



Certification of the Technology Plan Approval for Schools and Libraries Universal Service Program 2008-2011



The Commonwealth of the Northern Mariana Islands, Office of the Lieutenant Governor is certified by the Schools and Libraries Division to approve technology plans for participation in the Schools and Libraries Universal Service Program.

The Commonwealth of the Northern Mariana Islands, Public School System, entity number 159986 has a technology plan that has met the standards and criteria outlined in the following checklist.

CHECKLIST

Successful technology plans align the overall education or library service improvement objectives with the following five criteria. To qualify as an approved technology plan for a Universal Service Program discount, the plan must meet these criteria. It is critical that technology planning not be viewed as a separate exercise dealing primarily with hardware and telecommunications infrastructure. There must be connections between the proposed physical infrastructure of the information technology and the plan for professional development, curriculum reform, and library service improvements.

✓ The plan establishes clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services.

✓ The plan has a professional development strategy to ensure that staff knows how to use the new technologies to improve education of library services.

✓ The plan includes an assessment of the telecommunications services, hardware, software, and other services that will be needed to improve education or library services.

✓ The plan provides for a sufficient budget to acquire and maintain the hardware, software, professional development, and other services that will be needed to implement the strategy for improved education of library services.

✓ The plan includes an evaluation process that enables the school or library to monitor progress toward the specific goals and make mid-course corrections in response to new developments and opportunities as they arise.

Approved By:

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Date: 12/5/07

Commonwealth of Northern Mariana Islands

(CNMI)

State Board of Education

Public School System



Technology Plan

2008-2011

Commonwealth of Northern Mariana Islands (CNMI)
State Board of Education
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**Technology Plan
2008-2011**

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Executive Summary

Literacy in this century encompasses a broad spectrum of technology and critical thinking skills, as well as, the willingness to view the process of learning in new and different ways. Though learning still requires the skill of print literacy, much of the information we encounter now takes other forms, such as graphic materials, moving images, databases and web based HTML.

The person who is Information Technology literate, accesses information effectively and efficiently evaluates information critically and competently, and uses information accurately and creatively. How a person who is Information Technology literate acquires the knowledge and skills in the information age, is entirely different from the way in which a learner acquired skills and knowledge in the past.

The CNMI Public School System (PSS) recognizes that appropriate use of educational technology contributes to student information literacy. Three major influences make up the basis for this Technology plan. Their goals and purposes are what CNMI PSS is adopting for the PSS Technology purpose, goals, and standards. These are No Child Left Behind Act (NCLB), Title II, Part D technology section: School and Library Division (SLD); and the international Society for Technology Information (ISTE) National Educational Technology Standards for Students and Teachers.

The organization of the plan follows the five components of the SLD technology plan guidelines, plus a student component.

- 1. Goals, Objectives, and Benchmarks**
- 2. Technology Infrastructure**
- 3. Professional Development**
- 4. Student Technology Status**
- 5. Budget Considerations**
- 6. Assessment, and Evaluation**

The CNMI State Technology Plan will exist virtually on the PSS web site at www.pss.cnmi.mp and is subject to review and revision by the technology Plan Committee every six months. This document will remain dynamic and the readers input and reaction to this plan is encouraged. Any formal changes must be approved by the CNMI State Board of Education. Please Email comments or questions to coe@pss.cnmi.mp

Background Information

The Commonwealth of the Northern Mariana Islands (CNMI) is a United States jurisdiction consisting of fourteen tropical islands in Micronesia. In the 1970's, the CNMI opted to form closer ties with the U.S., becoming a Commonwealth and a permanent part of the U.S. as a result, the people of the CNMI are U.S., citizens. Being a Commonwealth gives the CNMI the same rights as the 50 states to receive U.S. DOE funds, including the NCLB program, and to receive E-Rate funding from the Schools and Libraries Division. Saipan is the largest and most populous of the Northern Mariana Islands chain. The other principal islands are Tinian and Rota. The CNMI has 11,299 students in 20 schools.

About the Public School System

The CNMI public school system consists of 20 school campuses in addition to Headstart Centers. Headstart student enrollment is at 462 across all center locations as of 9/2007. With 12 elementary schools, 3 Junior High and 4 Senior High schools, the CNMI hosts 11,299 students.

In Saipan, three new Secondary Schools were opened in year 2002-2003, beginning with Kagman High School in January 2002. In August 2002, Cha Cha Oceanview Junior High School and Saipan Southern High School started their first year of operation.

The following table is an enrollment summary for the Public School System as of 09/2007.

Elementary Schools Total	5706	Secondary Schools Total	5036
G.T. Camacho	237	Hopwood Jr. High	1106
Tanapag	237	ChaCha Oceanview Jr High	522
Garapan	838	Rota Jr, High	150
Kagman	645	Tinian Jr. High	99
San Vincente	766	Marianas High	1198
Dandan	455	Saipan Southern High	805
Oleai	521	Kagman High	766
W.S. Reyes	685	Rota High	169
San Antonio	333	Tinian High	221
Koblerville	463		
Sinapalo	231	Early Intervention Program	58
Tinian	295	Headstart	462
		Advanced Development Institute (ADI)	37
		Total CNMI Public Schools	11,299
		<u>Compiled: September 12, 2007</u>	
		<u>Source: PEDMS</u>	

Goals, Objectives, and Benchmarks for the CNMI PSS Educational Technology Plan

GOALS & OBJECTIVES

The Public School System in its efforts to provide quality public education, established its Strategic Priorities to guide its work in the implementation of its mandates.

1. High Student Performance

- Content performance standards
- Assessment standards
- Focus on learning and teaching
- Strengthening family support and involvement

2. Safe & Orderly Schools

- Crisis and Emergency management Systems
- Student and Personnel Code of Conduct
- Safe and Conducive learning environment

3. Quality Teachers, Administrators and Staff

- Teacher , Counselor, Administrator Performance Assessment
- Teacher , Counselor, Administrator Certification
- Non-Certified Personnel Performance Assessment
- Professional and Non-certified Staff Development

4. Efficient and Effective Operation (Organizational Effectiveness)

5. Seamless Operation of School and Central Office
6. Accountability System
7. Standard Operational Procedures
8. Communication Network
9. Organizational Network and Collaboration

Additionally, the Public School System has set forth strategies direction for the leadership team in its efforts to bring the effective use of technology into the system;

- Promote and support data collection systems to guide decision making, system wide.
- Align use of technology standards with the nationally recognized technology standards to ensure effective use of current technology in an ever-changing field and adaptability into the global arena.

The underlying goals of the PSS technology Plan are founded in improving student academic achievement through the use of technology in elementary and secondary schools, Headstart Centers and Special Programs, e.g., Early Childhood, Special Education, Bilingual Education. The additional goals and objectives of this part are updated as follows:

- 1. Every student is Technologically Literate and able to use a variety of technology to foster learning**
 - a. Equip all classrooms, labs, libraries, and offices with instructional technology, e.g., internet access, computers, grade appropriate software, for maximum student access by year 3.
 - b. Revise and update Technology content standards and benchmarks every 2 years to ensure continued alignment with national and ISTE standards.
 - c. Development and implement a comprehensive plan for implementing distance education in the secondary schools of the CNMI.
 - d. Develop a comprehensive student assessment instrument to assess all students technical literacy in core content areas and at selected benchmark grades incorporating norm referenced and criteria referenced exams.
 - e. Provide parent/community education in the use of technology through a computer based communication network, PSS Web-site, quarterly Parent Leadership Summits and school level activities, i.e., Parent-Teacher Association Meetings, Report Card Days and Open House Activities.

- 2. All teachers, administrators and support staff will receive adequate and quality support for the effective integration of technology resources and systems to promote high student achievement in conducive learning environments.**
 - a. Conduct continued school level in-service and state level professional development days in the effective integration of technology in the classroom according to the PD plan. Including on-line and off-island PD.
 - b. 24hrs of continued professional development training prior to the fall and spring semester on the effective integration of technology into the core content areas
 - c. 40 hours of annual in-service on methodology and other technological means of instructional delivery, e.g. Tegrity, Moodle, Teleconferencing, PowerPoint, conducted at the school level.
 - d. Continue scheduled teacher training during school breaks, i.e. Xmas, Spring, Summer and State Level professional Development days, on use of equipment and software tools useful in delivery of instructional media. i.e., MS Office applications, Teleconferencing equipment, Laptop and LCD equipment.
 - e. Innovative and best practices will be posted on PSS Website for additional teacher resources for integration of technology annually.

3. **Provide continued training on use of technology to school support staff, librarians, counselors and administrators to ensure efficient and effective school and personnel support for higher student learning.**
 - a. continue providing school level training and annual assessment data management seminar for school support staff, administrators, and counselors on the use of the PEDMS
 - b. continue scheduled training of support staff and program managers on use of QuickBooks, JD Edwards (financial management system) , webpage designs and updates, and other software's

4. **Conduct training for new teachers on effective teaching of standards, benchmarks, and indicators.**
 - a. provide 8 hrs standards based Academy at beginning of every semester for new teachers and retraining of PSS teachers
 - b. Provide a required 6 hour training of newly recruited teachers on the integration strategies of technology in content areas.

BENCHMARKS

- 1.) Ninety-five percent of 8th grade students will meet or exceed standards for technology literacy by 2013-2014

- 1) All students will be taught by Highly Qualified Teachers in core subject areas by 2008-2009

- 2) Ninety percent of teachers, administrators and support staff will be qualified to use technology for instruction by 2008-2009

- 3) By end of year 3, all administrators will be proficient in they collection of data be able to use data to drive decision making in ongoing efforts to improve respective school environments to maximize learning outcomes.

The Technology Plan is based on the:

- PSS State Board of Education-Approved Content and Performance Standards
- ISTE national Educational technology Standards

Additional direction for the PSS includes

No Child Left Behind: Educate America Act (NCLB) Public Law 103-227.

The following is a summary of these PL mandates, plans, and other directives, and how they impact the overall program goals for educational technology.

No Child Left Behind: Educate America Act (NCLB) Public Law 103-227 sets the direction for PSS programs, services, and assessment over the next three years. Focusing on stronger accountability for results and greater flexibility and local control, and an emphasis on programs that work, NCLB earmarked December 31, 2006, for states to ensure that technology will be fully integrated into the curricula and instruction of the schools” other NCLB technology related indicators include:

- Ninety-five percent of 8th grade students will meet or exceed standards for technology literacy by 2013-2014
- All students will be taught by Highly Qualified Teachers in core subject areas by 2008-2009
- Ninety percent of teachers, administrators and support staff will be qualified to use technology for instruction by 2008-2009

In addition, the PSS Technology Plan will address the following:

- To provide necessary technical support for full implementation of a comprehensive system that effectively uses technology in all schools to improve student academic achievement; *(Comprehensive System)*
- To provide quality professional development programs to all classroom teachers, teacher aides, administrators and instructional support staff the capacity to integrate technology effectively into curriculum and instruction that are aligned with the PSS academic content and standards; *(Professional Development)*
- To support the continued development and utilization of electronic networks and other innovative methods through the PSS; *(Network Infrastructure)*
- To support local efforts using technology to promote parent and community involvement; *(Partnerships)*

The PSS goals not only reflect the specified indicators relating to technology, but provide a framework to ensure that the applications align with and address system wide standards and accountability.

The Schools Library Division (SLD) provided the following purpose and goals for the PSS Technology Plan:

Purposes:

1. To provide assistance for the implementation and support of a comprehensive system that effectively uses technology in elementary school and secondary schools to improve student learning
2. To encourage the establishment or expansion of initiatives, including initiatives involving public-private partnerships, designed to increase access to technology, particularly in schools served by high need local educational agencies
3. To assist in the acquisition, development, interconnection, implementation, improvement, and maintenance of an effective educational technology infrastructure in a manner that expands access to technology for students (particularly for disadvantaged students) and teachers.
4. To promote initiatives which provide school teachers, principals and administrators with the capacity to integrate technology effectively into curricula and instruction that are aligned with challenging the PSS academic content and student academic achievement standards, through such means as high quality professional development programs.
5. To enhance the ongoing professional development of teachers, principals, and administrators by providing constant access to training and updated research in teaching and learning through electronic means.
6. To support the development and utilization of electronic networks and other innovative methods such as distance learning, of delivering specialized or rigorous academic courses and curricula for students in areas that would not otherwise have access to such course and curricula, particularly in geographically isolated regions.
7. To support the rigorous evaluation of programs funded under this part, particularly regarding the impact of such programs on student academic achievement and ensure that timely information on the results of such evaluations is widely accessible through electronic means.
8. To support local efforts using technology to promote parent and family involvement in education and communication among students, parents, teachers, principals, and administrators.

GOALS

The primary goal of the Technology Plan is to improve student academic achievement through the use of technology in elementary schools and secondary schools. The additional goals of this part are the following:

1. To assist every student in crossing the digital divide by ensuring that every student is technology literate by the time the student finishes the 8th grade, regardless of the students race, ethnicity, gender, family income, geographic location, or disability.

2. To encourage the effective integration of technology resources and systems with teacher training and curriculum development to establish research based instructional methods that can be widely implemented as best practices by all schools and the central office.

Technology Education Program Standards and Benchmarks

DEFINITIONS

Standard:

A description of what students should know and be able to do at the highest level of generality, e.g. concept.

Benchmark:

A translation of a standard into what students should know and be able to do at developmentally appropriate levels (grades K-2, 3-5, 6-8, and 9-12).

Content Standard:

A description of what students should know and be able to do within at particular discipline or content domain.

Curriculum Standard:

Activities used in classroom instruction to teach the benchmarked standard.

Curriculum Framework:

A curriculum frame work serves as a bridge between standards and the classroom. It provides curriculum content, organization, and presentation.

Multimedia:

The combination of audio, video, animation, and graphics used to disseminate information under computer control.

Operating System:

Software that controls a computer and its peripherals.

Graphics:

The digital version of an image, a photograph, or a picture displayed on a monitor screen.

Photo-manipulation:

The ability to alter a scanned photo image.

Desktop Publishing:

The use of a computer to produce documents for publication.

CD-ROM (Compact Disc-Read-Only Memory):

This is a storage media that is able to store huge amounts of information up to 660MB of text, graphics, audio, and full-motion video.

Graphic Applications Software:

One of a number of types of computer software that enable the user to create or manipulate illustrations graphs, drafting products, and a variety of other images.

Environmental Probe:

Computer peripheral that senses environmental data and communicates reading directly into the computer for recording and storage (e.g., pH sensor, humidity sensor).

Graphing Calculator:

A hand-held calculator that can perform: calculations, functional operations, graph functions and relations.

Presentation Hardware/Software:

Computer hardware/software designed to support presentations involving multimedia (e.g., PowerPoint, Publisher, Photo-Shop).

Search Engine:

Software that allows retrieval of information from electronic databases (library catalogs, CD-ROMs, the Web) by locating user-defined characteristics of data such as word patterns dates or file formats.

Internet:

The Internet is the system of thousands of interconnected commercial, academic, and government networks around the world all using common protocols to share information.

E-Mail (Electronic Mail):

E-mail is correspondence across a network by way of an on-line message-handling computer program.

Telecommunications:

Telecommunications includes all types of electronic communication services, including satellite, fiber-optic, computer-based transmission, telephone, and radio.

CNMI Technology Program
Standards and Benchmarks for
Grades K-2

STANDARD 1: Students demonstrate developmentally appropriate technology operations and concepts.

BENCHMARKS		Associated Vocabulary
2.1.1	Use input devices and output devices (e.g., mouse, keyboard, monitor, etc.) properly.	
2.1.2	Use technology equipment properly.	
2.1.3	Communicate about technology using developmentally appropriate and accurate terminology.	
2.1.4	Use developmentally appropriate <i>multimedia</i> resources and a variety of media for directed activities to support learning.	

STANDARD 2: Students demonstrate use of basic applications and tools.

BENCHMARKS		Associated Vocabulary
2.2.1	Use basic applications for drawing, painting and word processing.	
2.2.2	Use developmentally appropriate programs and applications and be able to open, close, print and save within the program.	

STANDARD 3: Students demonstrate use of research tools.

BENCHMARKS		Associated Vocabulary
2.3.1	Use word processing programs as a research tool (i.e.; spellcheck, word definitions, etc.)	
2.3.2	Demonstrate the ability to access information from developmentally appropriate student <i>search</i>	

	<i>engines</i> on the Internet.	
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STANDARD 4:	Students demonstrate the ability to use telecommunications.
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BENCHMARKS		Associated Vocabulary
2.4.1	Demonstrate appropriate use of the Internet as outlined in the CNMI Public School System Internet Policy and the individual school's policy.	
2.4.2	Gather information and communicate with others using various forms of telecommunications.	

STANDARD 5:	Students demonstrate the use of technology in problem solving and decision making skills.
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BENCHMARKS		Associated Vocabulary
2.5.1	Use developmentally appropriate software programs for problem solving and decision-making.	

STANDARD 6:	Students demonstrate knowledge of social, ethical and human issues.
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BENCHMARKS		Associated Vocabulary
2.6.1	Work cooperatively and collaboratively with peers, family members and others when using technology in the classroom.	
2.6.2	Demonstrate positive social and ethical behaviors when using technology.	
2.6.3	Practice responsible use of technology systems and software.	
2.6.4	Discuss basic issues related to responsible use of age appropriate technology and information and describe consequences of inappropriate use.	

**CNMI Technology Program
Standards and Benchmarks for
Grades 3-5**

STANDARD 1: Students demonstrate developmentally appropriate technology operations and concepts.

BENCHMARKS		Associated Vocabulary
5.1.1	Care for and use technology equipment properly.	
5.1.2	Communicate knowledge of technology using developmentally appropriate and accurate terminology.	
5.1.3	Discuss common uses of technology in daily life and the advantages and disadvantages technology may provide.	
5.1.4	Use developmentally appropriate multimedia resources and a variety of media for directed and independent activities.	
5.1.5	Demonstrate knowledge of and proper management of a computer <i>operating system</i> .	

STANDARD 2: Students demonstrate use of basic applications and tools.

BENCHMARKS		Associated Vocabulary
5.2.1	Demonstrate an understanding of and be able to use word processor software to compose, edit and incorporate <i>graphics</i> into projects	
5.2.2	Demonstrate an understanding of and be able to use appropriate software to make and interpret graphs.	
5.2.3	Use drawing, painting and <i>photo-manipulation</i> programs.	
5.2.4	Use <i>desktop publishing</i> programs.	

BENCHMARKS		Associated Vocabulary
5.2.5	Use developmentally appropriate programs for directed and independent activities.	
5.2.6	Use basic CD-Recording and Rewriting software to produce <i>CD-ROM</i> .	
5.2.7	Use graphic organizing software.	

STANDARD 3: Students demonstrate use of research tools.

BENCHMARKS		Associated Vocabulary
5.3.1	Demonstrate an understanding of and be able to use database software including but not limiting to sorting, searching and library online skills.	
5.3.2	Demonstrate awareness of and compliance of copyright laws as they apply to research information.	
5.3.3	Demonstrate the ability to access information from videotapes, cable television, satellite systems, etc.	

STANDARD 4: Students demonstrate the ability to use telecommunications.

BENCHMARKS		Associated Vocabulary
5.4.1	Use telecommunications efficiently and effectively to access remote information and communicate with others in support of direct and independent learning.	

STANDARD 5: Students demonstrate the use of technology in problem solving and decision making skills.

BENCHMARKS		Associated Vocabulary
5.5.1	Use technology resources (i.e.; calculators, videos, educational software. Etc.) for problem solving.	
5.5.2	Determine when technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems.	
5.5.3	Evaluate the appropriateness and relevance of electronic information sources.	

STANDARD 6: Students demonstrate knowledge of social, ethical and human issues.

BENCHMARKS		Associated Vocabulary
5.6.1	Discuss the common uses of technology in daily life and the advantages and disadvantages those uses provide.	
5.6.2	Discuss basic issues related to responsible use of age appropriate technology and information and describe consequences of inappropriate use.	

**CNMI Technology Program
Standards and Benchmarks for
Grades 6-8**

STANDARD 1: Students demonstrate developmentally appropriate technology operations and concepts.

BENCHMARKS		Associated Vocabulary
8.1.1	Apply strategies for identifying and solving routine hardware and software problems.	
8.1.2	Communicate knowledge of technology using developmentally appropriate and accurate terminology.	
8.1.3	Demonstrate the ability to configure and manage an operating system and demonstrate an understanding of desktop management and computer operations (i.e.; use of trash bin, creation of folders, etc.)	
8.1.4	Use developmentally appropriate multimedia resources and a variety of media for directed and independent activities to support learning.	

STANDARD 2: Students demonstrate use of basic applications and tools.

BENCHMARKS		Associated Vocabulary
8.2.1	Use content specific tools, software and simulation tools (i.e.; <i>environmental probes, graphing</i>	

	<i>calculators, web tools, etc.) to support learning.</i>	
8.2.2	Use word processing, database and spreadsheet software applications in meaningful ways across the curriculum.	
8.2.3	Use presentation hardware and software.	

STANDARD 3: Students demonstrate use of research tools.
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BENCHMARKS		Associated Vocabulary
8.3.1	Demonstrate search skills to find information in the library or on the Internet.	
8.3.2	Use a photocopier independently to reproduce original work for research and for communication to others.	
8.3.3	Use proper criteria to cite bibliographic references.	
8.3.4	Critique and evaluate resources to determine if they are appropriate for a given activity.	
8.3.5	Select appropriate resources for locating information on the Internet, CDs, videotapes, cable television and other forms of media.	
8.3.6	Demonstrate the ability to access information from the Internet, CDs, videotapes, cable television and other forms of media.	

STANDARD 4: Students demonstrate the ability to use telecommunications.
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BENCHMARKS		Associated Vocabulary
8.4.1	Collaborate with peers, teachers, experts, and others using telecommunications and various tools to investigate curriculum-related problems, issues and information.	
8.4.2	Use telecommunications to develop solutions or products for audiences inside and outside the classroom.	

STANDARD 5:	Students demonstrate the use of technology in problem solving and decision making skills.
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BENCHMARKS		Associated Vocabulary
8.5.1	Select and use appropriate tools and technology resources to accomplish a variety of tasks and problem-solving skills.	
BENCHMARKS		Associated Vocabulary
8.5.2	Demonstrate an understanding of concepts underlying hardware, software, and connectivity and of practical applications to learning and problem solving.	
8.5.3	Research and evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources concerning real-world problems.	

STANDARD 6:	Students demonstrate knowledge of social, ethical and human issues.
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BENCHMARKS		Associated Vocabulary
8.6.1	Demonstrate knowledge of current changes in information technologies and the effect those changes has in school, in the workplace and in society.	
8.6.2	Exhibit legal and ethical behaviors when using information and technology and discuss consequences of misuse.	

**CNMI Technology Program
Standards and Benchmarks for
Grades 9-12**

STANDARD 1:	Students demonstrate developmentally appropriate technology operations and concepts.
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BENCHMARKS		Associated Vocabulary
12.1.1	Make informed choices among technology systems, resources and services.	
12.1.2	Understand the basic capabilities and limitations of technology's hardware and software.	
12.1.3	Translate cross platform utilizing both Macintosh and Windows operating systems.	
12.1.4	Use developmentally appropriate multimedia resources and a variety of media for directed and independent activities to support learning.	

STANDARD 2:	Students demonstrate use of basic applications and tools.
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BENCHMARKS		Associated Vocabulary
12.2.1	Use information to support learning in all content areas.	
12.2.2	Use technology and its applications to maximize productivity and effectiveness.	
12.2.3	Demonstrate an understanding of and be able to use spreadsheet software including but not limited to interpretation and creation of charts and knowledge of how to edit existing data for predictions, forecasts and problem solving.	
12.2.4	Create and integrate databases, graphics and spreadsheets into word processing documents to manage information and create reports.	
12.2.5	Use <i>desktop publishing</i> software and supporting hardware.	

STANDARD 3: Students demonstrate use of research tools.

BENCHMARKS		Associated Vocabulary
12.3.1	Use strategies to locate electronic information.	
12.3.2	Use technology to access, retrieve and evaluate visual or auditory information.	
12.3.3	Use <i>e-mail</i> as a means of research.	
12.3.4	Use advanced Internet search strategies.	

STANDARD 4: Students demonstrate the ability to use telecommunications.

BENCHMARKS		Associated Vocabulary
12.4.1	Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications and productivity.	
12.4.2	Collaborate with peers, teachers, experts and others to contribute to a content related knowledge base by using technology to compile, synthesize, produce and disseminate information, models and other creative works.	

STANDARD 5: Students demonstrate the use of technology in problem solving and decision making skills.

BENCHMARKS		Associated Vocabulary
12.5.1	Routinely and efficiently use online information resources to meet needs for collaboration, research, publications, communications and productivity.	
12.5.2	Investigate and apply expert systems and simulations in real-world situations.	
12.5.3	Collaborate with peers, teachers, experts and others to contribute to a content related knowledge base by using technology to compile, synthesize, produce and disseminate information, models and other creative works.	

STANDARD 6:**Students demonstrate knowledge of social, ethical and human issues.**

BENCHMARKS		Associated Vocabulary
12.6.1	Analyze advantages and disadvantages of widespread use and reliance on technology in the workplace and in society as a whole.	
12.6.2	Demonstrate and advocate for legal and ethical behaviors among peers, family and the community regarding the use of technology and information.	
12.6.3	Make informed choices among technology systems, resources and services.	

CURRENT PSS TECHNOLOGY INFRASTRUCTURE

CNMI-PSS Network Infrastructure Wide Area Network (WAN)

The CNMI Public School System, through local and federal E-Rate funding, has implemented a Wide Area Infrastructure with dedicated T-1 lines from Saipan, Tinian and Rota. Two separate T-1 links connects the PSS central office with Hawaii for off-island internet access. Each CNMI Public School is connected to a CISCO systems router and switches with a gigabyte network linked between Marianas High School and the PSS NOC in Capitol Hill. The gigabyte network enables PSS to support many concurrent distance learning and internet access capabilities. The PSS NOC serves as the central pint for all network management activities and houses the ATM Access concentrator, high speed router, multiprocessor server, gateway and SCU's.

Private Branch Exchange (PBX) System

The CNMI PSS implemented a Private Branch Exchange Telephone System in 2005 through the approval of SLD's funding commitment at 90 percent discount. The PBX System enabled telephone access in every classroom throughout the Public School System. The telephone system is aligned with one of the PSS Strategic Priorities, Safe and Orderly Schools. As a result, any incident within a classroom is a phone call away. In addition, this system will allow for teachers to communicate openly with parents and legal guardians on any issue relating to student learning. The CNMI PSS prior to implementing a PBX system, roughly had more than 300 centranet telephone services through the local exchange carrier, PTI. Each centranet line, assumes a monthly recurring charge of \$70.00. This number drastically went down to 100 lines and has reduced cost tremendously.

Video teleconferencing

On March 10, 2001 the PSS formally inaugurated its E-Rate technology infrastructure and partners in Distance learning Network through a live video teleconference with several sites in the Pacific Region. The Pacific wide live video teleconference demonstrated the power of the network developed by the public school system and the CNMI government. This results in a multi-point conference unit (MCU) to bridge up to nine video conferences sites at once.

Servers

Web based email servers are currently located within the PSS NOC. The email server runs on a Microsoft Exchange version 5.5 while the Internet server runs an IIS version 4.0. In addition there are 22 data servers for the PEDMS for each of the schools and central office NOC.

Wireless

A major component in the PSS Technology Plan involves the implementation of a wireless network campus. This will allow greater mobility for students to access instruction and conduct online research. Currently, many schools utilize wireless capabilities within their local MDF.

Distance Learning

The PSS, through the Public Telecommunications Facilities Program (PTFP) Grant, purchased and e-course development software. This enterprise-class software, named, Tegrity, is packaged with an integrated server and instructor software. Tegrity offers end users a wide variety of resources for using DL in the classroom. In addition, the e-course Management Software "Moodle" was also introduced and made available through the PSS website, ecourse.pss.cnmi.mp

Internet filtering System

The PSS Board of Education recognizes the importance for students to have access to electronic based research tools for their application to learning, problem solving, production of work, and presentation of information. While these resources represent extraordinary learning opportunities and enriching educational materials, they also offer illegal or unethical motive avenues for reaching students. Therefore, PSS is currently running a filtering system, "Sonciwall" in compliance the Children's Internet protection Act (CIPA). This filtering system is able to block websites that have inappropriate content to be viewed by students.

Technology in School as of 12/2007

Data will be completed by 12/20

School	Teacher Desktops/Laptops	Student Desktop/Laptops	Printers	Internet connections
G.T. Camacho				
Tanapag				
Garapan				
Kagman				
San Vincente				
Dandan				
Oleai				
W.S. Reyes				
San Antonio				
Koblerville				
Sinapalo				
Tinian				
Hopwood Jr. High				
ChaCha Oceanview JH				
Rota Jr, High				
Tinian Jr. High				
Marianas High				
Saipan Southern High				
Kagman High				
Rota High				
Tinian High				

Future Needs

As the CNMI Public School student population increases so does the number of nodes and users. The CNMI PSS will need a third off-island T-I link to allow for the increased bandwidth that will be needed to support the network activity for regular internet browsing and expansion of the use of teleconferencing throughout the schools. The Distance Learning Program (DLP) will be extended more throughout the islands of Rota and Tinian with additional purchases and maintenance of polycom units and hardware. The primary responsibility for DLP lies with the Associate Commissioner for Instruction and Assessment.

Partnerships

The CNMI has established important partnerships with the Governors office, Northern Marianas College, the University of Hawaii (UH), the Pacific Resources for Education and Learning (PREL), the Pan Pacific Education and Communication Experiments by Satellite (PEACESAT) and others. These partnerships complement the existing network in providing the necessary structural, technical and financial assistance to realize an effective and comprehensive technology system for PSS.

PSS Technology Target

CNMI PSS's goal is to meet the Education Commission of the States (ECS) in their paper entitled, "Investing in K-12 technology Equipment totals for school". The data below is taken from a "Target Technology School Set-Up" sample as a first goal point for the CNMI-PSS.

	Elementary Grades K-5, 450 pupils, 22 Classrooms	Middle School Grades 6-8, 700 pupils, 42 Classrooms	High School Grades 9-12, 750 pupils, 47 Classrooms
Admin Computers	3	5	10
Servers	2	3	3
Faculty Laptops	22	42	47
Classroom Computers	65	100	150
Computer labs (25ea)	1	3	4
Student: Computer Ratio	5:01	4:01	3:01
Media Center			
Digital; Video cameras	2	2	4
Digital Cameras	2	4	4
Video Editing complex	1	2	3
Projectors	2	3	3
DVD ROM Tower	16	24	24
CD Burners	2	3	3
Classroom Printers	22	42	47
Classroom TV / DVD	22	42	47

PROFESSIONAL DEVELOPMENT PLAN

Goal I: High Student performance: Every student is technologically proficient and able to use a variety of technology to foster learning.

Objective 1: Equip all classrooms, labs, libraries and offices with instructional technology, e.g. computer, internet access, grade appropriate software, for maximum student access by year 3.

- **Task 1:** E-rate funds and other available funding resources will provide adequate technological infrastructure for student use.
- **Outcome 1:** By year 3, student-computer ratio will be reduced from 1:9 to 1:6 system wide.
- **Task 2:** PEDMS, E-rate survey, school equipment inventories compiled periodically to assess functionality and availability.
- **Outcome 2:** Data will provide E-rate and school administrators, leadership teams and state level technology support staff for quick and appropriate decision making.
- **Task 3:** School-wide technology programs will be monitored and evaluated for student accessibility by PSS-Technology Review Committee (TRC)
- **Outcome 3:** Data will be communicated to school administrators and leadership teams for sound decision making in the improvement process to safe and technology rich learning environments.

Objective 2: Revise and update technology content standards and benchmarks every two years to ensure continued alignment with national and ISTE standards.

- **Task 1:** Technology leadership teams and the TRC will review and update technology standards every two years
- **Outcome 1:** New and revised technology standards will reflect alignment to nationally recognized standards
- **Task 2:** Technology Review Committee will develop assessment instruments that will assess student proficiency of new/revised standards.
- **Outcome 2:** Data based decision making will guide use of resources to improve student performance

Objective 3: Expand distance education to the remaining five (5) secondary schools of the public school system.

- **Task 1:** develop comprehensive plan to implement distance learning at additional secondary schools.
- **Outcome 1:** By year two, 2 additional secondary schools will implement DL in at least one content area.
- **Task 2:** State and local assessment tools will reflect a measurement of student technological literacy in DL.
- **Outcome 2:** availability of technology driven course offerings will improve technical literacy of students.

- **Task 3:** Affected school's periodic report will reflect routine monitoring and evaluation of the individual schools program
- **Outcome 3:** Data supported decision making will provide continued support towards effective school improvement process.

Objective 4: Provide parent / community education in the use of technology through computer based communication network, PSS-website, quarterly parent leadership summit and school level activities i.e.; PTA meetings, report card days and open house activities.

- **Task 1:** Provide a delivery system for parent education on the use of technology to include updated PSS website as well as parental access to children via web.
- **Outcome 1:** parental literacy skills will reinforce students technical skills, foster technologically rich environments and ensure efficient communication
- **Task 2:** Provide community reporting in interactive, direct and web based.
- **Outcome 2:** reporting will reach more community members and encourage community involvement in the schools.

GOAL II: Quality Teachers, Administrators and Staff

Objective 1: Conduct continued school level in-service and state level professional development days in the effective integration of technology in the classroom according to the PD plan.

- **Task 1:** conduct 24hrs of professional development training prior to the fall and spring semester on the effective integration of technology into the core content areas
- **Outcome 1:** All: Highly Qualified Teachers" are trained in integration of technology in content areas to improve student achievement.
- **Task 2:** Provide 40 hours of annual in-service on methodology and other technological means of instructional delivery, e.g. Tegrity, Moodle, Teleconferencing, PowerPoint, conducted at the school level.
- **Outcome 2:** Teachers are proficient in the use of technology for instructional delivery
- **Task 3:** Innovative and proven practices will be offered on PSS website for additional teacher resources in integration of technology year 1.
- **Outcome 3:** valuable teacher resources to support student achievement are accessible and readily available
- **Task 4:** Professional development plan will be reviewed and designed to E-rate generated teacher survey and aligned with ISTE and national teacher standards.
- **Outcome 4:** professional development will address needs of teachers based on data collection and nationally recognized standards.

Objective 2: Provide continued training on use of technology to school support staff, librarians, counselors and administrators to ensure efficient and effective school and personnel support for higher student learning.

- **Task 1:** continue providing school level and statewide training in use of technology in the classroom via a comprehensive calendar (see table below), and annual assessment data management seminar for school support staff, administrators, and counselors on the use of the PEDMS
- Outcome 1: efficient and effective data management system will equip administrators with valuable data to make sound decisions for school and systems improvement.
- **Task 2:** continue scheduled training of support staff and program managers on use of QuickBooks (financial management system) and webpage designs and updates, and other software's
- Outcome 2: personnel proficiency in technical support systems will ensure smooth and effective operations of schools at the local and state levels.

Objective 3: Conduct intensive training for newly teachers on the effective teaching strategies of standards, benchmarks and indicators.

- **Task 1:** provide 8 hrs standards based Academy at beginning of every semester for new teachers and retraining of PSS teachers
- Outcome 1: every new teacher will be proficient in effective instructions of standards based education
- **Task 2:** require standardized training of newly recruited teachers on integration strategies of technology in content areas
- Outcome 2: Increased teacher proficiency on integrating technology standards and benchmarks into core content will improve student performance
- **Task 3:** Institute through NMC School of education technology passport, an ISTE aligned technology education coursework by year 1
- Outcome 3: Local teacher recruits will be knowledgeable in technology education and technology integration strategies.

ONGOING PROFESSIONAL DEVELOPMENT ANNUAL CALENDAR- 32 SESSIONS (1 PER WEEK)

WEEK 1-Q1-07	How does Technology work: A Master plan for the school, Classroom, and District
WEEK 2-Q1-07	Conducting and Facilitating Electronic Instruction to Maintain Lesson Momentum: E-portfolio Planning for Instruction
WEEK 3-Q1-07	Laptop Learning and LCD's as an instructional tool
WEEK 4-Q1-07	Technology and Curriculum Integration Through field Based Studies
WEEK 5-Q1-07	Using E-tools to Improve Instruction through Identification of Strengths and Weaknesses
WEEK 6-Q1-07	E-learning in the 21 st Century: Changing the Way we Think
WEEK 7-Q1-07	Five Powerful Practices for Using technology to Enhance Teaching and Learning
WEEK 8-Q1-07	Technology requirements for individual classrooms: Considerations evaluating the feasibility
WEEK 1-Q2-07	Prerequisites of Effective Teaching with Technology
WEEK 2-Q2-07	The Technology Teacher as a Person
WEEK 3-Q2-07	Technology Classroom Management and Organization
WEEK 4-Q2-07	Organizing for percentage based Technology Instruction
WEEK 5-Q2-07	Support for Implementing Technology Instruction
WEEK 6-Q2-07	Monitoring Student Progress and Potential in use of Technology
WEEK 7-Q2-07	Effective Technology Teaching; What does it All Mean
WEEK 8-Q2-07	Teacher Responsibilities and Behaviors in the use of Technology
WEEK 1-Q3-08	Accreditation: Preparing for the Technology Future with WASC +Plus
WEEK 2-Q3-08	Monitoring Classroom Performance through Technology Assessment
WEEK 3-Q3-08	Technology Time Management and Organization for Student Learning
WEEK 4-Q3-08	Pedagogy and Research for Instructional Techniques in 21 st Century Technology Classrooms
WEEK 5-Q3-08	Electronic Assessment: Using OMB software for grading CPS (Classroom Performance System) handheld technologies for Instant assessment. M-Learning Curriculum. (Mobile Technologies linking Web Blogs to Learning
WEEK 6-Q3-08	Monitoring Student (AYP) Annual Yearly Progress and Technology literacy Potential
WEEK 7-Q3-08	Reviewing, Reflecting, and managing Technology behavior
WEEK 8-Q3-08	Teacher Responsibilities and Behaviors for Technology AYP (part I)
WEEK 1-Q4-08	Teacher Responsibilities and Behaviors for Technology Annual Yearly Progress (part II)
WEEK 2-Q4-08	After school Mentoring: A Technology Curriculum Approach to Extra Curricular Activity
WEEK 3-Q4-08	Funding and Technology Resources for the Struggling Teacher
WEEK 4-Q4-08	Vertical and Horizontal Technology alignment: A year end assessment
WEEK 5-Q4-08	How fares the Ninth Grade: preparing Technology for the new ninth grade
WEEK 6-Q4-08	Teacher Motivation and Rewards: Commitment to Technology Education
WEEK 7-Q4-08	Reflection and Review through E-Portfolios under Yearly Progress
WEEK 8-Q4-08	Summer programs in Technology Professional Development

Student Technology Status

Curriculum and Instruction

CNMI-PSS staff recognizes that good learning and teaching environments have common elements. Those elements which impact successful classroom education are *active learning, cooperative learning, interdisciplinary learning, and individualized learning*. One or more of these elements are always at work in learning situations. These elements, alone and in combination can be enhanced by technology. Implementing educational technologies in the classroom enhances the learning process and expands the skills capabilities and knowledge of all students.

The general learner outcomes of the Technology Plan will be the basis for all learning activities across the curriculum.

Broad student learning goals:

- Take responsibility for one's own learning
- Understand that it is essential for human beings to work together
- Be involved in complex thinking and problem solving
- Recognize and produce quality performance and quality products
- Communicate effectively
- Use a variety of technologies effectively and ethically.

Student Technology Competencies

The following lists the performance standards for educational technology in PSS. The standards are based on the National Educational Technology Standards published and recognized by ISTE (International Society for Technology Education) They are integrated in all the content areas and aligned to the appropriate content performance standards as well.

1. Basic Operations and Concepts

- a. Students understand the nature and operation of technology systems. Refers to the conceptual process of technology usage (i.e., word processing, multimedia, etc.)
- b. Students are proficient in the use of technology. Refers to the specific use of technology applications (i.e., *Microsoft Office Applications, Adobe applications, hyperstudio, etc*)

2. Social, Ethical, and Human Issues

- a. Student understand the ethical, cultural and societal issues related to the use of technology
- b. Students understand responsible use of technology systems, information and software
- c. Students develop positive attitudes towards technology uses that support lifelong learning, collaboration, personal pursuits and productivity.

3. Technology Productivity Tools

- a. Students use technology to enhance learning, increase productivity, and promote creativity.
- b. to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works.

4. Technology Communication Tools

- a. Students use telecommunications to collaborate, publish, and interact with others (nationally, regionally, and globally)
- b. Student use a variety of telecommunication resources to communicate information and ideas effectively.

5. Technology Research Tools

- a. Students use technology to locate, evaluate, and collect information from a variety of sources.
- b. Students use technology tools to process data and report results
- c. Students evaluate and select new information based on the appropriateness to specific tasks.

6. Technology Problem Solving and Decision Making Skills

- a. Students use technology resources for solving problems and making informed decisions
- b. Students use technology in the development of strategies for solving problems.

The National Educational Technology Standards published and recognized by ISTE (International Society for Technology Education) have benchmarks for students at various grade levels. While the six (6) core PSS standards are the same as the ISTE standards, the benchmarks for achieving each standard (by grade level) may differ as the PSS administration and Board review them systematically.

Budget Considerations

PSS relies Federal funds for most of the technology assets and their implementation. NCLB is the major U.S. DOE funding source. Schools and Library Division (SLD) manages the E-rate funding and provides 90% of PSS's cost for technology infrastructure. The funds from the Consolidated Grant average \$8 million per year. The school administration makes the decisions on where the funds are applied. Over the last few years approximately \$1,700,000 annually has been distributed towards technology. This trend is expected to continue for the term of this plan, at a minimum. A large part of the federal funding for technology is allotted to individual schools for Innovative projects in technology.

The table below displays a summary of the funding commitments that the CNMI PSS have received from the Schools and Libraries Division. As the years progress, there is an increase in the discount level from 66% to a steady 90% for the past three funding years. The local funds contributions are appropriated annually from the local government.

E-Rate Funding Commitment Trend

Funding Years	Services	Discount level	Total Amount	PSS Share	SLD Share
1999	Telecommunications	66%	\$81,092.56	\$27,571.47	\$53,521.09
2000	Telecommunications & Internet Access	76%	\$498,872.09	\$119,729.30	\$379,142.79
2001	Telecommunications, Internet Access & Internal Connections	89%	\$2,351,308.97	\$258,643.99	\$2,092,644.98
2002	Telecommunications, Internet Access & Internal Connections	90%	\$1,242,977.57	\$124,297.76	\$1,118,679.81
2003	Telecommunications, Internet Access & Internal Connections	90%	\$1,242,041.26	\$124,204.13	\$1,117,837.13
2004	Telecommunications, Internet Access & Internal Connections	90%	\$1,976,864.93	\$197,686.49	\$1,779,178.44
2005	Telecommunications, Internet Access & Internal Connections	90%	\$1,140,485.72	\$114,084.57	1,026,761.14
2006	Telecommunications, Internet Access & Internal Connections	90%	\$1,056,331.91	\$105,633.19	\$950,698.80
2007	Telecommunications, Internet Access & Internal Connections	90%	\$1,028,139.50	\$102,813.95	\$925,325.60
TOTAL FUNDING COMMITMENT TO DATE			\$10,618,114.51	\$1,174,664.85	\$9,443,789.78

Under General Funds from the CNMI, approximately \$200,000 has been a line item for telecommunications for PSS. These funds are used for matching funds on the E-Rate program for Telecommunications Infrastructure

There have been many individual school program grants from various sources that have supported and will continue to support technology for the schools. An example is a \$45,000 dollars grant to KHS from the CNMI Department of Lands and Natural Resources through the national fisheries. In addition, the CNMI governor had awarded Competitive Grants to schools with SSHS receiving Laptops for Each student at the grade level. Other grant funding sources come from joint efforts outside educational partners. For example, the Telecommunications Information Policy group (TIGP) from the University of Hawaii, have partnered with PSS to obtain funds for PSS video conference equipment (2001) and for e-course development software (3\2003) It is estimated such as additional grants total over \$2000,000 a year.

Federal Special Education funds help provides computers for eh teachers of students needing special education help and assistance technology for special needs students. In 2004-2005, these funds exceeded \$60,000.

Other federal grants such as the "teacher Quality Enhancement" are currently being written that would greatly increase the availability of funds for technology enhancement in the PSS such as Professional Development, hardware and software acquisition.

Assessment and Evaluation

Program evaluation activities will provide a basis for continuous improvement towards meeting the goals and objectives addressed in the PSS technology plan

The stakeholders will write benchmarks to arrive at the NCLB, SLD, and national educational technology standards. These benchmarks will be such that PSS stays within the requirements of NCLB and that they stay abreast with the E-rate requirements for each year funding requests.

This technology plan will be evaluated yearly through the means of survey distribution to teachers, students, and administrators. The data collected from the survey will determine how much progress and how this plan could further enhance the use of technology in both teaching and learning. Electronic survey software will be piloted towards the evaluating period of this plan. The survey will be formatted and categorized in three areas, classroom teachers, administrators, and support personnel.

Continued school and state level assessment of student performance will demonstrate progression of student learning on the use of technology.

Overall PSS student scores on effective use of technology in core subject areas will increase by 3% as reported in the annual criteria reference standards based assessment.

Comparative analysis with national averages on technical literacy will show positive progressing of student achievement.

Continued evaluation of needs in the areas of technology will provide a clear view of allocation of resources and data driven decision making.

Leadership teams, administrators, and teachers will conduct periodical monitoring and evaluation towards tech plan goals and compliance to its federal requirements.

PSS Teacher Qualifications/Certification

The CNMI Public School System teacher Certification Process, with July 8th, 2004 Board of Education adoption of the Praxis I & II exams of core subject area content knowledge, meets the definition of the “Highly Qualified Teacher” for the NLCB act of 2001. (Section 9101 (23) of ESEA) as our public elementary and secondary teachers must:

- Possess a bachelors degree or higher
- Have attained full state certification
- Must demonstrate subject matter competency in the core academic areas

The CNMI Public School System since 1998 has required that all classroom teachers must at a minimum, possess a bachelors degree or higher degree to teach in the CNMI public schools.

- **Time of reporting 09/2007 has 507 teachers in the system at a full Praxis compliance rate of 64.7%. Although some secondary schools are significantly higher reaching the 80-90% compliance there is a challenge at the elementary levels.**

The CNMI Public School System employs 507 classroom teachers and, on average, recruits 45-55 new teachers retiring or leaving the system for other reasons

The CNMI Public School System in the early 1990’s established a Teacher Academy Program to attract gifted junior and senior high school students to consider careers as educators

We created a Teacher Scholarship program in 1994 and three years there after persuaded the legislature to fully finance these scholarships, two years of teaching in the CNMI is required for each year of college scholarship assistance. This program is a creative solution to recruit, retain a local pool of highly qualified teachers.

Teacher Quality Enhancement

The CNMI is in a constant state of change. The dynamics of the changing school environment require teachers to systematically increase their talents and abilities to enhance learning in the classroom. The CNMI Pubic School System focuses on this type of active Reform and Change to drive the program content for enhancing teacher quality.

The CNMI understands;

- The need for additional teachers each year.
- To recognize exceptional teachers through innovative teacher compensation
- To integrate technology
- To professionally develop new and veteran teachers to maintain their highly qualified status.

Greater funding and awareness of programs that work provide the basis for a strong commitment by the PSS to continue to professionally develop all teachers and staff within the Public School System.