A REPORT TO GOVERNOR WILSON

Developing A High Performance 21st Century Workforce For California Government

FEBRUARY 1998

THE GOVERNOR'S 21ST CENTURY TRAINING ACTION TEAM

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STATE AND
CONSUMER SERVICES AGENCY

DEPARTMENT OF
PERSONNEL ADMINISTRATION

February 1998

Dear Governor Wilson:

Pursuant to Executive Order W-151-97, the Governor's 21st Century Training Action Team was established and directed to develop an implementation plan to:

1) **Integrate workforce development programs into strategic plans;**
2) **Assure executive commitment;**
3) **Align workforce development with the demands of the 21st century;**
4) **Encourage lifelong learning;**
5) **Eliminate organizational barriers; and**
6) **Ensure employee participation.**

The Action Team included state management, state employees, state employee unions, state training departments, academic institutions and the private sector. The members of the Governor's 21st Century Training Action Team have worked to provide a thoughtful and constructive approach to improving the productivity and potential of our workforce. We are pleased to present our report, entitled, "Developing A High Performance 21st Century Workforce For California Government."

The members of the Action Team agree: to be effective in the 21st century, state government needs to make a significant investment in developing the potential of our workforce and we must remain committed to that development over a sustained period of time. The State of California employs approximately 202,000 individuals[1]. As an employer, we must recognize that our employees are our most valued resource and teach our workforce to work smarter— not just harder. Continued education and training needs to be part of every person's job duties. State employees need the opportunity to develop new skills for meeting the challenges of increased workloads and the proliferation of technology in the workplace. Investments in technology are wasted without teaching our employees to use it to its fullest extent.

According to a 1994 report by the Employee Benefits Research Institute, employment trends have not changed dramatically over the past 25 years. Employees still make the vast majority of career moves between 20 and 30 years of age and the average college graduate still makes approximately four career changes during his or her life. However, statistics provided by the California Public Employees Retirement System[2] illustrate some of the unique characteristics of the State's workforce. For example, over the past three years the average age of entry into state service has increased steadily. In 1995, the average age of a person entering state service was approximately 31.72 years, in 1997, it was 33 years old. Furthermore, the average age of a state employee is approximately 46 years. These statistics illustrate the need to continue educating and training our employees— learning once is not enough. Since state employees tend to be older, they provide more stability; however, they do not generally possess the same technological skills as most recent college gradu-

ates. The age and stability of our workforce only reinforces the commitment we need to make to education and training if we are to enter the 21st century as leaders in the public sector.

State employees tend to enter state service and remain public servants during the remainder of their career. Given the length of employment for most public sector employees, the ability to maximize employee performance can result in significant benefits to the people of California. Improving skills, continuing education and training can result in significant savings as we learn to work more efficiently and effectively. For example, if we could increase the overall effectiveness of state employees by just one percent, it would be the equivalent of adding 2,500 people to our workforce. Investing in our most valuable resource—our human resource—can provide a tremendous return on investment. This investment is key to a more competitive workforce and a stronger future.

Peak performance requires vision, investment, and sustained commitment. Vision to anticipate change and capitalize on its opportunities. Investment in technology, innovative training and education will allow state agencies to become proactive in addressing the needs of Californians. And, commitment to stay the course despite the obstacles or challenges presented. Our mission of developing a peak performance organization can not be accomplished over night. Not unlike the Bowline knot, done properly, an effective workforce can weather any storm and neither slips nor jams when challenged.

As government organizations are reinvented internationally, three basic elements have become integral to building more efficient and competitive governments: reforming the civil service structure, streamlining the way government makes acquisitions, and creating a highly skilled workforce. Strategic planning has become an essential part of the state operations, it is now time to make significant progress in developing the skills of our workforce. It is the vision of the 21st Century Training Action Team that the State of California develop its workforce to be more innovative, competitive, highly-skilled, customer-focused and performance-oriented. By better serving our state's citizens, this will further the competitive advantage of the State of California as we move into the 21st century.

In the attached report, we have made a number of recommendations which address the need for workforce development in the strategic planning process, the expanded use of innovative and technological learning opportunities, and a simpler process to acquire training services. It is our hope that these recommendations meet your expectations. We would be honored to assist in the implementation of this program.

Sincerely,

Joanne Corday Kozberg, Secretary
State and Consumer Services Agency

David Tirapelle, Director
Department of Personnel Administration

[1] State Controllers Data Base on Employment History includes all full-time, part-time and intermittent civil and exempt employees as of 1/21/98.

[2] Statistics are for State Miscellaneous Employees Tier 1 & 2 and do not include those employees entering state service as a public safety employee (Correctional Officer, California Highway Patrol, State Police or Firefighter) or state industrial employees.

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EXECUTIVE SUMMARY

Investing in the development of our workforce is a matter of economic competitiveness for the State of California. It should be regarded with the utmost seriousness and urgency. Our state requires a workforce that not only reflects the complexity of California, but one that is trained to provide the highest levels of customer service to our residents and those who visit this great state.

The State of California employs an estimated 202,000 civil servants[1], with the average age being approximately 46 years old. Furthermore, the average age of a person entering state service is 33 years old. These statistics portray a very stable workforce, but one in need of education and training in current management styles, technological trends and advanced skills. Although individuals may enter state service at a later age, they tend to remain in state employment for the remainder of their working years; therefore, the potential return on investment for funds spent thoughtfully on employee education and training will result in long-term benefits.

"Vision is not enough—commitment to education and training is essential to making visions become goals and to making goals become realities."

The State of California employs many dedicated, bright and talented individuals. However, we are hampered by state laws enacted decades ago that prevent incentives or rewards for those employees who excel at their jobs, not to mention the exhaustive hiring barriers which serve only to reduce state government's ability to hire the best and brightest in any given profession.

As of July 1, 1997 all California state agencies are required to have an established strategic plan. A strategic plan allows governmental entities to manage for results. These plans, which currently include a departmental mission, core competencies, short and long-term goals, are a comprehensive approach to addressing an organization's business needs. The 21st Century Training Action Team strongly recommends that the Department of Finance assist state agencies in adding a workforce development component to their strategic plan. As

departments consider future training and education programs, they need to ensure each course or program adds value to their stated mission and core competencies and will be reflective of the 21st century workplace.

Innovations in technology, computing, and telecommunications will continue to change the way our state government does business and increase the options available for training and educating our workforce. Part of tomorrow's education and training infrastructure will be the *California Virtual University*[2]. This program will allow individuals to access courses from accounting to zoology through accredited California colleges and universities via the Internet. By expanding the traditional classroom setting, the *California Virtual University* will provide significant benefits to our state agencies and public sector employees.

During the past two decades we have experienced an international technological revolution. Advancements in technology have exceeded the predictions of even the most optimistic soothsayers. During the new decade we will probably not witness the same level of extraordinary innovations in the technology arena. We will, however, be part of a phenomenal increase in the speed, application and use of current technologies. The Internet, which was conceived in the 1960s, became a household term only a few years ago when the World Wide Web captured our imagination and caused a proliferation of information-based web sites. Today students graduating from high school know how to navigate the halls of the Internet, conduct electronic research, compose on the computer and use data bases. Unfortunately, the same level of intense indoctrination and uniform accessibility to the Internet has eluded state government.

The mass education system has taught us an important lesson about learning: one size does not fit all. Teaching methods need to be diverse; to the extent we can provide different learning formats, the more effectively we can train our workforce. Technology, as it continues to evolve, will be

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[1] According to the Office of the Controller. This statistic includes full-time, part-time and intermittent employees.

[2] **www.california.edu**

vital to the learning menu. It has become apparent that the application of technology will dramatically change the architecture of state government.

However, applying technology in the workplace must start with the vision and commitment of our leaders. Vision is not enough—commitment to education and training is essential to making visions become goals and to making goals become realities. Spending millions on new state-of-the art technology is not prudent without educating a workforce to use it.

The 21st Century Training Action Team also found that the way we learn and the way we teach are continually evolving. New learning and teaching models (delivery systems) are complementing traditional classrooms as learning environments. Today's businesses are expanding training options for their employees through corporate networks and the Internet. Effective job performance requires an environment that enables employees to apply knowledge, skills, and abilities in ways that support the mission and goals of their organization. Learning in a rapidly changing workplace will require personal motivation, coaching and mentoring. The best possible use must be made of various teaching and training formats such as: cross-training, partnerships, just-in-time and on-our-own education techniques as described in this report. These delivery systems can serve as important vehicles for pursuing expanded and varied learning needs.

"The mass education system has taught us an important lesson about learning: one size does not fit all."

This report identifies tools for advancing the use of innovative and technology-based teaching methods. It also emphasizes the responsibility of each state executive to commit his or her organization to training and continuing education. While commitment must start at the very top, it must be a shared responsibility between individual employees and their managers. Numerous educational institutions currently provide employee education to both the private and public sectors. The programs that are most successful should be expanded throughout state government so that all state agencies can benefit.

EXECUTIVE SUMMARY

At present, this state's commitment to the training and continuing education of our workforce is, at best, erratic. Many departments are doing an exemplary job. We especially want to recognize the work of public safety agencies, the Department of Parks and Recreation (which recently won the Eureka Award for Quality Service and Excellence) and several other agencies as noted throughout this report. Resources are currently being spent for training, but these programs need to be integrated into agency and department strategic plans so that training and department goals are aligned. Specific recommendations are provided in detail throughout this report.

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The Training Action Team recommends:

- The Department of Finance (DOF), in cooperation with the Department of Personnel Administration, should prepare guidelines for, and assist departments with, integrating a workforce development component into each department's strategic plan. DOF should also prepare an analysis of the total dollars currently being spent on education and training for state employees and develop measurable standards for a return on training investment.
- The California State Library (California Research Bureau) and Department of Personnel Administration (DPA) should create a new web page, **www.learning.ca.gov**, that integrates all state training activities on-line, including internal department programs, on-line catalogs of accredited California institutions, and other internal or external education and training resources available to state workers.
- The Department of Personnel Administration should act as a clearing house and evaluate internal and external workforce development programs. DPA should develop expertise in

emerging technologies and teaching methods for use in state training, and provide professional consultation and assistance to departments, including training needs assessments.

- In order to facilitate the streamlined acquisition of training services, the Department of General Services (DGS) should establish Master Service Agreements (MSAs) for courses offered by various public and private sector organizations. DGS should also expand existing MSAs to include suppliers who can offer computerized training or orientation programs for frequently used courses; and establish an electronic catalogue of available training and education.

- Department directors should develop strategic plans that identify the training requirements associated with strategic objectives and core competencies and assure that training investments are linked to specific strategic outcomes, including employee performance measures.

- Department training officers should identify specific performance needs for departments based on their department's strategic plans and human resources, as well as training and education planning elements.

- State supervisors and state employees should identify specific job requirements and performance needs for their departments, and identify appropriate development plans and evaluation methods.

- State government needs to recognize and reward those civil servants who excel in their jobs, and we also need to recruit the best and the brightest into the state workforce. Recruiting agencies should ensure that the state is hiring, training, rewarding and promoting a workforce that is capable of moving state government into a more effective, customer-focused and innovative organization.

PREFACE

To be competitive in the 21st century, state government needs to maximize the performance of its workforce. Workforce preparation programs need to reflect the fact that the workplace of the 21st century has changed from industrial-based to knowledge-based. Learning once is not enough. Continued training and education are essential to all efforts to enhance workforce performance. Today, however, state employees often lack knowledge of how to utilize emerging technologies and, therefore, fail to reach higher levels of individual and organizational productivity.

In April of 1996, Governor Wilson published the *Competitive Government Report, A Plan for Less Bureaucracy, More Results*. This report recognizes that to maximize the performance of an organization, we need to maximize the performance of its workforce. The Governor proposed improving training methods, expanding the use of public and private sector training, linking training to performance requirements and leveraging training opportunities available to the state workforce.

"This report recognizes that to maximize the performance of an organization, we need to maximize the performance of its workforce."

As a result of the *Competitive Government Report*, the 21st Century Training Task Force was created to address workforce needs for state managers and employees into the next millennium. The task force identified the need to: (1) plan for workforce development; (2) obtain executive level commitment; (3) align state training organizations to 21st century demands; (4) offer incentives for the application of new knowledge; (5) eliminate barriers that work against improved performance and productivity; and (6) create a participatory environment which supports innovative delivery methods. The goal of training and education in California State Service is to increase the effectiveness and competitive advantage of state government through its employees.

The recommendations of the Training Task Force prompted the Governor to issue Executive Order W-151-97, establishing the 21st Century Training Action Team. The recommendations laid the foundation for our implementation guidelines. This report is designed to assist agencies and

departments increase their productivity and effectiveness through the training and education of their employees.

In developing our recommendations, we considered the Task Force's recommendations that also identified: the need to consistently commit to workforce development; the importance of offering employees and supervisors greater discretion in selecting training and development opportunities; the assurance that employees from all levels have access to participation in workforce development training; and the recognition that training leads to lower costs and increased productivity; hence, training should be viewed as a capital investment rather than a periodic expense.

Dollars invested in state workforce training are returned to the taxpayers in the form of savings created by improved efficiency. Some experts estimate that the return on investment for training is as high as three dollars saved for every one dollar invested. We believe that, at a minimum, investments in training pay for themselves through subsequent efficiency improvements.

Many of the best companies in the private sector place a strong emphasis on training. In 1996, corporate America spent an estimated $60 billion on employee training and education. It is projected that in 1998, nearly 60 million U.S. workers, over half of the entire U.S. workforce, will participate in formal training and education. The 21st Century Training Action Team recognizes the need to prepare our workforce for a new working environment - a place where the priority is on results over process, innovation over regulation and merit over mediocrity. There is tremendous potential in the innovative training systems currently being developed and used in the private marketplace, which can and should be adopted in public service.

This report specifically addresses the expanded use of innovative and technology-based delivery systems, the streamlined acquisition of training services and the ongoing executive commitment to workforce development.

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LEARNING DELIVERY SYSTEMS

The traditional method of training people is changing. Classroom-based instruction is giving way to include a wide range of methods to support lifelong learning and continuous improvement. Although this report uses the term "training," we recognize that today's workplaces are moving away from the industrial-production model, to knowledge-based and learning organizations.

This report addresses the need to gain executive commitment throughout state government. We must also capitalize on the innovative solutions and delivery methods to more effectively train and develop California's workforce. The focus in training is shifting from a concentration on classes and hours, to performance at the organizational, team, and individual level. Traditional trainers are becoming performance consultants as learning takes on expanded meaning. Training and education infrastructure and delivery system solutions must be applied to facilitate learning as an organizational strategy that is integrated with and parallel to work. More effective instructional methods, innovative learning systems, media, and technology are important elements in developing the skills of our workforce.

Training strategies must reflect resource constraints while meeting organizational needs. Delivery systems should be carefully analyzed and selected based on the defined business and training needs of the organization. Technology has tremendous use and potential as a delivery system for a wide variety of training situations as discussed in the technology

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section. However, technology-based training is not effective in all situations and we must consider all teaching and training methods available. Personal motivation, coaching, mentoring and experiential learning or hands-on skills development may all be necessary for desired outcome.

There are many excellent training models in California government that require experiential learning or hands on development. For example, all public safety agencies provide hands-on training specifically for law enforcement, fire protection and correctional officers. The Peace Officer Basic Course combines training in weapons proficiency and defensive tactics with classroom instruction. The Department of Parks and Recreation conducts intensive training courses in plumbing, carpentry, and electrical skills with actual construction simulations.

Team learning, mentoring and cross training are widely used techniques throughout many state agencies. Many classes offered by the Department of Personnel Administration reinforce performance proficiency with the use of team learning techniques. The Franchise Tax Board's Management Development Program was specifically design for FTB managers and supervisors as a mentoring initiative. And, cross training techniques have been fundamental to the partnerships between the Franchise Tax Board, the Board of Equalization, the Employment Development Department and the Internal Revenue Service.

Partnerships

Training partnerships among public, private, nonprofit, academic institutions, labor and trade organizations can be cost effective strategies for improving the quality and efficiency of training programs. Opportunities exist to leverage resources through partnerships. State, federal, and local governments, academia, private sector, labor and trade organizations have valuable and diverse resources to contribute. Each has areas of expertise as well as experience with various educational methods and techniques. Collaborative efforts among public agencies can improve the content and quality of training, provide opportunities for innovation, and reduce duplication of effort. Training partnerships may take a variety of forms, including formal interagency agreements, professionals that meet regularly for information-sharing, networking, and consultation as well as informal cooperation on specific training topics of common interest.

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The state has many examples of successful partnerships and the Action Team recommends expanding these partnerships and opportunities. For example, the Department of General Services entered into an agreement with CompUSA and the State Electronic Data Processing Education Program (SEEP). This public-private partnership was established through the competitive bid process and allows state agencies to purchase training vouchers at a discounted rate that apply to personal computer classes administered by CompUSA. These classes are offered throughout the state. Other joint ventures exist between collaborating state agencies, academia and the private sector. The Department of Personnel Administration partners with the California State University, Sacramento to administer the Management Certificate Program for state managers. The *California Virtual University* has partnered with 65 California accredited colleges and universities to provide an on-line catalog of courses available to all state departments.

Technology-Based Delivery Systems

Technology-based training is a delivery system that can help organizations address performance and production effectiveness. By increasing the use of technology as a learning method, organizations can better disseminate learning throughout the organization with considerable cost savings. Technology is a vital tool in sustaining the goal of providing the environment for a learning organization.

State employees should have access to the very best educational services enjoyed in other large organizations, both public and private. Today, state-of-the-art corporate training programs have a strong on-line component, providing the ability to: 1) take a computer-based course, on demand, on a large range of topics, at the desktop, at one's own pace; 2) search a wide range of in-house and external on-line classes and enroll in an appropriate course; and 3) enroll or register in a traditional course or program, on-site or off-site, and execute the entire transaction, from search through registration and payment, in a paperless process more quickly than the current competitive bid process allows.

The Action Team's technology subcommittee developed the following recommendations:

- The Department of Personnel Administration should review all State Training Center courses and, as appropriate, provide innovative alternatives for courses including on-demand individual instruction and on-line class instruction. The *California Virtual University* catalog can fulfill the need for on-line class instruction.
- The California State Library and the Department of Personnel Administration should create a new web page, **www.learning.ca.gov**, that integrates on-line all state training activities, including internal department programs, DPA quality programs, on-

line catalogs of accredited California institutions marketed through the *California Virtual University*, on-demand individual self-paced courses, and any other internal or external education and training resources available to state workers.

- The Department of Personnel Administration should establish a paperless process that will allow any state worker to begin a self-paced digital course on demand. A state employee should be able to enroll in any class—internal or external, on-line or classroom-based—within 24 hours.
- The Departments of General Services and Personnel Administration should create or expand supplier lists to include on-line classrooms, meeting facilities, classes and programs.
- The Department of General Services should establish a Master Service Agreement (MSA) for on-demand courses from suppliers in the private sector.
- The Department of General Services should expand existing MSAs to include vendors who can digitize departmental training programs and orientation programs that are in high-demand into on-line courses.
- Departments should establish "community" workstations or other accessibility solutions within departments to increase computer availability to the workforce for learning purposes. This addresses those employees who may not have computer access during normal working hours or at home.
- Departments should establish Internet accessibility immediately for state training officers and others with responsibility for developing employee training programs.

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- Departments should use existing education instruction that incorporates technology-based delivery such as the *California Virtual University* that makes available distance learning course and program offerings from California colleges and universities.
- State employees pursuing courses on-line should have the flexibility to reduce their work hours, subject to operational needs and management approval, and be permitted to take courses on-line from home at night or at another convenient time. The flexibility provided by emerging forms of networked education should not be limited to non-government employees.
- Departments should create a coordination strategy to share experiences and knowledge of training information. Internally, a staff sharing strategy should be developed to maximize the effectiveness of electronic learning.
- The Department of Personnel Administration should sponsor a conference of the *California Competes Institute* to familiarize state agencies and departments with the potential uses, strategies and savings available through technology based learning. It is essential to acquaint state managers with the growing variety of effective training services.

Technical requirements should not be imposed on departments and end users. The design and delivery systems should have variety, from simple to complex, depending on the access to technology by the worker and the nature of the content. This will allow maximum workforce accessibility.

The Departments of Finance and Information Technology have responsibility for reviewing and approving state technology acquisitions. These entities participated in the development of the technology section of this report and must be an integral part of any technology-based delivery systems.

EXECUTIVE COMMITMENT

State government needs to invest in its workforce and must remain committed to that investment over a sustained period of time. As an employer, we must recognize that our employees are our most valuable resource. Employees need the opportunity to develop new skills to meet the challenges of increased workloads and the proliferation of technology in our workplace. A report by the U.S. Department of Labor predicts that 75% of the current workforce will need significant retraining by the end of the decade. Our state requires a workforce that is trained to provide the highest level of customer service to California's taxpayers. Improving skills, continuing education and training can result in significant savings as we learn to work more efficiently and effectively. The Department of Finance, Department of Personnel Administration and Department of General Services, will lead the efforts to fulfill these recommendations. The following recommendations identify the specific roles of these control agencies, department directors and department staff.

"State government needs to invest in its workforce and remain committed to that investment over a sustained period of time."

The Role of the Department of Finance

The Department of Finance (DOF) has a complex and difficult job in administering the entire budget, accounting and fiscal systems for state operations. DOF affects the fiscal activities of other state departments and may revise, alter or amend any fiscal year budget before enactment. Through the budget process, DOF can also assist departments in addressing the enhancement of workforce development. DOF should guide departments in developing strategic plans to address training needs in alignment with department strategic objectives.

Department of Finance should:

- Require departments to include human resource elements, where appropriate in their strategic plans beginning Fiscal Year 1998-99.
- Continue to institutionalize the strategic planning process by publishing strategic planning guidelines that include a workforce development component.
- Coordinate with the Department of Personnel Administration to develop human resource and workforce development planning processes that support strategic planning. In conjunction with DOF, DPA may issue additional guidance to departments to assist departments in establishing human resource and workforce development elements into the strategic planning process.
- Assist the Department of Personnel Administration with developing a return-on-investment measure for use in planning workforce development programs.
- Ensure a streamlined protocol and approval process for technology-based learning in conjunction with Technology Investment Review Unit (TIRU) and the Department of Information Technology (DOIT).

The Role of the Department of Personnel Administration

The Department of Personnel Administration (DPA) is the administration's chief negotiator with labor unions. It establishes all state personnel policy and manages the state training, education and quality consulting programs. DPA's Training and Continuous Improvement Division (TCID) should assist and cooperate with state appointing authorities to ensure that the quality of training and education programs is continually improved and integrated with emerging technologies.

Department of Personnel Administration should:

- Coordinate with the California State Library to create a new web page that integrates all state training activities on-line, including internal department programs, on-line catalogs of accredited California institutions marketed through the *California Virtual University*, on-demand individual self-paced courses, and other internal or external education and training resources available to state workers. After a collaborative launch, **www.learning.ca.gov** can be managed by the California State Library, in conjunction with various partners, including DPA.
- Act as a clearing house and evaluator of internal and external workforce development programs; and adopt emerging technology and teaching methods for use in state training and education programs.
- Expand the role of the TCID to facilitate partnerships with other public agencies, academia, and the private sector. DPA should also expand the role of the TCID to become a one-stop resource for generic training services, offer new products to departments and educate departments about global services and other resources. Marketing materials will be periodically updated and published.

- Establish a State Training Advisory Group consisting of state training officers, other executives and members from private industry and academia to advise and guide DPA in the completion of these initiatives. DPA should provide periodic training program briefings to department directors.
- Establish a paperless process that will allow any state worker to begin a self-paced, computer-based course on demand. In addition, the process should enable state training officers to enroll an employee in any available class—internal or external, on-line or classroom-based—within 24 hours.
- Expand its MSA list to include on-line classes and programs.
- Review and identify State Training Center courses appropriate for innovative presentation methodologies, including in-classroom instruction, computer-based, on-demand individual instruction or on-line class instruction.
- Research and consider the centralization of training programs commonly used that may prove to be more cost effective. DPA should also consider the use of additional certificate of completion programs where appropriate.
- Coordinate a strategy for state departments to share experiences and knowledge of training information. DPA should sponsor a fifth conference of the *California Competes Institute* to make state agencies and departments aware of the potential uses, strategies, and return on investment through the use of technology-based learning. This should be accomplished by July, 1998.
- Provide professional consultation and assistance to departments including workforce development components for strategic plans and training needs assessments.

"As an employer, we must recognize that our employees are our most valuable resource."

The Role of the Department of General Services

The Department of General Services (DGS) is responsible for providing quality business and support services to state and public agencies consistent with state law and regulations. DGS coordinates procurement and contracting for training services including technology. DGS should to develop a more user-friendly acquisition process for obtaining training services by state agencies.

Department of General Services should:

- Create a virtual road map and a logically organized electronic interface to the procurement process for training resources.
- Facilitate the procurement of training services for departments by developing processes and plans to accomplish the design of an Internet homepage that will include "hot-linked" menus of information and resources for securing training services.
- Provide a contract resource guide for training opportunities currently offered by state departments; provide specific procurement process training to departments; identify a workforce training ombudsperson; and create a process to assist state departments in the timely acquisition of training contracts and resources.
- Establish a two-way continuous improvement mechanism to identify and communicate department procurement needs; and develop a mechanism to more effectively evaluate contracts for customer service content and accountability.
- Continue to be an advocate for procurement reform and pursue legislative changes to simplify the procurement process that is seen as complex and too costly by users.
- Establish a Master Service Agreement (MSA) for on-demand courses from various public provider organizations and private sector

vendors and expand existing MSAs to include vendors who can digitize department training and orientation programs that are in high-demand into on-line courses, or who can construct department in-house virtual universities.

- The Department of General Services and other contracting agencies should ensure California's taxpayers the best value for their dollar, by negotiating quality contracts, and selecting contracts based on "best value."

The Role of Department Directors

Department directors are responsible for the day-to-day operations of several thousand state offices and programs. The leadership and support of department directors will be significant in implementing these recommendations. The commitment to lifelong learning and professional development must start at the top and be sustained throughout the entire organization. Department directors shall provide program leadership, develop strategies and support the development and administration of innovative training programs.

Department directors should:

- Develop strategic plans that identify the training requirements associated with strategic objectives and needed core competencies; assure adequate funding to meet the identified training needs; and assure that training investments are linked to specific strategic outcomes including return-on-investment analyses for workforce development programs and employee performance measures.

The commitment to lifelong learning and professional development must start at the top and be sustained throughout the entire organization.

- Ensure that department training programs are evaluated and training programs are periodically audited. Department directors should also ensure that training needs assessments are built into training office operations, and that the identification of performance gaps becomes part of human resources and workforce development planning.
- Support the development and administration of innovative training programs by advocating and implementing the use of modern technology in workforce development, and critically review the use of existing department training and education programs.
- Ensure that community workstations or other accessibility solutions are established within departments to increase computer availability to the workforce for learning purposes. This addresses those employees who may not have computer access during normal working hours and may have existing barriers that prohibit access at home.
- Ensure that department training officers and others with responsibility for developing employee training programs have Internet access immediately. This will ensure easy interface with DPA and training providers that offer on-line services. Department directors should also ensure that state employees pursuing courses on-line have the flexibility to reduce their at office work site hours by a number of hours to be determined by management and take approved courses from home with scheduling flexibility.
- Develop and expand training partnerships with other public, private and academic organizations to share training resources and collaborate on training efforts. Other public agencies can include state, federal, or local agencies with similar program needs, as well as colleges and universities. Training partnerships

among public agencies can be used to improve the effectiveness and efficiency of training programs, reduce duplication of effort, improve the content and quality of training and provide opportunities for innovation.

The Role of Department Training Officers

Department training officers are responsible for the day-to-day activities of each department's training and performance improvement unit and work with department leaders to identify performance needs given to each department's strategic direction.

Department training officers should:

- Identify specific performance needs based on their department's strategic plans, human resources, and training and education planning elements.
- Develop workforce performance strategies that align with department strategic objectives.
- In partnership with program managers, identify performance needs to accomplish business objectives, appropriate interventions, funding requirements, and appropriate evaluation methods and performance measures.
- Develop, administer and/or broker innovative training/performance solutions, including the use of technology.
- Critically review existing training and performance solutions to determine how well they support department strategic plans and provide return on investment.

- In partnership with organizational leaders, create environments that foster continuous learning and performance.
- Establish partnerships with both the public and private sectors, learn from other organizations, leverage available resources and strive to reduce the time and cost of training administration processes.

The Role of State Supervisors

State supervisors are responsible for the day-to-day operation of department programs. They develop and monitor systems and processes, and deliver services to the people of California. State supervisors can impact the work environment to create a learning, growing and achievement-oriented workplace.

State supervisors should:

- In partnership with state employees, identify specific business objectives based on the department's strategic plan; identify existing staff competency levels and required staff competency levels; and develop plans to eliminate performance gaps.
- In partnership with department training officers, identify individual performance needs to accomplish business objectives; identify appropriate interventions; identify funding requirements; and identify appropriate evaluation methods and performance measures.
- In partnership with employees, identify specific job requirements; assess competency levels; identify skill gaps; develop individual development plans; and identify appropriate interventions and evaluation methods.

- Provide opportunities for employees to apply new knowledge and skills on the job and provide them with developmental feedback and coaching.
- Identify new areas for employees to apply skills to help the State of California build a career resilient workforce.
- Facilitate appropriate scheduling of learning activities to balance business needs with the development needs of employees.
- Create an environment that fosters continuous learning and performance improvement.
- Augment training with other innovative performance solutions, i.e., mentoring, cross-training, special projects and assignments.
- Evaluate the impact of training interventions and provide feedback to department training officers.

The Role of State Employees

State employees contribute to the day-to-day operation of state departments, working together to serve the people of California. Along with management support and sound working relationships with their supervisors and other employees, state employees should take an active role in their own development through continuous learning.

State employees should:

- In partnership with their supervisors, identify specific job requirements; assess individual competency levels; identify skill gaps; develop individual development plans; and identify appropriate interventions and evaluation methods.

- Participate in continuous learning by seeking opportunities to improve their skills and enhance performance.
- Learn new skills and identify new areas to apply their skills in order to ensure their job success and career resiliency.
- Seek opportunities to augment skill enhancement with other innovative performance solutions, i.e., mentoring, cross-training, special projects and assignments.
- Seek opportunities to apply new knowledge and skills on the job and seek developmental feedback and coaching.
- Utilize on-line learning resources whenever appropriate for just-in-time-training.
- Provide feedback to supervisors and department training officers regarding the evaluation of training interventions.
- Help create an environment that fosters continuous learning and performance improvement.

"… state employees should take an active role in their own development through continuous learning."

CONCLUSION

The 21st Century Training Action Team has presented recommendations to promote and facilitate the training and education of our workforce. It is a blueprint for making our government work better and for ensuring that we enter the 21st century in an innovative, competitive, highly-skilled, customer-focused, performance-driven manner.

As managers, supervisors and employers, we must realize that learning once is not enough. Providing an environment that sustains continuous learning benefits the employer as well as the employee. Learning new skills and applying them in our jobs keeps work interesting and increases morale and improves productivity. This basic equation applies to everyone, regardless of title or classification. Investing in our most valuable resource—our human resource — can provide a tremendous return on investment. This investment is key to a more competitive workforce and a stronger future.

The Action Team also found that new teaching and learning methods are challenging the traditional classroom as a learning environment. We have learned through the public education system that one size does not fit all. To the extent we can offer more variety in the way we educate and train, the more effective the results.

"Providing an environment that sustains continuous learning, benefits the employer as well as the employee."

Various state agencies have been identified in this report as key to obtaining the best possible values in life long learning and training methods. These delivery systems can serve as important vehicles for meeting expanded and varied learning needs. The potential return on investment for funds spent thoughtfully on continuous learning can result in long-term benefits for state agencies. If California is to enter the 21st century as a leader, we will need to do so as a partner. Commitment to education and training must come from everyone: the highest ranking executives, civil servants, labor and trade organizations, as well as the Legislature.

This report also calls for commitment to workforce development through the strategic planning process, the use

of innovative and technology-based delivery systems, the increased use of partnerships to leverage our learning opportunities and a simpler system for contracting for training services.

The Governor's 21st Century Training Action Team has specifically identified steps to implement these recommendations. The Departments of Finance, Personnel Administration and General Services must work together to assist state agencies in implementing these recommendations. To be most effective, we believe the Department of Personnel Administration should be charged with the implementation of these recommendations.

Finally, in our quest for peak performance, vision, investment, and sustained commitment is required. Vision to anticipate change and capitalize on its opportunities. Investment in technology, innovative training and education. Commitment to develop a more efficient and effective workforce. None of this can be attained overnight.

Immediate Next Steps

The Department of Personnel Administration should establish a training advisory committee that will coordinate focus groups to address additional training issues and provide guidance to departments to implement these recommendations.

- The Advisory Committee should prepare a model needs assessment for use by state departments.
- The Advisory Committee should prepare a consolidation study of state training programs that identifies effective training programs and helps to eliminate redundancies.
- DPA should provide assistance, guidance and consulting to departments to help evaluate the training component programs within their strategic plans.
- Department of Finance should analyze how much is currently being spent on workforce development for state employees.

Recommended Timetable

By February 1998

- ➤ Department of Finance should publish strategic guidelines to assist department directors to develop strategic plans that include workforce development.

By July 1998

- ➤ California State Library and Department of Personnel Administration should create a new web site that integrates all state training activities on-line.

- ➤ Department directors should include workforce development components into their strategic plans for fiscal year 1998/99 as appropriate.

- ➤ Department of General Services should develop a web page to provide a road map and information on how to procure training services. DGS should also establish an MSA for on-demand courses and expand existing MSA's to include suppliers who can digitize department training.

Appendix I

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER W-151-97

WHEREAS, state government in the 21st century must become more efficient in its delivery of services in its response to public needs; and

WHEREAS, keeping California competitive requires peak performance from each employee of state government; and

WHEREAS, training and education are critical tools in building a skilled, knowledgeable and competitive workforce able to lead the change in state government; and

WHEREAS, learning once is not enough as the workplace transitions from industrial-based to knowledge-based; and

WHEREAS, the rapidly changing workplace and the continuously evolving teaching and learning models makes workforce development programs a critical component of all organizational strategic plans; and

WHEREAS, improved workforce training and education results in cost savings, cost avoidance, customer and employee satisfaction; and

WHEREAS, the 21st Century Training Task Force, which was created as part of the Competitive Government Initiative, has provided a set of recommendations to guide state agencies and departments in their efforts to increase the effectiveness and competitive advantage of state government through the continuous training and education of its employees and managers.

NOW, THEREFORE, I PETE WILSON, Governor of the State of California, by virtue of the power and authority vested in me by the Constitution and statues of the State of California do hereby direct that:

The 21st Century Training Task Force shall be reconstituted as the 21st Century Training Action Team; and

The 21st Century Training Action Team shall be convened by the State and Consumer Services Agency (SCSA) and the Department of Personnel Administration (DPA); and will include representatives from state management, state employees and state employee unions, state training programs, academic institutions, and the private sector.

The 21st Century Training Action Team, shall define models for integrating workforce development programs into organizational strategic plans, assure executive commitment, align workforce development with the demands of the 21st century, encourage lifelong learning, eliminate organizational barriers, and ensure employee participation by:

supporting departments in assessing training and education needs;

identifying emerging technology and teaching methods to more effectively and efficiently deliver workforce training and education;

assisting state agencies and departments in reviewing the use of existing training and education programs and statewide training resources;

guiding agencies and departments in establishing financial commitment;

facilitating the expanded use of partnerships with the private sector, other public sector entities, and academia to leverage training and education opportunities;

creating models which align employee and management training measures to workforce development outcomes, including management's commitment to implementation and application;

The 21st Century Training Action Team shall develop a strategy to integrate the statewide workforce development program information into an accessible source for use by all agencies and departments to leverage their efforts to increase the competitive advantage of government through the training and education of its employees and managers.

The 21st Century Action Team shall convene no later than June 1, 1997 and prepare an implementation plan by December 31, 1997.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 31st day of March 1997.

Governor of California

ATTEST:

Secretary of State

APPENDIX I - EXECUTIVE ORDER

Appendix II

Additional Technology Information From The 21st Century Technology Sub-Committee

The integration of technology information and department training programs is an effective method of leveraging the state's investment in workforce training.

Performance and Technology-Based Learning Goals

Inherent in the success of the "marriage" of learning and technology is an understanding of the culture of a particular state agency. Any successful scenario for learning includes an understanding of the political and social systems inherent in the organizational culture, for it is the organizational climate that encourages, rewards, and has the capability of accelerating individual, team or group learning. Technology provides powerful tools for sharing learned information. Training and education infrastructure and delivery system solutions must be applied to facilitate learning as a strategically used process that is integrated with and parallel to work. Technology-based training is therefore one tool that can help management solve performance problems and capitalize on an agency's untapped potential to improve the performance and production of today's workforce while disseminating learning across the organization.

Technological learning applications require that trainers ask the same questions as with traditional training: What is the process needed to improve productivity and/or service and what knowledge is needed to make those changes or maintain those skills? Organizational goals or stated outcomes must be linked to performance. It is essential to start with performance, agency goals, and then link to technological-based training by identifying what employees need to learn to achieve those organizational outcomes.

Performance Measurement

To assess performance improvement requires measurement data. After completion of technological-based training, assess the impact of the training through:

- Encouraging and requiring employee feedback;
- Establishing benchmarks to measure the success of training (tests, questions on what the employee learned, what is used on the job, and structured observations, etc.);

- Recognizing the short-term correlation between training and success;
- Evaluating cost and time versus productivity;
- Recognizing the need for correlation between computer-based training and employee success over time through performance evaluation; and
- Building into each course offering approved by agencies standards and criteria for employee course completion.

Agency Guidelines for Implementing Technology-Based Learning Components

Use information technology to support, not replace, knowledge management.

- Assess current training for appropriate technology applications.
- Determine whether any part of the learning lends itself to electronic dissemination.
- Do not eliminate skills training where human interaction is critical to success.
- Besides formal training, use computer-based learning techniques to enhance what employees are exposed to in the course of delivery of their jobs (OJT).

Describe to employees managerial expectations and parameters for technological applications to training so they too can enhance learning and discourage counter-productive or wasteful use.

Provide opportunities for staff-sharing strategies for information gained through technology-based training.

- Staff-sharing will increase retention through use of multiple senses, and minimize the linear aspects of computer-based training.
- Knowledge sharing frameworks should be self-reinforcing and self-generating while fostering knowledge creation and shared processes.
- Technology should (and can) accelerate the flow of information from the individual to the organization and back again, thereby creating value.

Provide for oversight and support of technological knowledge and management efforts.

- In-service training applications and employee career development plans should support business needs and employee growth.
- Out-service applications should support business needs and employee career development plans.

In implementing technological applications to learning, focus first on what employees need and can use now; expand later to what they will need in the future.

- What employees need now is measurable through on-the-job demonstration of acquired skills and knowledge.

Ensure employee career development plans reflect or incorporate technology-based training methods.

Allow for the capacity and environment to anticipate ever-changing technology and provide internal resource availability. Recognize the need to continually uncover, analyze and adapt new technology.

Encourage computer-based solutions, that will be reliable and are designed for integration into the culture of the client's organization, require an in-depth analysis of each client's system and requirements.

Assess Training Facility Capability (see training facilities of this appendix).

Provide adequate resources consistent with agency training policy and civil service bargaining agreements to implement and ensure success of technology-based learning.

Integrate technology-based learning policy with state telecommuting policy. A task force should be established to develop or refine guidelines with representatives from DPA, DOIT, department representatives, and labor relations specialists.

Where Technology May Be Used To Deliver Training And Education

Groups of learners in classrooms

- At work site
- At training and education centers

Individual learners

- At work site
- At training and education centers away from work site
- At home
- Combinations of work site, remote training centers, and home

Systems for delivering training

- **Interactive classroom**
  - With keypads for student responses
  - With variety of media
- **Video tape**
- **Audio tape**
- **Interactive multimedia using desktop computers**
  - Stand alone - CD-ROM, Digital Versatile Disk (DVD)
  - Internet and Intranet

- **Workbook**
  - Without other media
  - In combination with other media (i.e., videotape, audio tape, simple or complex computer-based multimedia)

Distance learning systems

- Real time video conferencing
- Using desktop computers
  - Individual's regular work computer
  - Separate computer for training
- Using teleconferencing facility away from work site
- Satellite-based communication
  - To classrooms/individuals equipped with telephone/video links to live instructors or other classrooms/individuals
  - As means for distributing programs that are recorded for later use
- Virtual classroom— not constrained by time or place — using computer-based communication systems (Internet, Intranet and electronic bulletin boards)
  - E-mail
  - Electronic forums (for interaction among instructor and students and other resources)
- Electronic performance support systems (primarily to eliminate training but many systems also include training components)
- "Hybrid" systems combining elements of multimedia, live interaction, and electronic communication

Opportunities And Obstacles To Technological Learning

TRAINING FACILITIES

Worksite Classrooms

Classrooms offer particular advantages when the delivery mechanism requires specialized infrastructure or costly communications techniques, such as two-way video teleconferencing or computer-delivered training involving specialized graphics workstations and high-speed communications links. Classrooms can also be equipped with large-screen monitors or projection displays to facilitate real-time broadcasts or pre-recorded video, or group-based interactive computer-based training.

Worksite classrooms generally must be located where a large student base exists to support expensive infrastructure, or must employ lower-cost technology and fixtures. The range of worksite classroom facilities can include video conferencing facilities, groups of networked training workstations, and conference or break room environments with little infrastructure that can be employed for audio conferencing and prerecorded video.

Existing state worksite classrooms are generally located in buildings where there is a large concentration of employees. The

majority of these classrooms are equipped with standard classroom fixtures such as white boards, projector screens and sometimes television and VCR equipment or computer screen projection devices. Only a small portion of existing training rooms are equipped with cable television or satellite facilities, although certain departments, such as the Department of Corrections, have established such facilities to support centralized provision of training materials at remote locations.

Worksite classrooms containing desktop workstations for each student generally exist only at facilities with a large recurring training requirement or at locations where training is a core or related function. These facilities, largely because of their scarcity and the need to recover investment costs, tend to be fully used during normal working hours, so the potential use of existing worksite facilities for other training purposes would need to be scheduled during evenings and weekends. In some cases, the need to specially configure training workstations for specific classes will preclude off-hours use of those workstations for other training. Some of these environments are equipped with Internet connectivity to support network training.

Most worksite training facilities, especially those with workstations or video communications, are established and maintained to support existing departmental requirements, and do not have substantial unused capacity on the prime shift. In some cases, worksite facilities are subject to the physical access restrictions to the site, such as those of the correctional facilities.

State Training Facilities

The state currently operates several training centers. Many of those centers are operated by agencies for the purpose of providing vocational training to their own employees, such as the one operated by the Department of Corrections for correctional officer training. Other centers are designed to offer courses to the state employee population as a whole. For instance, the Department of Personnel Administration offers a variety of courses, such as supervisory training, writing skills, communications skills, etc., for delivery to all state employees.

The centers operated by the Department of General Services (DGS), the Teale Data Center, and the Health and Welfare Agency Data Center offer primarily Information Technology (IT) and project management courses and utilize microcomputer and mainframe equipment owned by the state. The DGS center for the Statewide Educational Enhancement Program (SEEP) is also equipped with video conferencing and satellite technology and is planning to add Computer Based Training (CBT) courses in the near future. All the other forms of training offered at state training centers require the use of classrooms and are scheduled for several students at once normally for the duration of the entire course. CBT has the added advantage of being adaptable to an individual's schedule and paced to that individual's speed of learning and available time.

Video conferencing equipment currently exists in over 70 locations

throughout the state that are owned and operated by state agencies, the University of California (UC) and the California State University (CSU) systems. State agency equipment is primarily being used for employee training, distance meetings and to provide medical services to prisoners. Most of the equipment in place is in-systems, although the Department of Health Services is using desktop units to provide services and training to rural health care administrators. Video conferencing classes have the advantage of physically joining instructors with students in many locations. However, the equipment can be difficult to operate and expensive to use since it relies on the use of high-speed communication lines and equipment not currently supported in most state environments. Use of more than two sites at one time involves additional expense and complexity.

The UC and CSU systems are actively using video conferencing and satellite technology to give and receive distant courses. These organizations have dedicated considerable resources to a policy of community outreach and are planning to increase the system of sites now available for use. For example, through a recent agreement made between CSU and the California Community College system, the CSU network (CSUnet) will shortly be expanded to include the 125 community college campuses in California. Many of these campuses plan to utilize video conference and satellite technology to expand the number and type of courses they currently offer by downlinking classes from CSU campuses.

In addition to the broadcast technology in use throughout the college systems, satellite technology is being used in many state and county racetracks and fairs. Established to facilitate satellite wagering on horse racing, many of these organizations also offer off-use access to others. The Franchise Tax Board currently utilizes these sites to provide classes in California tax code changes, instead of the traditional classroom courses previously offered. Trainers can broadcast courses from Cal-Expo and reach a statewide audience, although audience interaction is limited to voice via separate phone connections. Thirty-three of these satellite sites exist statewide, thirteen have the capability to send or receive broadcasts and twenty operate with a receive-only capability.

Vendor Training Facilities

Training facilities that are owned and operated by vendors are essentially unlimited in their capabilities and capacities. A wide variety of training facilities are already in place in many urban locations in the state. It is reasonable to assume that vendors would be prepared to develop facilities for the state if the state were prepared to offer sufficient business opportunity. That caveat is significant in some areas. The state may not be able to offer enough training and education business in many rural and small urban locations to support the vendor's infrastructure investment. In many such locations, no other business opportunity exists to assist in that support. In such cases, the state will want to weigh the costs

of providing its own training facility or in supporting an underutilized vendor facility through premium rates.

Another alternative is for the state to provide a furnished training facility, and for the vendor to provide workstations, telecommunications and video equipment. Some vendors currently offer such services for short-term training engagements. Some types of learning and education will require a longer-term installation; the state can expect that there will be vendors willing to provide such equipment and services to support that equipment if adequate business terms are offered. Even in locations where large concentrations of state employees might justify the state establishing its own infrastructure, the state may prefer to obtain equipment and services from vendors to avoid the expense and distraction of supporting these functions if they are not consistent with normal department core competencies.

Desktop Worksites

The state has installed some type of computing facility on approximately 100,000 desktops in state government offices. Approximately half of those desktops are equipped with computer workstations: about 80 percent are Windows/Intel ("Wintel") type personal computers, 10 percent Apple Macintosh workstations, and the remainder a mixture of various types of Unix and OS/2 workstations. At most, one quarter have the ability to directly read CD-ROM information, and while most of the remainder can read material on floppy diskettes, there is considerable variation on the type of diskette installed. Relatively few of these desktop computers have the ability to play voice-quality sound or to accept a microphone for voice input and virtually none are equipped with video cameras. Installed desktop workstations also vary in their support for graphic display; most can accept full-color static pictures, but less than 20 percent can support acceptable display of moving video (many with limited image size or with jerky motion).

At least half of these desktop computers are three or more years old. Nearly all of these workstations are connected to a Local Area Network (LAN), and perhaps three quarters of those workstations have connectivity to the state's internal Internet, and through that network, potential access to the Internet proper. Various restrictions including firewall security, workstation hardware or software limits and capacity constraints prevent access to the Internet despite the existence of network connectivity. A fairly small portion of these desktop workstations that do not have Internet access have the ability to access a departmental Intranet, although some state environments have implemented Intranet access without Internet access to a substantial portion of their devices. Less than 10 percent of these desktop devices have network connectivity capable of supporting full-motion video displays necessary for desktop teleconfer-

encing. Of those, the networks can typically support simultaneous teleconferencing to only a few devices at a location. While most of the desktops have network connectivity that support audio, many networks include delay and contention that make interactive voice communications unacceptable, even if the desktop device itself supports such communication.

The remaining desktop devices consist of various types of "dumb" terminals. These devices possess no independent processing capability, and obtain all of their functionality from the programs running on their host computers. The vast majority of these terminals are 3270 devices connected to mainframe computers at the Health and Welfare and Teale Data Centers. Of the remainder, most are VT100-type terminals connected to Unisys mainframes at the Department of Justice or the Board of Equalization, or to a variety of aging minicomputers. Almost none of these devices possess any ability to display non-text information, to play sounds, or access the Internet. There is some potential that technical changes may bring Internet browser capability to a portion of the 3270 terminal base within the next two to three years. No increased functionality is anticipated for the remaining dumb terminals.

Most of the desktop computing workstations, whether Wintel, Macintosh, OS2 or Unix, will support some form of Computer Based Training (CBT). This training can be delivered through LAN file servers to most of these devices or through floppy disks of various formats. Floppy disks are very constrained in their capacity to hold information other than text which limits the training capability. CBT courses of higher quality, including graphics and sound, can be delivered from LAN file servers to LAN-attached desktops, through CD-ROM, or across Internet or Intranet WAN links. The IBM mainframe environment also supports text-only CBT instruction through the attached 3270 workstations. Similar capabilities exist in the Unisys environment, although content availability is limited. The state's wide area and local area networks are generally suitable for the distribution of Computer Based Training materials to desktop workstations, or to LAN file servers for later redistribution to workstations. In most cases, the material must first be transmitted to the destination device, then executed at the desktop. It is usually not feasible to access CBT course material in real time from a source not located within the same Local Area Network environment.

As very few state desktops are equipped with video cameras, desktop teleconferencing is limited to video broadcast from a central source to those desktops. Desktop workstations also vary in their ability to display full-motion video. Less than 20 percent, as noted above, can support acceptable full-motion video, although at least half can support digital "whiteboard" displays, and most of those can also transmit such images. A similar portion has microphone inputs and audio outputs to support two-way voice interaction. Full-motion video displays, with or

without sound, cannot be transferred effectively over links slower than about 256K bps. This generally constrains desktop teleconferencing; either one-way broadcasts or interactive conferencing to communication within a single facility, or between facilities served with T1 links. A single T1 link, if otherwise unused, can support only a handful of separate simultaneous communications. Since these links are in place for other purposes, available capacity generally will limit teleconferencing-type training to a single video course at a facility and will generally prevent video interactivity, although two-way voice and whiteboard transmission are feasible. In many locations, existing traffic on the WAN or LAN links may work to require teleconferencing to occur outside prime working shifts. Network limitations are somewhat relieved if the communications are contained within a single site's Local Area Network, although capacity limits may require that LAN use occur off-shift.

Work at Home

While no specific research is available regarding the technology available in state employee households, broad generalizations can be drawn from the state's population at large. Nearly all of those households are equipped with televisions and most of them also have video cassette recorders. Many also have cable television connections in place.

A much smaller portion, probably less than one quarter of state employees own personal computers. These computers are likely to include many machines that are not suitable for any current training software, lacking suitable processors, memory capacity and CD drives. It is unlikely that suitable machines are installed in much more than 10 percent of state employee homes. Most of these newer machines are equipped with some audio capability although the average home computer can support only simple tones. Essentially no home devices are yet equipped with video cameras. Of those homes with computers with current or recent technology, it is likely that a fairly high percentage is equipped with voice-line modems that support speeds of at least 9600 bps. Many of these homes already have Internet access through an independent service provider. Any machines with modems can use existing voice telephone lines to access an Internet provider or special purpose network service provided by or for the state to support training. This access will be somewhat restricted by the limited capacity of the voice modems; complex graphical training material will perform poorly; live video will not perform at all. Most homes have only one telephone line, so other telephone use will be precluded during training sessions, or at least while training material is downloaded to the device. The number of homes equipped with higher-speed ISDN digital links is so

small it is insignificant for this purpose. Such links would assist in the use of graphical training material, but would still not enable video-based training.

In general, it can also be assumed that the home computer install base will continue to increase in volume and quality over the next several years. As those computers become more affordable, and as Internet and similar content sources become more worthwhile to families, it can be expected that individuals will purchase or upgrade their computer capabilities. At this time, however, it should not be anticipated that network communications capabilities will improve beyond voice-grade capabilities within the next few years; this will effectively limit communications speeds to 56K bps or lower. The availability of higher-speed digital services will be very limited even in urban areas for some time, and will probably not reach rural locations until new satellite broadcast systems, such as Low Earth Orbit Satellites (LEOS) are implemented in large numbers.

The home environment should therefore be considered for this planning period to support Computer-Based Training that can be delivered by diskette or CD and that does not require complex multimedia capabilities. Broader usability in the home environment can be obtained by limiting the need for high-speed processors, current memory intensive operating systems such as Windows 95, rich audio capabilities, and perhaps even CD-ROM drives. A somewhat smaller, but rapidly growing, number of state employees will be able to use Internet-delivered training, but only if that training is suitable for low-speed voice modem links.

Acquiring And Contracting Training

Instructors, Course Content and Supplier Training Facilities

Training course content and course instructors can be obtained through state agencies using a variety of contracting methods. The use of training facilities, either combined with course content and instruction services or alone, can also be readily acquired. Where it is cost-effective to instruct an individual employee (generally, under $1000), the state can simply register the employee for the course or acquire the course material through the department's existing training budget. This method is probably suitable only for very specific and short-term education purposes.

The state may conduct a competitive acquisition for higher cost educational materials and services. The state has found awarding contracts to multiple suppliers to be extremely efficient and well received statewide. This type of contracting methodology includes programs such as the Cali-

fornia Multiple Award Schedule (CMAS), Master Service Agreements (MSA), or, for computer technical training, the California Computer Store. CMAS acquisitions generally involve a supplier that has established a Multiple Award Schedule with the federal General Services Administration, and has been approved by the Department of General Services (DGS) to extend those services, products and pricing to the state. Master Service Agreements involve contracts for specific services at set prices and rates that are awarded to multiple suppliers through a competitive bidding process and can be utilized by all departments on an ongoing basis. Typically, DGS will conduct such bids to establish a list of suppliers when approached by one or more departments demonstrating a common need by multiple departments. In the case of both CMAS and MSAs, departments do not have to conduct their own competitive bidding process and draft individual contracts—a time consuming and expense process. Establishing a new MSA or CMAS is not an easy or quick process; however, once they are in place, they can save the state a tremendous amount of time and effort. The California Computer Store is a special type of master agreement that allows departments to acquire desktop computer and networking goods and services in a similar manner as for the MSA and CMAS.

Use of State Facilities

The use of state facilities presents some specialized issues. While there are generally no significant restrictions for the use of department training facilities by the employees of those facilities, there are some special cases where that is not entirely so. In some cases, where shared training facilities and individual workstations are acquired through federal or other special funding sources, the state cannot freely use those facilities for training and education that is not related to the funded program. There is usually some flexibility in those limitations, at least up to the point where non-program use interferes with program use. Even where there is no funding restriction, security and related issues may limit use of facilities located in restricted areas and some cases include employee offices and desktops. In most cases, it should be anticipated that individual employee workstations will not be made readily available for use by other employees, even during off hours.

The use of department facilities by employees of other departments encounters other limitations. In addition to security and access restrictions, cost recovery presents other complications. Most departments cannot practically charge other departments for the use of their facilities, either because of limits in their authority or because of the difficulties in establishing Memoranda of Understanding with potential clients. The funding source issues noted above may be even more difficult in inter-agency situations.

There are state organizations, notably the Departments of General Services and Personnel Administration, and the Teale and Health and Welfare Data Centers, which maintain training facilities for multi-agency use. These organizations already have suitable capabilities, processes and agreements for the recovery of the costs associated with establishing and maintaining their facilities. These organizations' policies can probably be easily adapted and extended for the provision of other learning and education services.

Development of State Facilities

The current method for acquiring information technology infrastructure, which include desktop workstations, video conferencing and telecommunications systems, is to present a business-case for that acquisition by documenting the expected return on investment to the program. The proposer must then present the case in Feasibility Study Report format and receive approvals from the Department of Information Technology and the Department of Finance. The proposing department can then request the necessary funding through the Budget Change Proposal (BCP) process, or re-direct the necessary funding from other budgeted sources. If existing program infrastructure is to be utilized, the effect on current and future program use of that equipment must also be taken into consideration. On the other hand, if equipment is to be acquired for the purpose of training employees from several program areas, then shared funding would need to be addressed as would the issue of any legislation which currently prohibits the commingling of program funds.

Since requests for expenditure authority on infrastructure acquisition must be submitted in Fall of the year before their inclusion in the Governor's budget, and since project approvals must be obtained prior to those submissions, the process can be lengthy and must be treated as part of an agency's long-range plan. If a statewide approach to employee education is desired instead, it is possible that the issue of funding should be addressed at the policy level. Acquiring and maintaining a technology infrastructure that allows for delivery of education and training cannot necessarily be identified as, or justified under the category of, a training expense, especially if that equipment is also used for non-training purposes. Likewise, the savings experienced with this type of delivery is also difficult to attribute to training. For instance, if a department can lessen the productivity impact of sending an employee to a 40-hour course by providing an opportunity to take the same course in 4-hour CBT segments at the worksite, it may save dollars in travel, overtime, workload back-fill, etc. Most of these savings are realized as program savings, not as savings in training costs. If the same employee were encouraged to take the class at home, even more savings may be realized by the department, but again it is a savings to the program that the employee supports and not necessarily to the cost of his training.

Training Partnerships

Opportunities exist to establish training partnerships with the private sector that can result in discounts to state agencies or employees. A similar type of partnership can also occur with the higher education systems throughout the state. Several examples exist such as: a partnership currently is in place between CompUSA and the State EDP Education Program (SEEP) at the Department of General Services (DGS). This relationship was established via a competitive bid process and allows state personnel to attend information technology (IT) classes in any CompUSA facility, statewide. The agency or employee may purchase training vouchers at a discounted rate from SEEP and then use those vouchers to pay for personal computer classes given by CompUSA. An example of another partnership is through the community colleges. This is an opportunity through an interagency or standard agreement non-bid process to obtain training and education with the UC, CSUS, and the community colleges for technology interventions, and other types of training. An example of statewide coordinated training is a partnership with state and community colleges. Training partnerships have been successful at colleges throughout the state, with one lead college coordinating the overall program. The California Highway Patrol (CHP), Department of Fish and Game and other departments have taken advantage of the pricing structure and statewide coordinating ability of the community colleges. The arrangement of using our higher education systems resources can usually be coordinated more quickly than the competitive bid process.

Other IT courses may also be purchased or arranged through the State Computer Store facilities currently operated in Sacramento, San Francisco and Los Angeles. These stores are operated by private-sector organizations through other agreements obtained through a competitive bid process. Courses offered through CompUSA, the State Computer Stores and the higher education system utilize classroom settings with microcomputer equipment provided by the vendor. Additional courses could be arranged by establishing additional partnership contracts for a broader range of courses, or by utilizing other contracting options such as CMASs or MSAs that the state has in place. These options can take several months to implement.

Appendix III

21st Century Training Action Team Participants

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