each of the six components is a three-stage developmental continuum -- exploring, transitioning, and transforming. At each stage are descriptors which indicate prevailing practices normal to that state of development. Districts are required to collect evidence to document where they fall on each of the continua, and to develop action plans designed to move them forward. The purpose of the six-part self-assessment is not only to help districts see where they currently are, but also to clarify what the next steps might be. All districts have been involved in this process as part of their IASA applications since 1994. By 1997 this local process to use data to document progress toward common learning standards had become a familiar one in most districts.

Meanwhile, all districts have also received a state grant to develop a local technology plan, based on a 17 point checklist. The TLCF grant program federal regulations included a similar set of local technology plan components. E-Rate local plan requirements were also being disseminated. In January 1998 the Maine Department of Education (MDE) convened a group of local technology and curriculum coordinators, teachers, district administrators, and representatives from state-level technology related organizations to consolidate the three sets of local plan components. Our goal was to create one set of plan standards to use as the basis for a revised TLCF grant application. The group spontaneously elected to develop technology related descriptors to be added to the existing six-part Goals 2000/IASA district self-assessment, so that technology could be integrated into each district's *Learning Results* implementation plan.

Concerns that this consolidated planning approach was too great a change for districts all at once resulted in two documents which became the heart of the TLCF grant application. The first is a separate three-part local technology use self-assessment. The three self-assessment areas are: I. **Technology Integration**, II. **Adult Development and Involvement**, and III. **Resources**. The second is a consolidation of all of the existing requirements for local technology plans (Maine's original 17 components, TLCF statutory requirements, and E-Rate requirements). The consolidation of all of the existing local plan standards yielded ten new ones, each accompanied by a rudimentary rubric to describe evidence of compliance. The TLCF grant application was then revised so that districts used the three-part technology self-assessment to evaluate the current situation, and then used the ten plan standards and their rubrics to revise or write the local technology plan. Each of the ten standards is also related to one or more of the self-assessment areas, so much of the evidence required to document placement on the self-assessment also helped districts construct the plan. The ten local plan standards are organized in two parts -- plan components which relate to the current situation, and those which address it. The local technology plan criteria are listed on the next page.

Local Technology Plan Criteria

Needs Assessment/Description of the Current Situation

1. Statement of the community's vision for technology.

2. Community involvement in the planning process, which includes a planning team with broad based stakeholder representation and collaboration with adult literacy services.

3. Comprehensive inventory of existing technology-related resources, including hardware, software, networks, facilities, equity of access for educators, parents, students, maintenance, coordination, and financial resources from all sources, including E-Rate discounts.

4. A description of the economic status of the district, including free and reduced lunch rate.

5. Staff and stakeholder knowledge and competency necessary to support, use and integrate technology.

6. Integration of technology to support implementation of the Learning Results for all students.

Three-YearAction Plan

7. Goals or priorities for action identified by the stakeholder planning team through an analysis of the current situation described in items 1-6 above.

8. Steps, with timeline, to address the needs and opportunities identified through items 1-6 above.

9. Estimated costs to support each action step and possible financial support from all sources, including E-Rate discounts.

10. Plan to evaluate progress toward achieving the goals and a description of the measurable benefits to students, educators and other stakeholders.

State Self-Assessment Considerations

This new Maine state technology plan is based on two sets of indicators -- our *Learning Results* driven picture of the future (outlined on page 2) and an analysis of the current situation usin g the same three-part self-assessment required of local TLCF grant applicants. There are several benefits in using the TLCF three-part self-assessment to analyze the current situation. Doing so enables the state to examine technology use at both the state and local levels with the same lens. The self-assessment also cl arifies the purpose of the plan as a description of what will be done at the state level to move all districts to the "transforming" state of development.

There are also several difficulties in using this three-part technology assessment as a basis for state planning. The first is that compelling goals for technology use across the state must also be compelling goals in support of teaching and learning, and a separate technology self-assessment cannot reflect the complex interc onnections of technology and implementation of the state's *Learning Results*. However, these connections have not yet been fully identified at the state level or in all districts. Doing so is one of the primary purposes of this plan. A second difficulty is that while the self-assessment descriptors clarify some aspects of technology use , they lack the performance standards necessary to serve as a specific evaluation tool . This work has not yet been done and is also included in the action plan.

Another concern is that t he data used to compile this picture of the current situation is incomplete. **School district data is representative of the 82 districts (44% of all districts) which submitted TLCF grant applications on June 1, 1998.** Maine Department of Education internal information came from a document search and interviews with a small number of staff members. The fact that a complete picture of technology use is unavailable is in itself a valuable piece of information about current conditions. Other information which will complete the picture of the current situation will be collected during the first year of activity, and be used in evaluating progress and revising action steps.

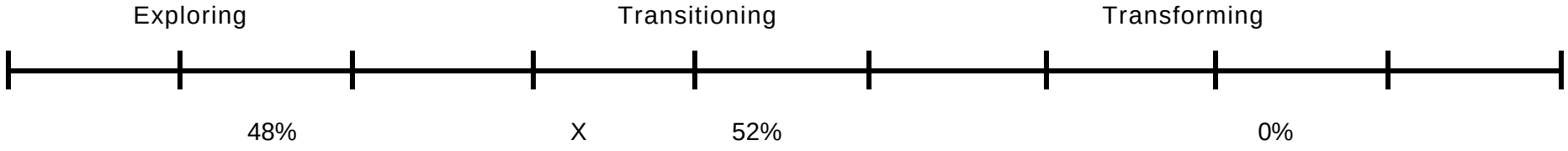
The following pages are a detailed assessment of the current status of technology use based on the information currently available.

Self-assessment Area I. Technology Integration

Indicators

EXPLORING	TRANSITIONING	TRANSFORMING
-Individual staff use technology to enhance instruction and student achievement -Student use of technology is limited to state definition of computer literacy -Schedule, location and/or functionality of equipment can act as limitations to access -Discussions occur about *Learning Results* and technology, but little action has been initiated -Hardware, facilities, network and software necessary to support curriculum, instruction and assessment is inconsistent across the district (mix of old and new) -Software to support curriculum, instruction and assessment is randomly purchased	-Technology is beginning to be used to provide essential opportunities and to create diverse ways for students to achieve *Learning Results* -Schools are networked and some student exchange is occurring -Technology is recognized as a central tool for collecting data, assessing and implementing *Learning Results* but its use is inconsistent across the district. -The hardware, software, facilities, and network are available to support *Learning Results* implementation through curriculum, instruction and assessment, including network capability (one per teaching area), plus laboratory and multi-media centers	-Technology is used and continuously evaluated by a broad base of stakeholders in a variety of ways for program assessment and improvement -Learning styles, needs of students and technologies have created diverse strategies in curriculum content and pacing -Student exchange through the network is occurring continuously and is a natural part of the learning process -Technology is fully implemented in the collection and analysis of data, student assessment and local implementation of the *Learning Results* -Software to support aligned curriculum, instruction and assessment connected to the *Learning Results* is developed and shared throughout the district -The hardware, facilities, network and software necessary to support *Learning Results* implementation for all students is in continual daily use.

Related local plan standards: 3 (comprehensive inventory); 6 (technology connections to *Learning Results* implementation)
Key: X = Maine Department of Education
%= Percentage of the 82 district sample which falls at each point.



Evidence to Support Self-assessment Area I

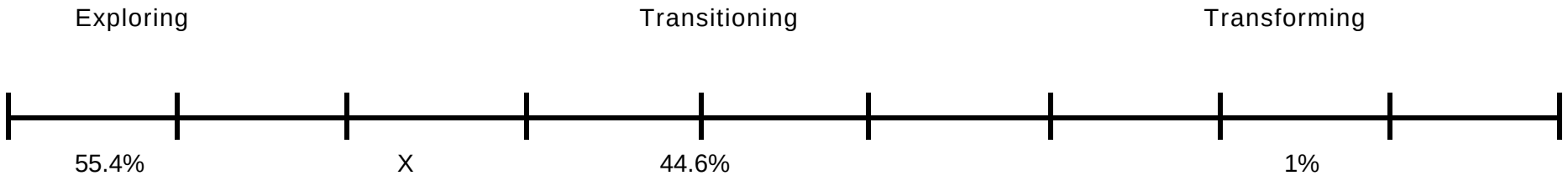
Department of Education	Districts (44% of all Districts)
-The department has successfully upgraded hardware, software, networks and facilities, and has equalized access for all staff. -Day-to-day technology use and support within the organization is informally coordinated, and training is routinely offered . -The organization has developed and disseminated information in the TLCF grant application to help districts begin to connect technology use and the *Learning Results*. -Some steps have been taken to use the web to disseminate information about *Learning Results* implementation. -Maine is a partner in NetTech, the Northeast Regional Technology in Education Consortium. -New local technology plan standards and the three self-assessment areas of the TLCF grant application provide a developmental picture of the major connections between technology use at the local level and the *Learning Results*. -The department's draft strategic plan includes both technology and *Learning Results* as high priorities, but does not connect them. -There are no written policies and procedures within the organization to guide how the department uses technology to support *Learning Results*. -The teacher certification is now an electronic system. -The Management Information System Team uses a mini-computer to store and analyze financial and staff data from school districts. -Some programs or internal teams in the organization collect and analyze school district data separately, using several kinds of spreadsheet software. -Some data is shared across programs. -The Maine Education Assessment program student and district data is provided by the testing company on a disk. This information is not part of the MIS Team's data collection and storage activities. -98% of district superintendents are connected to the department via e-mail.	-Most districts now have the hardware and software necessary to integrate technology into teaching and learning. However, some smaller, poorer districts still need necessary and appropriate hardware and software. -Acquisition of appropriate hardware is still a primary goal for 15% of these districts, and providing adequate software for student and teacher use is a goal for 12%. -Districts are providing varying levels of access to technology by educators and students: -- 53% provide a moderate to high level of access to technology by educators; -- 46% provide a moderate to high level of access for students; -Many provide no or low levels of access by parents and community members: -- 59% provide low levels of access to technology by parents; -- 62% provide low levels of access to technology by community members. -All of the districts in the sample currently use technology to support *Learning Results* implementation. The range of use varies widely and includes both student and teacher use. Some districts have developed technology standards to accompany each *Learning Results* content area. -It is still difficult for districts to manipulate and to link the *Learning Results* to their own curriculum, instruction and assessment work.

Self Assessment Area 1. Adult Development and Involvement

Indicators:

EXPLORING	TRANSITIONING	TRANSFORMING
-A few community members are involved; most citizens have little information -Professional development is provided in some areas but technical competency training is limited and rarely evaluated -Technology vision is one of many in the district	-Adult technology literacy is considered part of the district's planning and activity -Most community members know what is happening and why -Staff have ongoing training and support appropriate to their level of use and responsibility and are encouraged to expand knowledge and skills at increasingly higher levels -Vision for technology is explicitly aligned with district's vision for student achievement of *Learning Results* and is reviewed annually by stakeholders	-Time is provided to support professional development activities that encourage creativity, application and synthesis -The district's vision is the basis for all decision making

Related plan standards: 1 (vision); 2 (community involvement); 5 (professional development)



Evidence to support self-assessment area II: Adult Development and Involvement

Department of Education	Districts (44% of all Districts)
• Three technology vision statements exist. • The 1995 Goals 2000 technology plan task force included all major stakeholders. • Four technology groups currently have responsibility for some aspects of technology use in education. • The Deputy Commissioner coordinates all technology related activities. • Levels of staff knowledge and skills appropriate to job assignments are uncertain as a result of the internal training which has been provided. • The expected level of technology knowledge and skill required for individual employees is beginning to be embedded in written job descriptions, but state government personnel services still do not test the technology skills of prospective employees as part of the screening process.	• Five of the 82 local technology plans received on June 1, 1998 failed to meet this standard because key stakeholders were not included in planning. The remaining 77 districts in this sample have developed broad based stakeholder groups with a continuing interest in and responsibility for implementing the local technology plan. • During two-day technology planning training institutes led by the Department of Education in March 1998, the most frequently asked question about local plan implementation was how to involve community stakeholders more directly in sharing accountability and responsibility. The table below describes district professional development activities.

Current professional development activities in the sample districts are designed to train staff who:

Are unaware of concepts, skills, knowledge	Aware	Know steps and mechanics	Can do steps and mechanics	Use on the job	Are changing daily practice
2.6%	16.9%	37.7%	18.2%	22.1%	1%

Proposed level of professional development in 1998-99 school year:

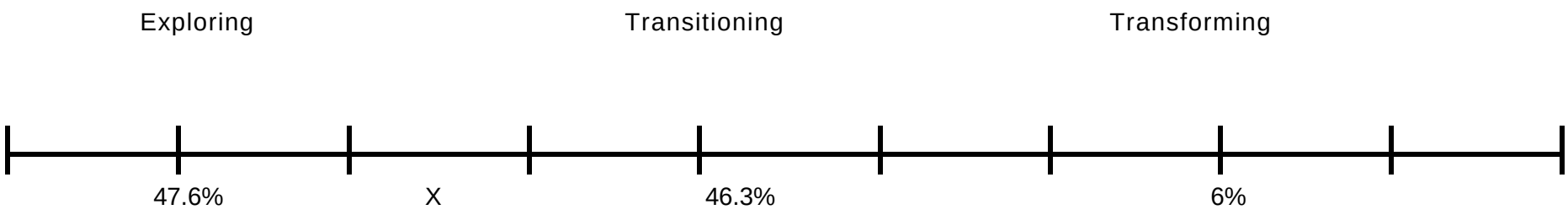
3.4%	11.4%	25%	31.8%	21.6%	6.8%

Self-Assessment III.Resources

Indicators

EXPLORING	TRANSITIONING	TRANSFORMING
-The district has inventoried existing people, programs and resources in support of technology use for all students.(software, hardware, capacity of educators to use technology, maintenance, ADA and IDEA compliance, equity of access, local economic need) -Decisions about resource allocation are not necessarily based on information about what all students need. -Some existing resources have been reallocated to support technology use and acquisition. -Staff, administrators and community members are unsure of how technology supports teaching and learning, and of their ability to acquire, maintain and coordinate the technology effort.	-Decisions about people, programs and resources to support technology are based on what all students need to achieve the *Learning Results.* -Resources and programs are periodically evaluated to identify and prioritize strengths and weaknesses and to continue planning and implementation. -The district and the community have a clear picture of how to connect people, programs and resources and can document progress in doing so.	-District inventories of people, programs and resources are used to find creative ways to make connections and to maximize technology to support student learning. -Training and technical support services come from within the district and the community. -The uses of staff time and local resources change continuously in response to changing student learning needs. -The district provides comprehensive support for facilities, hardware and their use by staff and community. -The district has established a continuous cycle of data collection, cost analysis, and program and resource decision making based on them.

Related local technology plan standards: 3 (coordination , resources); 4 (economic need)



Evidence to Support Self-assessment Area III

Department of Education	**Districts** (44% of all Districts)
• The Deputy Commissioner oversees all technology activities within the department • Five staff members are responsible for providing daily support for hardware and software, and the MDE's internal network use in addition to their other duties, and a statewide Help Desk is also available. One of these employees is also responsible for the technical aspects of updating, loading and linking to the web. • Three employees coordinate the E-Rate program, TLCF, and the ATM distance learning system respectively, and 1.75 employees have responsibility for generally supporting instructional technology in school districts. • Current resources include general fund expenditures to maintain and upgrade department hardware and software, individual program budgets and state appropriations to support department operating costs, a $15 million ATM bond issue, $106,000 in state-retained TLCF funds, and general operating costs for all federal programs which collect, analyze and distribute data required for federal reporting. • Technology Literacy Challenge Grant was awarded to the University of Southern Maine to support the Electronic Learning Marketplace, which will bring *Learning Results* based curriculum, instruction and assessment units to the web for the use of the state's educators. • Most state professional education organizations maintain web pages , as do roughly half of the state's school districts. • Maine citizens illustrated their support for technology use in public schools when they supported the passage of a $15 million bond issue to create the state's ATM system. • Much has been done by the Maine School and Library Network , the Maine Internet Education Consortium, and the state's association of technology coordinators to bring basic technology training to all Maine districts. • The Maine Math and Science Alliance provides a variety of technology-related services and support to districts.	• Financial information provided by the 82 districts in the sample indicates that 23% lack the capacity local capacity to support the achievement of the local plan over time without outside funding. An additional 31% have marginal ability to do so. Eleven per cent (11%) documented sufficient local resources to implement the plan without outside financial assistance. • all districts in the sample provide both maintenance and coordination but the range of roles and responsibilities of available personnel varies greatly from district to district. • All superintendents have re ady access to the Internet and to the e-mail network maintained by the University of Maine.

Self-Assessment Summary

Districts

Only 7% of the districts in the sample are at the transforming stage of development on any of the three continua. No districts can document full technology integration as described . Goals 2000 *Learning Results* Implementation grant documentation indicates that a handful of districts have developed local technology standards for students, embedding them in *Learning Results* based curriculum. Complete information is unavailable to fully document equity of access as it is defined on page 4 in this plan. State wide data about local technology avai lability has largely been collected for entire school districts , an approach which may mask student and teacher access in individual schools and within grade spans.

Equity of student access depends on the hardware, software and networks, but also on each educator's ability to employ it as a tool for learning. Two staff members from every district have been trained to support the use of the Internet by their colleagues, and most local staff have received some kind of basic training. Appropriate levels of use, however, have not yet been defined in most districts. Most advanced staff training takes place informally, with more experienced users helping their colleagues. While this is an effective professional development strategy for some individuals, it is also a frustrating and time-consuming method for others. Sixty per cent (60%) of the districts in the sample plan professional development activities during the 1998-99 school year to move staff beyond the steps and mechanics of software and hardware and into integrated classroom use.

All districts in the sample and approximately 70% of all districts have developed a local technology plan , but most are just beginning the complex task of learning about, connecting and coordinating technology use with teaching and learning. All districts in the sample have a district vision for technology, but only a handful have an overarching district vision which describes technology as a tool for teaching and learning. Economic need and community involvement data in local plans also indicates that a majority of the 82 districts are struggling with community support in either the short or the long term. Districts also report low levels of parent and community access to technology. In regional two-day technology planning retreats held in March 1998 by the Maine Department of Education, teams asked more questions about community and stakeholder involvement and access than about any other area of technology use.

Fifty-four per cent (54%) of the districts in the sample were judged by peer reviewers to require external financial support in order to implement all or most of the goals in their local technology plans. Only a few of the 82 districts were unable to document any local resource allocation to support current tec hnology. However, as performance standards for technology use are further defined, resources are likely to become a larger concern for all districts.

Local coordination of technology efforts, which is directly connected to local financial and community conditions, is problematic for most districts. Most Maine districts do not employ non-teaching staff who can accept additional responsibilities. Small, isolated districts often reported that a community member coordinated technology use and trained staff. Larger districts reported combinations of technology teacher/coordinators and classroom teacher/coordinators, as well as paraprofessionals, librarians, and district-wide technology coordinators. Many positions and responsibilities have been developed during just last few years.

The State Level

Maine lacks a shared vision which describes technology's role in aligning the public education system and as a tool to support *Learning Results* implementation. Stakeholder groups have been formed to advise or oversee various aspects of technology use in the Maine Department of Education and to plan services to school districts, but there is no one group with responsibility for the overall impact and continuous evaluation of technology use in Maine public education. Further, discussions about how technology is related to *Learning Results* implementation have been informal, and have not yet translated into organizational policies, procedures and priorities in MDE or other state organizations. Likewise, local districts, MDE and other state-level organizations collect information about technology use and about state and local conditions, but there is no central collection or access point for this information. MDE has a legislated responsibility to track and to report on state and local progress in implementing the *Learning Results*, but does not yet have the internal technical and staff capacity to do so. (1996 Coopers & Lybrand study)

The MDE has sufficient and appropriate technology to support some aspects of local implementation of the *Learning Results*, and it is beginning to do so. As an organization, it still struggles with integrating technology use into the daily work of its employees and their interactions with school districts. All department staff also have access to technology training, but levels of appropriate use have not been defined. The organization employs 3.75 staff with major responsibility for the support of school and library use of technology. Other staff have additional responsibilities which are either coequal or secondary to this function. Internal support for the staff's technology use is provided by a number of employees, none of which have this function as a primary job responsibility. The technical aspects of creating and maintaining web pages is managed by one employee, who also has other responsibilities, but there are no clear lines of responsibility for the coordination and management of web use.

A variety of statewide organizations and programs offer support to districts in using technology, and the Learning Results Steering Committee has recently adopted the guiding principles for technology use which are listed on page 4. Their Ad Hoc Technology Committee also developed a series of recommendations which have also been incorporated into the state technology plan.

Technology Goals

Systemic Conditions	Technology Goals
Each **student** will leave school with demonstrated skills as : A clear and effective communicator A self-directed and lifelong learner A creative and practical problem solver A responsible and involved citizen A collaborative and quality worker An integrative and informed thinker	Goal 1: Each student will have ready access to technology which supports the learning, application and demonstration of the Maine *Learning Results*. (National Goals 1-4)
Educators will: --have the capacity to align curriculum, instruction and assessment with each other, with the state *Learning Results*, with the learning needs of each student, across grade spans, and throughout each school district --share a common understanding, and the corresponding application of related knowledge and skills, of the best teaching and learning practices (those which support the high achievement of all students) --engage in continuous conversation about teaching and learning, share effective strategies, and teach and learn from each other	Goal 2: Educators will be fluent with technology and effectively use it to enhance teaching and learning. (National Goal 1)
At both the state and local levels the **system** will: --have the capacity to collect, analyze, connect, communicate and use student achievement and other data from across the entire system to continuously set goals, evaluate progress, and make decisions which support student learning --the structural flexibility to incorporate what works to increase the learning of each student and all students into the fabric of daily practice --be able to continuously redirect resources and expertise across the entire public education system to support equal opportunity for all students to achieve high standards	Goal 3: All levels of the public education system will have the capacity to track *Learning Results* implementation and the relationship of technology use and student achievement. (National Goal 4) Goal 4: Technology will be integrated into state and local consolidated plans to implement the *Learning Results*. (National Goal 4)

National Goal 1: All teachers will have the training and support they need to help all students learn through computers and the information superhighway.
National Goal 2: All teachers and students will have modern computers in their classrooms.
National Goal 3: Every classroom will be connected to the information superhighway
National Goal 4: Effective and engaging software and on-line resources will be an integral part of every school curriculum.

Benchmarks

Indicators of Success	Evaluation Measure/Method	Completion Date	Benchmarks
80% of Maine school districts will fall at the "transforming" level of development on all three technology-related self-assessment continua. The remaining districts will be in the "transitioning" stage	1. Data used to track Learning Results implementation will indicate a connection between technology use and student achievement. 2. Data collected annually by local districts to determine stages of development as reported by all districts to the Maine Department of Education	7/30/2002	7/30/99 -- 10% 7/30/00 -- 20% 7/30/01 -- 50% 7/30/02 -- 80%

Underlying Principles of Implementation

- Development of tools and strategies will always be conducted in partnership with school districts and state-level organizations. Some tools and strategies will be piloted before widespread use.
- Dissemination will always include two-way electronic communication, a parent and community component, and awareness levels of activities will be planned regionally across the state.
- State-level professional development activities are planned to move educators beyond awareness and basic skills and competancies to guided practice. All activities include follow-up and support to individual districts.
- Continuous evaluation will be an integral part of all activities. Progress will be monitored by the MDE's *Learning Results* and Instructional Technologies Teams, and by the *Learning Results* Steering Committee and the new Maine Educational Technology Advisory Committee .

1999 Action Steps

The first year of the plan builds the foundation for all subsequent work. Definitions, tools and data collection templates will be developed for dissemination, evaluation and full implementation in subseque nt years. The action plan describes this initial work in detail.

Goal 1: Each student will have ready access to technology which supports the learning, application and demonstration of the Guiding Principles and the content standards and performance indicators of the Maine Learning Results.

Data	Tools and Methods	Coordination/Leadership
1. Design and administer a school-by-school data collection tool, which matches the state's "equity of access" definition. to identify individual student access to technology 2. Collect current data about the use of technology in Goals 2000/TLCF grant sites to use technology to align curriculum, instruction and assessment.	1. Work with classroom teachers and school administrators to develop technology evaluation templates which match the "equity of access" and learning environment characteristics 2. Work with professional education organizations to develop model curriculum, instruction and assessment units which use technology to support student achievement of each of the Guiding Principles. 3. Collect and disseminate guidelines for installing networks and purchasing hardware which match best teaching and learning practices. 4. Develop a technology use mapping tool, to enable districts to connect existing technology use to student achievement of the *Learning Results.* 5. Develop a crosswalk which more clearly connects technology-related standards and performance indicators to the Guiding Principles.	1. Build on the current stakeholder involvement to create a clear vision for technology use in support of *Learning Results* implementation. 2. Identify the potential connections between the existing *Learning Results* related Personalized Opportunities to Learn (POTL) and Personalized Assessment Choices (PAC) student planning protocol and equity of student access to technology 3. Develop statewide benchmarks, clear local guidelines and a process to enable districts to plan how to address inequities in student access. 4. Design and lead a series of joint professional development opportunities for school district *Learning Results* and technology leaders to help them connect student achievement of the Learning Results and student use of technology. 5. Create an MDE Instructional Technology Team composed of staff with primary responsibility for coordinating internal technology use and providing support to districts in using technology to support *Learning Results* implementation.

1999 Action Steps (cont.)

Goal 2: Educators will be fluent with technology and effectively use it to enhance teaching and learning.

Data	Tools and Methods	Coordination/Leadership
1. Develop, and work with the Maine Education Association to administer, a data collection template to capture information about current educator fluency, effective classroom use, and equity of teacher access. 2. Analyze existing TLCF local plan data to more clearly identify current levels of use. 3. Collect existing data about effective professional development strategies for teachers from TLCF/Goals 2000 grant sites, and work with grant sites to develop a template for use with all districts.	1. Work with classroom teachers and technology coordinators to identify standards and performance indicators to describe "fluency" 2. Create a developmental continuum to describe "effective" teacher use of technology tied to the equity of student access definition and the *Learning Results.* 3. Develop equity of access and equal opportunity to learn guidelines for educators. 4. Engage the education community in reaching consensus on the best teaching and learning practices -- those which support the achievement of each student and all students.	1. Strengthen electronic communication links between MDE's *Learning Results* activities, individual district's activities and the classroom teachers who need to find, develop, discuss and share curriculum, instruction and assessment alignment strategies, by: a. Providing for internal MDE coordination of web page content and use; b. creating Listserves that connect Goals 2000/Learning Results Implementation grant contact people and TLCF grant contact people 2. Strengthen local technical knowledge, skills and expertise with a cadre of "circuit riders" to provide direct training and technical support to each district.

1999 Action Steps (cont.)

Goal 3: All levels of the public education system will have the capacity to track Learning Results implementation and the relationship of technology use and student achievement.

Data	Tools and Methods	Coordination/Leadership
1. MDE's hardware, software, staffing, and levels of staff knowledge and skills will be evaluated to determine its current and necessary capacity to collect, connect and communicate *Learning Results* implementation data. 2. The *Learning Results Steering* Committee will identify data already collected by MDE which bears on Learning Results Implementation within districts and across the state. 3. Work with school districts, state-level organizations, and the Maine Educational Assessment Advisory Committee to design a data collection and analysis process to track the student learning impact of technology.	1. Identify the uses of technology in the development, coordination and maintenance of the state and local comprehensive assessment system, including the work of the Comprehensive Assessment System Pilot Sites and the 1200 teachers participating in the Maine Assessment Portfolio Pilot (MAPP) piloting portfolio assessments in all eight areas of the *Learning Results*	1. Continue the Maine Educational Technology Advisory Committee to: a. advocate for the use of technology across the state consistent with the state's vision b. analyze baseline data collected in the first year of the implementation of the new state technology plan c. create partnerships with key education and technology organizations to marshal resources and expertise in support of the state technology plan. d. advise the MDE's Instructional Technology Team

Goal 4: Technology will be integrated into state and local consolidated plans to implement the Learning Results

Data	Tools and Methods	Coordination/Leadership
1. MDE will computerize all of the data included in local technology plans and TLCF grant applications.	1. The *Learning Results* Steering Committee will determine the format and contents of local *Learning Results* implementation plans.	1. MDE will design a consolidated district application (grants and per pupil allocations) and related reporting process to be based on a single district plan with annual electronic data collection and analysis.

2000 - 2002 Action Steps

Goal 1: Each student will have ready access to technology which supports the learning, application and demonstration of the Guiding Principles and the content standards and performance indicators of the Maine Learning Results.

	2000	2001	2002
Data	1. Use school-by-school equity data to evaluate statewide progress. 2. Add this tool to the data collection required to update local *Learning Results* Implementation plans. 3. Connect school-by-school equity data to the model profiles included in the Essential Programs and Services state subsidy formula. 4. Identify districts having the most difficulty in providing equitable access and provide on-site support.	1. Use school-by-school data to evaluate statewide progress. 2. Identify correlations between equity of access data and other school district conditions related to implementing the *Learning Results*. 3. Identify districts having the most difficulty in providing equitable access and provide on-site support.	1. Incorporate equity of access to technology and its connection to student achievement in the district criteria for intensive assistance required in the state's *Learning Results* legislation.
Tools and Methods	1. Use the ATM system and the existing regional partnership structures to help educators use the evaluation templates. 2. Publish teacher reviews of existing and emerging software on MDE's web page.	1. Use the ATM system and the existing regional partnership structures to help educators use the templates individually and in grade span groups. 2. Publish educator reviews of existing and emerging technology on MDE's web page.	1. Use the ATM system and the existing regional partnership structures to help educators use the templates individually and in grade span groups. 2. Publish reviews on MDE's web page.

	2000	2001	2002
Goal 1 Tools and Methods (cont.)	3. Disseminate model units through a series of electronic and regional professional development opportunities. 4. Incorporate technology use into the "planning backwards" *Learning Results* professional development process, and pilot 5. Incorporate the mapping tool in appropriate MDE Learning Results-related professional development activities. 6. Disseminate the mapping tool electronically and in regional settings. 7. Use the mapping tool in the existing POTL and PAC district pilot sites to plan for technology use by students with unique learning needs.	3. Disseminate units through a series of electronic and regional professional development opportunities. 4. Include teacher-developed "planning backwards" units which incorporate technology into the training materials 5. Collect and disseminate locally-developed model units. 6. Incorporate the mapping tool in appropriate MDE Learning Results-related professional development activities. 7. Disseminate the mapping tool electronically and in regional settings. 6. Connect POTL/PAC and technology use findings to the IDEA and IASA programs.	3. Disseminate units through a series of electronic and regional professional development opportunities. 4. Include teacher-developed "planning backwards" units which incorporate technology into the training materials. 5. Collect and disseminate locally-developed model units 6. Evaluate the system-wide impact of the mapping tool.
Coordination and Leadership	1. Disseminate the vision widely across the state. 2. Work with state business leaders to develop a public relations process to clarify the connections between student achievement and technology use in schools	1. Fully implement the public relations process.	

Goal 2: Educators will be fluent with technology and effectively use it to enhance teaching and learning.

	2000	2001	2002
Data	1. Use the data to make decisions about the design and content of MDE *Learning Results* planning and activity.	1. Collect data annually.	1. Collect data annually
Tools and Methods	1. Develop and lead professional development sessions to help district leaders connect professional development activities to the standards and guidelines. 2. Work with teacher preparation programs, the State Board of Education and local district recertification support teams to incorporate standards and guidelines into pre- and inservice requirements 3. Incorporate standards and guidelines into the *Learning Results* Implementation planning process. 4. Work with districts to identify professional development structures which develop fluency and connect it to effective classroom use.	1. Develop and lead professional development sessions to help district leaders connect professional development activities to the standards and guidelines. 2. Work with teacher preparation programs, the State Board of Education and local district recertification support teams to incorporate standards and guidelines into pre- and inservice requirements 3. Use *Learning Results* Implementation data to identify school district and state-level structures which support flexible learning environments for students and teachers. 4. Work with districts to identify professional development structures which develop fluency and connect it to effective classroom use.	1. Develop and lead professional development sessions to help district leaders connect professional development activities to the standards and guidelines. 2. Work with teacher preparation programs, the State Board of Education and local district recertification support teams to incorporate standards and guidelines into pre- and inservice requirements 3. Use Goals 2000/*Learning Results* Implementation data to identify school district and state-level structures which support flexible learning environments for students and teachers. 4. Work with districts to identify professional development structures which develop fluency and connect it to effective classroom use.

	2000	2001	2002
Goal 2 Tools and Methods (cont.)	5. Develop and disseminate a state and local evaluation tool to assess Learning Results-related professional development activities in light of the identified best practices. 6. Disseminate SEED units in a side-by-side format. 7.Schedule periodic ATM sessions to enable SEED unit developers to work face-to-face with the adopters of their units.	5. Develop and disseminate a state and local evaluation tool to assess Learning Results-related professional development activities in light of the identified best practices. 6. Disseminate SEED units in a side-by-side format. 7. Schedule periodic ATM sessions to enable SEED unit developers to work face-to-face with the adopters of their units.	5. Develop and disseminate a state and local evaluation tool to assess Learning Results-related professional development activities in light of the identified best practices. 6. Disseminate SEED units in a side-by-side format. 7. Schedule periodic ATM sessions to enable SEED unit developers to work face-to-face with the adopters of their units.

Goal 2 Coordination and Leadership	1. Continue to strengthen and maintain electronic communications links through: a. Special purpose/topic web page linkages to districts who are doing outstanding work in aligning curriculum, instruction and assessment b. Special purpose/topic whole-state conferencing capability. c. Special purpose/topic cross-district discussion and focus groups using the ATM system.	1. Continue to strengthen and maintain electronic communications links through: a. Special purpose/topic web page linkages to districts who are doing outstanding work in aligning curriculum, instruction and assessment b. Special purpose/topic whole-state conferencing capability. c. Special purpose/topic cross-district discussion and focus groups using the ATM system.	1. Continue to strengthen and maintain electronic communications links through: a. Special purpose/topic web page linkages to districts who are doing outstanding work in aligning curriculum, instruction and assessment b. Special purpose/topic whole-state conferencing capability. c. Special purpose/topic cross-district discussion and focus groups using the ATM system.

	2000	2001	2002
Goal 2 Coordination and Leadership (cont.)	2. Identify how technology can support adult learning which leads to each of the Guiding Principles. 3. Train all MDE staff with professional development and consultation responsibilities in the uses of technology to support adult learning and student achievement of the *Learning Results*. 4. Supplement MDE Instructional Technology Team staff with loaned Information Services professionals from at least one Maine business, and with released district technology coordinators and classroom teachers 5. Structurally connect this team with the MDE's *Learning Results* Team	2. Evaluate the classroom impact of MDE technology use as a strategy for adult learning and development. 3. Train all MDE staff with professional development and consultation responsibilities in the uses of technology to support adult learning and student achievement of the *Learning Results*. 4. Supplement MDE Instructional Technology Team staff with loaned Information Services professionals from at least one Maine business, and with released district technology coordinators and classroom teachers	2. Evaluate the classroom impact of MDE technology use as a strategy for adult learning and development. 3.Train all MDE staff with professional development and consultation responsibilities in the uses of technology to support adult learning and student achievement of the *Learning Results.* 4.Supplement MDE Instructional Technology Team staff with loaned Information Services professionals from at least one Maine business, and with released district technology coordinators and classroom teachers

Goal 3: All levels of the public education system will have the capacity to track Learning Results implementation and the relationship of technology use and student achievement.

	2000	2001	2002
Data	1. MDE will begin the process of developing an electronic state and local reporting process by: a. consolidating MEA student achievement data with district financial and competitive grant information into a common data warehouse b. developing and piloting a local-to-state-to-local reporting template (statewide implementation progress will be reported; districts can use the reporting template to download statewide and individual district data into a flexible format for presentation and analysis locally) 2. All MDE staff with primary responsibility for data collection and analysis will be trained.	1. Complete the development of the *Learning Results*data warehouse, using information from the previous year's pilot 2. Work with the University of Maine System to identify correlations between student achievement and other data. 3. Refine the reporting templates 4. Fully implement the tracking process in all Maine Districts	1. The *Learning Results* Steering Committee and the Educational Technology Advisory Committee jointly evaluate the tracking and reporting process. 2. Refine the reporting templates 3.Use data to evaluate state plan progress.
Tools and Methods	1. Design and lead a series of professional development opportunities to help districts use student achievement and other data in ways that extend thinking about teaching and learning. 2. Work with ELM to design the tools and methods necessary to share valid and reliable local student achievement information. 3. Work with the Comprehensive Assessment System (CAS) Pilot districts to use technology in the identified ways. 4. Begin appropriate use of technology in MAPP work and dissemination.	1. Work with ELM to implement the professional development and technical design in a geographic cross-section of districts. 2. Evaluate the use of technology in CAS Pilot Sites and jointly develop implementation tools. 3. Continue MAPP technology integration.	1. Implement the ELM professional development and technical design for all districts. 2. Disseminate CAS technology-related tools. 3. Continue MAPP technology integration.
Coordination and Leadership	Continue the work of the Educational Technology Advisory Committee.	Continue the work of the Educational Technology Advisory Committee .	Continue the work of the Educational Technology Advisory Committee.

Goal 4: Technology will be integrated into state and local consolidated plans to implement the Learning Results.

	2000	2001	2002
Coodination and Leadership	1. Districts with both a Goals 2000 *Learning Results* Implementation and a TLCF grant will pilot the consolidated planning, application and reporting process. 2. Professional development opportunities will be offered to enable local district design teams to manage the consolidated planning and application process.	District consolidated planning, tied to application and reporting, will be managed electronically, and be required of all districts.	The *Learning Results* Steering Committee will evaluate the effectiveness of the consolidated process

Funding Plan

Until Maine collects the school-by-school student equity of access information necessary to identify full funding levels the plan's budget is considered an estimate. Collecting this data, and developing clear funding and district support benchmarks are key 1999 action steps.

The state can reduce the amount of money needed in each year by generating services and support from Maine businesses. Partnerships between the department and a variety of other state-level groups will provide more hands and minds to do the work, but no additional funds. In seeking new revenue, the department has two primary sources -- the legislature and the Public Utilities Commission (PUC). The PUC is in the process of determining how the remaining $10,000,000 originally earmarked for technology use in schools and libraries will be used. The Joint Standing Committee on Educational and Cultural Affairs of the Maine legislature is supportive of the department's need for additional funding to support technology use in schools and within the organization. The Governor has set the ambitious goal of one computer for every four Maine students. A variety of state government initiatives also require a technology capacity which the MDE does not currently have. All of these promising avenues will be pursued in 1999.