



FEBRUARY 2003 AGENDA

<b>SUBJECT</b> California K-12 Education Technology Master Plan		<b>ACTION</b>
	<b>X</b>	<b>INFORMATION</b>
		<b>PUBLIC HEARING</b>

**Recommendation:**

The Commission on Technology in Learning’s *California K-12 Education Technology Master Plan* is presented for information only.

**Summary of Previous State Board of Education Discussion and Action**

None

**Summary of Key Issue(s)**

The Commission on Technology in Learning was established by AB 598 (Soto) as an advisory body to the State Board to make policy recommendations to the State Board of Education in areas including, but not necessarily limited to: (1) statewide planning for technology, (2) dissemination of technology resources, and (3) ongoing comprehensive statewide evaluation of technology, telecommunications, and distance learning. The Commission developed the attached document prior to sunsetting on January 1, 2003.

The law required the Commission to recommend to the State Board guidelines for the preparation of three-to-five year district education technology plans, and in January 2001 the Board adopted the Commission’s *Education Technology Planning: A Guide for School Districts*.

The *California K-12 Education Technology Master Plan* is the second document developed by the Commission for submission to the State Board under the provisions of AB 598. The Commission held its first meeting focused on updating the Master Plan in June of 2001. The Commission held a number of summits focused on key questions/topics, including public comment opportunities at all meetings and public hearings at both the northern and southern CUE (Computer Using Educators) conferences to obtain comments on the draft document. The draft has been revised to reflect input received. Staff from the CDE Education Technology Office provided staff support to the Commission. Dr. Richard Navarro, Chair of the Commission, will attend the Board meeting to answer any questions the Board might have on the recommendations in this document.

The *California K-12 Education Technology Master Plan* is presented for the Board’s consideration as information only. The purpose of the Master Plan is to provide a vision for the state on how to effectively use and support education technology to improve student achievement of the Academic Content Standards. The Master Plan sets state level goals and benchmarks for education technology integration by the year 2007. The Master Plan includes 25 recommended actions that support technology use goals in three areas: 1) Curriculum, Instruction, and Assessment; 2) Professional Development; and 3) Infrastructure:

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**Fiscal Analysis (as appropriate)**

None

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**Attachment(s)**

1. Commission on Technology in Learning's *California K-12 Education Technology Master Plan*

*DRAFT DOCUMENT*

# **California K-12 Education Technology Master Plan**

Developed by the  
**Commission on Technology in Learning**

Approved by the  
Commission on Technology in Learning  
on December 13, 2002 for submission to the  
California State Board of Education  
in February 2003

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## Executive Summary

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An aspiring teacher once told me, “I want to teach because I want to touch the future everyday.” She knew what many prefer to ignore; that our future is dependent upon the quality of our educational system and how well prepared our children are to become adults and be productive, contributing citizens. While we succeed in ensuring a promising future for some, we are failing far too many.

The Commission for Technology in Learning was created out of this concern for closing the achievement gap and providing access for all children to the knowledge and skills required to sustain the growth and prosperity we have come to expect as Californians. AB 598, Soto carried a clear message, technology is basic to a 21<sup>st</sup> Century educational system, and **all** our children should have access to it. The Commission began first with the development of Technology Planning Guidelines for School Districts. These guidelines prepared with extensive input from state, county and district administrators and technology planning experts provide a rubric for assessing and planning for continually increasing the role of technology in schools. Next, the Commission turned its attention to articulating a vision of education in California in which improving student achievement is intertwined with the growing significance of integrating technology in the teaching and learning process, as well as the administration of schools.

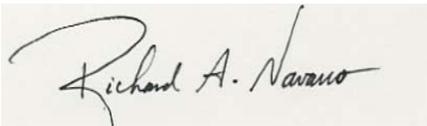
The proposed Master Plan was guided by five principles. First, that educational technology is both a **tool** for overcoming many of the barriers to learning, particularly among our most challenging educational conditions (i.e., poverty, limited English proficiency, before and after-school activities, literacy and numeracy, limited resources, etc.); AND, that educational technology is a **skill** required for full participation in the workforce and society.

Second, that technology provides an unprecedented opportunity to completely **redefine the learning environment** for all children and adults, inside of school and beyond. Third, that to realize its potential, the technology **must work** and **it has to be accessible anytime, anywhere, for all users**. Fourth, that achieving these goals is not just the responsibility of governments, but **the responsibility of all citizens**. The private sector has a particular interest in the success of this endeavor because our success (or failure) will determine the **productivity of our future workforce**. And society has an intrinsic interest in the changes proposed because the productivity of its citizens will have a direct effect on the **quality of life for future generations**.

And, fifth, that there is a general consensus that our children require **more powerful learning opportunities to achieve high standards of knowledge and skills**, to be prepared to assume the mantle of leadership in tomorrow’s fiercely competitive global society.

Therefore, we have proposed a Master Plan that will catalyze those actions, which we believe, will help to “tip” the educational system in the direction of harnessing the power we believe exists in technology for the benefit of all our children and society as a whole. Society is slow to catch up with the pace of technological innovation; it is our hope that this Master Plan will contribute to accelerating that process.

218 This Master Plan is the result of countless hours of deliberation, debate, and compromise among  
219 a very committed group of Commissioners, Department of Education staff, consultants, and  
220 many other professionals from both the public and private sectors who care deeply about  
221 children and are passionate about the promise of technology for lifting the ceiling on learning.  
222 Much of this deliberation occurred in less than ideal circumstances. But, as the State's economy  
223 worsened and the resources to support the Commission's work became scarcer, the  
224 determination of the Commissioners to complete the task without compromising in the quality or  
225 integrity of the plan was strengthened. Fortunately, we were blessed with an equally hard  
226 working staff in the California Department of Education, and an extremely talented team of  
227 consultants. While the ideas and recommendations are those of the Commissioners, the  
228 harmonic prose is the teamwork of Drs. Lara Brown and Christina Dehler. Personally, I have  
229 been honored to have had the privilege of working with such an excellent team. If we can claim  
230 any inspiration for this plan, it is our collective respect and admiration for the tens of thousands  
231 of educators who touch our future everyday. As Californians, we dedicate this Master Plan to  
232 the future--California's children.  
233

A handwritten signature in black ink on a light-colored background. The signature reads "Richard A. Navarro" in a cursive, flowing script.

234  
235 Richard A. Navarro, Ph.D.  
236 Chair

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The Commission on Technology in Learning  
**Recommended Actions**

1. The State should study, identify and determine multiple measures for a Technology Integration Performance Index (TIPI) and develop appropriate methods for the collection, analysis, and publishing of the TIPI in the Annual School Accountability Report.
2. The State should use the TIPI to develop incentives and allocate resources to districts and schools to help them achieve ubiquitous access to rigorous and effective digital content to meet the diverse learning needs of all students.
3. The State should continue to support, expand, and coordinate technology resources such as, the Digital California Project (DCP) and California Learning Resources Network (CLRN), to gather and promote access to rigorous and effective digital content.
4. The State Board of Education should revise the K-8 Instructional Materials Adoption process to provide for a more in-depth review of each Electronic Learning Resources (ELR) submitted for adoption, including an assessment of the rigor and effectiveness of the resource. To help educators take advantage of appropriate technology, review results should identify the specific standard(s) addressed by each separate ELR, be posted on the CLRN website, and be searchable by the academic content standards addressed by each resource.
5. The State should provide incentives to business and industry to develop rigorous and effective digital content in curriculum, instruction, and assessment that are aligned to State Academic Content Standards and take advantage of appropriate technology.
6. The State should provide incentives to districts and schools to integrate rigorous and effective digital content in curriculum, instruction, and assessment that are aligned to State Academic Content Standards and take advantage of appropriate technology.
7. The State should develop information and technology literacy standards for all students at every grade level, and as an interim step, may consider the adoption of the International Society for Teacher Education (ISTE) National Education Technology Standards (NETS).
8. The State should provide incentives to establish and sustain high-quality partnerships and annually recognize exemplary partnerships that develop students' information and technology literacy.
9. The State should use the TIPI to develop incentives and allocate resources to districts and schools to help them achieve ubiquitous access to rigorous and effective systemic professional development that promotes the integration of technology in education.
10. The State should provide incentives to districts and schools to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology in education.

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11. The State should provide incentives to business and industry to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology with their education products.
  12. The State should use technology and statewide technology resources to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology in education.
  13. The State should provide incentives that fairly compensate educators who show leadership by developing technology innovations and transfer the intellectual property rights to the State, thereby, placing the innovations in the public domain.
  14. The State should provide incentives to enhance K-12 collaboration with higher education, business and industry, nonprofits and community-based organizations to use technology across the professional development continuum (teacher education through accomplished teaching).
  15. The State should provide incentives to districts and schools that encourage educators to use data to inform reflective practice and guide continuous improvement; and frequently publish those exemplary applications of data-driven decision-making.
  16. The State should provide incentives to high-quality partnerships and annually recognize exemplary partnerships that deliver professional development focused on reflective practice and continuous improvement.
  17. The State should use the TIPI to develop incentives and allocate resources to districts and schools to help them achieve ubiquitous access for all students and educators.
  18. The State should explore providing learning opportunities that use technology to promote State Academic Content Standards and qualify for average daily attendance (ADA) funding, allowing for greater flexibility with categorical funding and resources.
  19. The State should require districts and schools to incorporate the total cost of ownership model as a prerequisite to receiving new educational technology funding.
  20. The State should be required to review and update the District Planning Guidelines as necessary.
  21. The State should provide incentives to high-quality partnerships and annually recognize exemplary partnerships that foster innovation and sustain technology acquisition and integration.
  22. The State should develop incentives that promote the coordination of existing education policy and resources for technology acquisition and integration.

- 329 23. The State should encourage local flexibility to allow categorical funds and Lottery funds to  
 330 be used for technology acquisition and integration.  
 331
- 332 24. The State should provide support and assistance to districts and schools to help them collect  
 333 and use data to make better-informed decisions.  
 334
- 335 25. The State should use technology to coordinate state efforts to collect, secure, analyze, plan,  
 336 and annually publish data related to technology integration and its impact on district, school,  
 337 and student improvement.  
 338

<u><i>Closing the Gaps Matrix</i></u>	<u>Curriculum, Instruction, &amp; Assessment</u>	<u>Professional Development</u>	<u>Infrastructure</u>
Ubiquitous Access	1, 2	1, 9	1, 17
Educational Technology	1, 3, 4, 5	1, 10, 11, 12, 13, 14, 15, 16	1, 18, 19, 20, 21, 22, 23, 24, 25
Technology Integration	1, 6, 7, 8	1, 10, 11, 12, 13, 14, 15, 16	1, 18, 19, 20, 21, 22, 23, 24, 25

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349 **Vision for California: Closing the Gaps**

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351 *Closing the gaps in access to technology that enhance and enable teaching, learning and*  
352 *leadership, will help all students achieve mastery of the State Academic Content Standards*  
353 *throughout California, providing students a future of choices and a choice of futures.*  
354

355 California’s global economic future increasingly depends on California’s educational system.  
356 California currently ranks as the world’s fifth largest economy, yet despite significant interest  
357 and improvement in recent years, California’s K-12 educational system still ranks below  
358 most other states on key educational benchmarks including, spending and student  
359 achievement.<sup>1</sup>  
360

361 The Commission on Technology in Learning (CTL) recognizes the need for California’s  
362 educational system to improve, and it is the hope of the CTL that the recommendations in  
363 this report will ensure that **technology** is systemically integrated into all levels of education.  
364 The CTL believes that California has the opportunity to reemerge as a national educational  
365 leader by investing in our schools and working with educators<sup>2</sup> to integrate the technologies  
366 that will enhance and enable teaching, learning, pedagogy, and school management.  
367

368 Education continues to be an issue of concern and a high investment priority for  
369 Californians.<sup>3</sup> The CTL believes that educational technology policy initiatives and funding  
370 at the state level should be aligned to recognize student achievement, educational leadership,  
371 and school improvement. Moreover, these initiatives and funding allocations should be  
372 designed to provide consistency, stability, and transparency to educators and the public. The  
373 policy environment at the state level must facilitate the ability of educators at both districts  
374 and schools to use technology to ensure that all students achieve mastery of the State  
375 Academic Content Standards at every grade level. The Commission recognizes that these  
376 educational goals cannot be achieved through state action and support alone. Thus, the CTL  
377 calls on those from higher education, business and industry, and nonprofit and community  
378 organizations to assist educators and policymakers to improve and further **technology**  
379 **integration** in California schools.<sup>4</sup>  
380

381 The Commission on Technology in Learning believes that educational technology, equitably  
382 distributed and appropriately applied, enhances and enables student learning, innovative  
383 teaching, professional development, school management, **data-driven decision-making**, and  
384 collaboration across the education spectrum.  
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<sup>1</sup> Howell, Penny and Miller, Barbara. 2001. “How California Ranks: A Comparison of Education Expenditures,”  
*EdSource*, October issue, p. 1-8.

<sup>2</sup> Refers to all teachers, administrators, and school staff. This is in keeping with the organizational learning  
literature that discusses the importance of everyone involved in a system (Senge, 2000).

<sup>3</sup> (Find & Cite public opinion poll to support this statement)

<sup>4</sup> Throughout the document, key terms will be highlighted and defined in Appendix I.

389 **Nature and Purpose of the Education Technology Master Plan**  
390

391 The purpose of the Education Technology Master Plan is to provide a vision for the state on how  
392 to effectively use and support educational technology to improve student achievement, close the  
393 gaps in access to educational technology, and move California schools to at least parity with or  
394 exceed the level of technology integration in other states.  
395

396 The Education Technology Master Plan sets forth goals and recommendations for state  
397 policymakers to help educators attain higher levels of educational technology integration by the  
398 year 2008. Achieving higher levels of educational technology integration will close the gaps in  
399 access to improved curriculum, instruction, and assessment; professional development; and  
400 infrastructure statewide.  
401  
402

403 **Progress Towards the 1996 Plan: Connect, Compute, and Compete**  
404

405 Progress has been made towards the goals of the 1996 California Education Technology Master  
406 Plan (*Connect, Compute, and Compete*). The 1996 Plan was intended to assess the current state  
407 of technological readiness in California’s classrooms and libraries and to serve as a blueprint for  
408 action. It recommended building the technology capacity in California’s schools, so that by the  
409 year 2000, California would have met the following objectives:  
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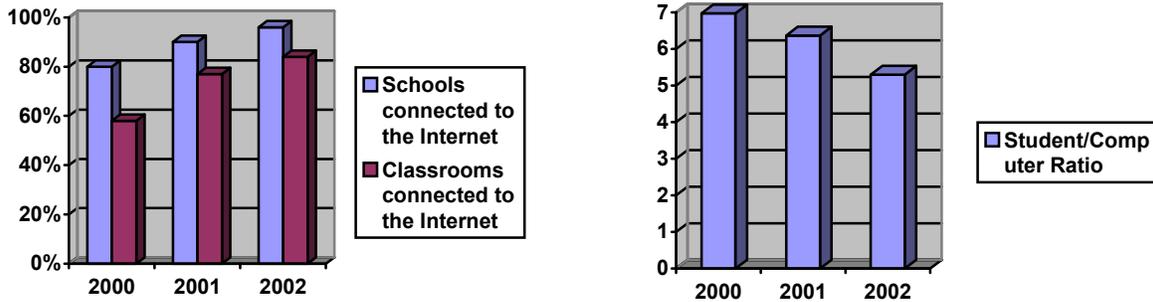
- 411 • A student-to-computer ratio of four to one;
- 412 • Telecommunications access for students in every classroom and library;
- 413 • Technology as an integral resource for all students and teachers; and
- 414 • Reading and math scores above the 50<sup>th</sup> percentile nationally.  
415

416 Despite significant effort and commitment, at both the State and regional levels, the lack of  
417 overall educational technology funding, and the lack of priority educational technology has  
418 received relative to other educational needs among state policymakers have been the primary  
419 impediments to reaching the 1996 objectives. The current economic downturn continues to  
420 adversely affect the state’s progress because of the high-cost nature of educational technology  
421 integration into curriculum and assessment, including the need for professional development and  
422 hardware acquisition. In addition, many schools in California have complex infrastructure  
423 needs, including those related to telecommunications and electrical requirements, which have  
424 also served as impediments to the successful implementation of the educational technology goals  
425 set forth in 1996.  
426

427 While the educational technology goals set in 1996 have not yet been achieved, the gains have  
428 been impressive, especially with respect to the ratio of students to computers and Internet access  
429 in classrooms. The California Technology Assistance Project (CTAP) *Summary of Year 2002*  
430 *School Technology Survey Findings: California Statewide Report*, found that 96% of schools  
431 were connected to the Internet in 2002, and that telecommunication access in the classroom has  
432 broadened across the state with the average school providing connections to the Internet in 84%  
433 of its classrooms (up from 58% two years earlier). Additionally, the student-to-computer ratio (a  
434 common measurement of student access to computers) has made steady improvement, declining

435 to a ratio of 5.3 to one in 2002. Another measurement of student access to technology is the ratio  
 436 of students-to-multimedia computers (which include computers with internet access capability).  
 437 During 2002, this ratio was 9.10 to one; however, because the definition for multimedia  
 438 computers changed in 2002 for purposes of the survey, reliable trend data is not available.  
 439

440 **Connectivity & Access**



441  
 442 With recent efforts at the state level to fund the implementation of comprehensive technology  
 443 programs, such as the Digital High School Program, California schools have made significant  
 444 gains in connectivity and access to technology. High schools reportedly provide students with  
 445 access to more technology than at the other grade levels, with 99% of high schools in the state  
 446 connected to the Internet, 94% of their classrooms connected, and a student to computer ratio of  
 447 4.1 to one. It is only through sustained, ongoing efforts such as the Digital High School Program  
 448 that effective technology integration can take place.  
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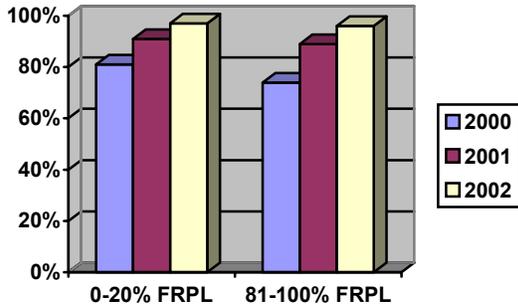
450 Conversely, the survey findings provide a clearer picture of how well technology in our schools  
 451 is supported at the district and site levels. Survey results indicate that although schools are  
 452 acquiring more computers and high-speed connections to the Internet, there is a clear lack of  
 453 personnel to provide technical support and training to help teachers integrate educational  
 454 technology with instruction. In 2002, 62% of schools had no certificated personnel to provide  
 455 technical support and 45% of schools had no classified personnel to provide technical support.  
 456 Additionally, 33% of schools had to wait more than a week (but less than a month) for hardware  
 457 repairs, making it more difficult to utilize technology on a regular basis for instruction. Support  
 458 and training for the integration of computer technology into daily lesson planning has emerged as  
 459 a critical area in recent years. In 2002, 50% of schools had no certificated staff at the school site  
 460 to provide the necessary curriculum support.  
 461

462 All students should have access to state of the art technology and rigorous and effective **digital**  
 463 **content**. Although the “digital divide” gap is closing, California schools still struggle with  
 464 digital inequities. Despite the state’s efforts, students living in poverty continue to have less  
 465 access to better technology. Survey results indicate that students attending the “richest” schools  
 466 in California (those with the lowest poverty levels) have a student-to-computer ratio of 4.74, as  
 467 compared to a ratio of 6.13 for the poorest schools (those with the highest levels of poverty).  
 468 Also, schools with high poverty levels reported fewer classrooms connected to the Internet  
 469 (80%) as compared to schools with low poverty levels (93%).

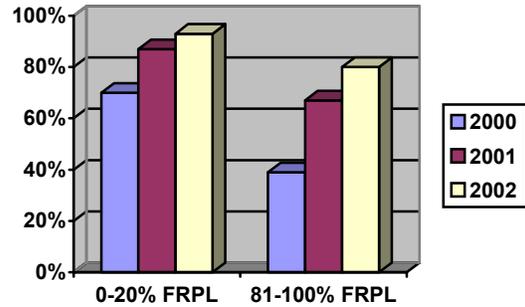
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**Connectivity & Access by Measures of Poverty – Free and Reduced Priced Lunch (FRPL)**

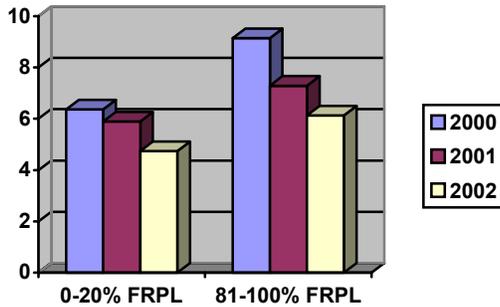
*Schools Connected to the Internet*



*Classrooms Connected to the Internet*



*Student to Computer Ratio*



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Federal educational technology programs, such as the E-rate program and the Technology Literacy Challenge Grant Program, have made efforts to target high poverty schools and the data shows marked improvements in access and connectivity in even the poorest schools as compared to two years ago. In the last two years, the number of high poverty schools connected to the Internet increased from 74% to 96%, which almost equals the same percentage as for the “richest” schools (97% in 2002). Also, the number of classrooms connected to the Internet for the poorest schools, made significant gains, increasing from 39% to 80%.

As California plans for the future, policymakers must recognize the technology investment that the state has made in our schools and understand that the recommendations in this report aim to maximize that investment by putting the power of technology into the hands of all teachers, students, and administrators.

488

## 489 **Looking Forward**

490

491 The Commission on Technology in Learning is committed to the integration of technology in  
492 education to enable and enhance the ability of educators at both the district and school site to  
493 improve student achievement.

494

495 Recognizing that technology will change over the next five years, the CTL encourages the state  
496 to support local flexibility in the integration of technology. It is important to allow educators  
497 flexibility to ensure that technology is used appropriately to meet the needs of all students. The  
498 CTL believes that the state must consistently support and align education policy to promote the  
499 integration of technology throughout California.

500

501 In recent years, California passed legislation that has furthered the integration of technology in  
502 education. Programs such as, Digital High Schools, have benefited students throughout  
503 California and should continue to be supported by policymakers. Current statewide technology  
504 resources such as the Digital California Project (DCP), California Student Information System  
505 (CSIS), California Learning Resource Network (CLRN), California Technology Assistance  
506 Project (CTAP), Technology Information Center for Administrative Leadership (TICAL),  
507 Technical Support for Education Technology in Schools (TechSETS), and the California Teacher  
508 Technology Assessment Project CTAP<sup>2 5</sup>, have also played a significant role in California's  
509 technology integration and need to continue to be supported and expanded to better serve the  
510 needs of the districts, schools, and educators throughout the state.

511

512 The Commission on Technology in Learning recommends that the state continue to develop the  
513 possibilities of the Digital California Project to ensure the availability of the network to all  
514 schools and to realize effective uses for the newly completed network (multi-dimensional  
515 aspect). The Commission also recommends that the state focuses on the coordination and  
516 efficient use of resources and explores the possibilities for furthering data-driven decision-  
517 making processes at all levels. Consistency and alignment of policy and funding at the state and  
518 local levels are critical for California to improve educational technology integration to assist all  
519 students in achieving California's State Academic Content Standards.

520

521 The Commission on Technology in Learning gathered<sup>6</sup> case studies to demonstrate the variety of  
522 ways technology is integrated in education to improve curriculum, instruction, assessment,  
523 professional development, and school management.

524

- 525 • ***Ubiquitous Access***

526 Closing the gaps in access to educational technology for students and  
527 educators will help all students achieve the State Academic Content  
528 Standards. Ubiquitous access will ensure that student and educator work is  
529 neither impeded, nor restricted to the school or district site. Districts and

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<sup>5</sup> These statewide technology resources are defined in Appendix VII.

<sup>6</sup> The California Department of Education's Technology Office distributed a "Call for Case Studies" to the CTAP Regional Directors and solicited information from projects discussed during the Commission Meetings.

530 schools have approached providing ubiquitous access differently in their local  
531 communities, for example:

532  
533 *Case Studies to be Inserted Here*

- 534  
535
- 536 • ***Curriculum, Instruction, and Assessment***  
537 Closing the gaps in access to rigorous and effective digital content will help  
538 all students and educators to be both users and producers of academic content  
539 and innovative curriculum and assessment, furthering efforts to ensure that all  
540 students achieve State Academic Content Standards. Districts and schools  
541 have created and utilized an assortment of rigorous and effective digital  
542 content ranging from commercial software to educator developed materials,  
543 for example:

544  
545 *Case Studies to be Inserted Here*

- 546
- 547 • ***Professional Development***  
548 Closing the gaps in access to systemic professional development will ensure  
549 the integration of educational technology into curriculum, pedagogy, and  
550 school management. Districts and schools have developed different programs  
551 for delivering technology training, for example:

552  
553 *Case Studies to be Inserted Here*

- 554
- 555 • ***School Management***  
556 Closing the gaps in access to professional development focused on school  
557 management and educational technology integration; to district, school, and  
558 student data; and to the educational technology that facilitates procedures and  
559 processes, and provides analytical feedback will ensure effective and efficient  
560 school management. Districts and schools have addressed improving school  
561 management differently, for example:

562  
563 *Case Studies to be Inserted Here*

- 564
- 565 • ***Assistive Technology***  
566 Closing the gaps in access to assistive technology will ensure that all students,  
567 including English language learners, and those with disabilities and special  
568 needs achieve State Academic Content Standards. Assistive technology  
569 allows educators to develop individualized learning programs to meet the  
570 needs of all students. Different technologies exist to help all students meet  
571 their learning needs, for example:

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573 *Case Studies to be Inserted Here*

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- **Higher Education, Business, and Community Partnerships**  
**High-quality partnerships** will help districts and schools close the gaps in curriculum, professional development, and infrastructure. Partnerships with higher education institutions, businesses, and community organizations provide districts and schools opportunities to leverage resources and expertise to promote the integration of technology in education. Districts and schools have developed various types of partnerships, for example:

*Case Studies to be Inserted Here*

## **Goals and Recommendations**

### ***Vision for California: Closing the Gaps***

*Closing the gaps in access to technology that enhance and enable teaching, learning and leadership, will help all students achieve mastery of the State Academic Content Standards throughout California, providing students a future of choices and a choice of futures.*

Recommended Action:

1. The State should study, identify and determine multiple measures for a **Technology Integration Performance Index (TIPI)** and develop appropriate methods for the collection, analysis, and publishing of the TIPI in the Annual School Accountability Report.

### ***Curriculum, Instruction, and Assessment: Ubiquitous Technology and Mastery of Academic Standards***

*Closing the gaps in access to rigorous and effective digital content aligned to the State Academic Content Standards and fully integrated into curriculum, instruction, and assessment will help ensure that all students are prepared to meet the present and future needs of California.*

- **Equity and Access**

Goal: All students and educators will have **ubiquitous access** and the ability to utilize rigorous and effective digital content.

Rationale: Technology may be used effectively to facilitate the distribution and broaden the delivery of rigorous and effective digital content throughout California. The digital divide that stretches across many communities is not only related to hardware and connectivity, but also to rigorous and effective digital content. Traditionally, students in the least advantaged schools also have had the least access to rigorous and effective

617 digital content.<sup>7</sup> Closing this knowledge gap requires the state to ensure that rigorous and  
618 effective digital content is accessible and utilized by all students and teachers to assist  
619 students in meeting and exceeding the State Academic Content Standards. Importantly,  
620 technology allows all students, including English language learners and those with  
621 special needs, the opportunity to participate fully in education. Ensuring equity and  
622 access to rigorous and effective digital content allows students and teachers to be both  
623 users and producers of academic content and innovative curriculum and assessment,  
624 furthering efforts to improve student achievement.

625  
626 Recommended Actions:

- 627 2. The State should use the TIPI to develop incentives and allocate resources to  
628 districts and schools to help them achieve ubiquitous access to rigorous and  
629 effective digital content to meet the diverse learning needs of all students.
- 630 3. The State should continue to support, expand, and coordinate technology  
631 resources such as, the DCP and CLRN, to gather and promote access to  
632 rigorous and effective digital content.

633  
634 Target Tech Indicators:

- 635 ➤ 100% of students and educators have ubiquitous access to rigorous and  
636 effective digital content to meet the diverse learning needs of all students.
- 637 ➤ Digital content is seamlessly integrated and used by 100% of students and  
638 educators on a daily basis in all classes and subjects.
- 639 ➤ 100% of students have anytime, anywhere access to online course units to  
640 supplement and expand course offerings.

641  
642 • **Standards**

643  
644 Goal: All educators will fully integrate into their practice appropriate educational  
645 technology and rigorous and effective digital content to promote mastery of the State  
646 Academic Content Standards by all students.

647  
648 Rationale: Educational technology and digital content, aligned to State Academic  
649 Content Standards, enable students and teachers to address individual learning needs  
650 (e.g., age, disabilities, ability level, special needs) using multiple approaches to rigorous  
651 and effective content. Learning flexibility increases the opportunities for all students to  
652 achieve mastery of the State Academic Content Standards. Educational technology  
653 promotes this flexibility, along with collaboration, innovation, applied and contextual  
654 learning, and has been shown to increase student achievement.<sup>8</sup> Moreover, educational  
655 technology makes possible data collection, analysis and real-time assessment of learning,

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<sup>7</sup> *Summary of Statewide Results for the 2001 California Technology; Summary of Statewide Results for the 2002 California School Technology Survey*; Macias, Julia; Montes, Ana; and Cibran, Alma. 2001. "Connecting California's Children: Is E-Rate Enough?" in *Latino Issues Forum*, July issue, p.1-28.

<sup>8</sup> Ringstaff, Cathy. (Date needed). *Survey of Existing Evaluations on the Impact of Education Technology on Teaching and Learning*. WestEd.; Branigan, Cara. 2002. "Missouri's Ed-Tech Program Is Raising Student Achievement," in *eSchool News*, March 13.

656 all of which provide educators with necessary feedback loops that assist in identifying  
657 and targeting the individual learning needs of students.

658  
659 Recommended Action:

- 660 4. The State Board of Education should revise the K-8 Instructional Materials  
661 Adoption process to provide for a more in-depth review of each Electronic  
662 Learning Resources (ELR) submitted for adoption, including an assessment of  
663 the rigor and effectiveness of the resource. To help educators take advantage  
664 of appropriate technology, review results should identify the specific  
665 standard(s) addressed by each separate ELR, be posted on the CLRN website,  
666 and be searchable by the academic content standards addressed by each  
667 resource
- 668 5. The State should provide incentives to business and industry to develop  
669 rigorous and effective digital content in curriculum, instruction, and  
670 assessment that are aligned to State Academic Content Standards and take  
671 advantage of appropriate technology.
- 672 6. The State should provide incentives to districts and schools to integrate  
673 rigorous and effective digital content in curriculum, instruction, and  
674 assessment that are aligned to State Academic Content Standards and take  
675 advantage of appropriate technology.

676  
677 Target Tech Indicators:

- 678 ➤ 100% of curriculum and assessment incorporate rigorous and effective digital  
679 content that is aligned to state academic standards and takes advantage of  
680 appropriate technology.
- 681 ➤ 100% of students and educators utilize curriculum and assessment that  
682 incorporate rigorous and effective digital content that is aligned to state  
683 academic standards and takes advantage of appropriate technology.
- 684 ➤ 100% of educators utilize CLRN to assist in developing lesson plans that  
685 incorporate rigorous and effective digital content, integrate state academic  
686 standards, and take advantage of appropriate technology.

687  
688 • **Information & Technology Literacy**

689  
690 Goal: All students will develop information and technology literacy skills<sup>9</sup> that enable  
691 them to meet and exceed the demands for an information and technologically literate  
692 workforce.

693  
694 Rationale: The knowledge economy age requires that workers be information-literate, “a  
695 person must be able to recognize when information is needed and have the ability to  
696 locate, evaluate, and use effectively the needed information.”<sup>10</sup> Workers must also have  
697 knowledge of and proficiency with numerous technologies (e.g., hardware, programs,

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<sup>9</sup> International Society for Technology in Education includes a set of skills as a part of their NETS and the full list is included in Appendix VI: ISTE NETS.

<sup>10</sup> *American Library Association Presidential Committee on Information Literacy*. Chicago: American Library Association, 1989.

698 applications) and the vast resources available through the Internet and the World Wide  
699 Web. (Need to include reference to the Secretary’s Commission on Achieving Necessary  
700 Skills (SCANS) Report) Students who are the workers of tomorrow must learn to develop  
701 the skills that will enable them to use the technological tools available and to understand  
702 the information gleaned and analyzed by the technology. Ensuring students develop  
703 **information and technology literacy** will help to ensure the state’s economic  
704 competitiveness in the 21<sup>st</sup> Century.

705  
706 Recommended Action:

- 707 7. The State should develop technology literacy standards for all students at  
708 every grade level, and as an interim step, may consider the adoption of ISTE  
709 National Education Technology Standards (NETS).  
710 8. The State should provide incentives to establish and sustain high-quality  
711 partnerships and annually recognize exemplary partnerships that develop  
712 students’ information and technology literacy.  
713

714 Target Tech Indicators:

- 715 ➤ 100% of information literacy skills are embedded in and assessed by the State  
716 Academic Content Standards<sup>11</sup>  
717 ➤ 100% of high-quality partnerships develop student mastery of information and  
718 technology literacy skills.  
719

720  
721 ***Professional Development: Systemic Reforms and Continuous Improvement***

722  
723 *Closing the gaps in access to systemic professional development that encourages leadership,*  
724 *collaboration, and continuous improvement will ensure ubiquitous technology integration in*  
725 *education that supports the present and future needs of California.*  
726

727 • **Equity and Access**

728  
729 Goal: All educators will have access to rigorous and effective systemic professional  
730 development that promotes the integration of technology in education.  
731

732 Rationale: Technologies may be used effectively to facilitate the distribution and  
733 broaden the delivery of rigorous and effective professional development across the state.  
734 The opportunity to develop professionally must be equally accessible to all educators.  
735 Improving upon and learning new methods for technology integration will bring about  
736 systemic reform in curriculum, assessment, pedagogy, and school management.  
737

738 Recommended Actions:

- 739 9. The State should use the TIPI to develop incentives and allocate resources to  
740 districts and schools to help them achieve ubiquitous access to rigorous and  
741 effective systemic professional development that promotes the integration of  
742 technology in education.

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<sup>11</sup> See Appendix V.

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Target Tech Indicators:

- 100% of educators have ubiquitous access to rigorous and effective systemic professional development that promotes the integration of technology in education.
- 100% of educators’ release time is compensated for rigorous and effective systemic professional development that promotes the integration of technology in education.

- **Systemic Professional Development**

Goal: All educators will receive the training, resources and support necessary to appropriately and effectively integrate technology into curriculum, assessment, pedagogy, and school management.

Rationale: Capacity building in the profession and reform in education requires that all educators participate in **systemic professional development** programs that support the integration of technology. Educators’ varying technology proficiencies require a professional development model that evolves as technical skills increase. This professional development model should be systemic, comprehensive, and include fully supported training that is scaffolded according to individual needs, providing opportunities for one-on-one interaction, workplace and classroom support, and on-line instruction. This model should also include daily or weekly training to meet technical and pedagogical needs, as well as annual or semi-annual intensive training to learn new applications and pedagogical strategies. Most important, educators need time to participate in training programs, develop their newly learned skills, and apply them into their practice. Systemic professional development for technology integration must be fully supported at the state, district, and school level.

Recommended Action:

10. The State should provide incentives to districts and schools to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology in education.
11. The State should provide incentives to business and industry to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology with their education products.
12. The State should use technology and statewide technology resources to foster and sustain rigorous and effective systemic professional development that promotes the integration of technology in education.

Target Tech Indicators:

- 100% of professional development is systemic and promotes the integration of technology in education, and uses technology to deliver rigorous and effective training, mentoring, and support to educators statewide.

789                   ➤ 100% of educators use and integrate rigorous and effective digital content into  
790 their practice.  
791

792     • **Leadership and Collaboration**  
793

794     Goal: All educators will engage in **professional activities** that develop rigorous and  
795 effective digital content, integrate technology in education, and promote leadership and  
796 collaboration across the education profession.  
797

798     Rationale: Educators need to be actively working together to create, share, and scale best  
799 practices, rigorous and effective digital content and effective uses of technology  
800 integration. Technology provides educators the opportunity to work collaboratively,  
801 independent of location, to develop and disseminate exemplars of technology integration  
802 into curriculum, instruction, assessment, pedagogy, and school management. Educators  
803 need to develop leadership skills that encourage the systemic production, evaluation, and  
804 application of digital content, and support the use of technology in schools. Educators  
805 also need to serve as models and mentors, to sustain a positive professional culture of  
806 continuous improvement and a system of opportunity for professional development that  
807 makes use of all available resources at the local, state, and national level.  
808

809                   Recommended Action:

810                   13. The State should provide incentives that fairly compensate educators who  
811 show leadership by developing technology innovations and transfer the  
812 intellectual property rights to the State, thereby, placing the innovations in the  
813 public domain.

814                   14. The State should provide incentives to enhance K-12 collaboration with  
815 higher education, business and industry, nonprofits and community-based  
816 organizations to use technology across the professional development  
817 continuum (teacher education through accomplished teaching).  
818

819                   Target Tech Indicators:

820                   ➤ 100% of districts and schools offer systemic professional development,  
821 perhaps in partnerships, which cultivate leadership skills and encourage  
822 experimentation with the effective uses of technology.

823                   ➤ 100% of districts and schools provide opportunities for educators to engage in  
824 collaborative activities focused on technology integration.  
825

826  
827     • **Continuous Improvement**  
828

829     Goal: All educators will participate in systemic professional development activities that  
830 encourage reflective practices and use technology to continuously improve curriculum,  
831 assessment, pedagogy, and school management.  
832

833     Rationale: Systemic professional development must encourage reflective practice, data-  
834 driven decision-making processes, and continuous improvement in education. Educators

835 need to be actively working to continually improve their use of technology in order to  
836 improve teaching, learning and school management. Reflective practice requires that  
837 educators be knowledgeable of current research and application, develop mechanisms  
838 that provide feedback, and work to continually improve their skills. Educators must also  
839 use data to make better-informed decisions about the appropriate and effective uses of  
840 technology.

841  
842 Recommended Action:

843 15. The State should provide incentives to districts and schools that encourage  
844 educators to use data to inform reflective practice and guide continuous  
845 improvement; and frequently publish those exemplary applications of data-  
846 driven decision-making.

847 16. The State should provide incentives to high-quality partnerships and annually  
848 recognize exemplary partnerships that deliver professional development  
849 focused on reflective practice and continuous improvement.

850  
851 Target Tech Indicators:

852 ➤ 100% of districts and schools offer systemic professional development that  
853 teaches data-driven decision-making skills and encourages the use of  
854 technology for continuous improvement.

855 ➤ 100% of districts and schools make use of state of the art technology to  
856 continuously improve curriculum, assessment, pedagogy, and school  
857 management.

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### 860 ***Infrastructure: Ubiquity, Sustainability, and Dynamic Design***

861  
862 *Closing the gaps in anytime, anywhere access for all students and educators; promoting*  
863 *sustainability and comprehensive planning; and leveraging resources and education data will*  
864 *ensure a dynamic technological infrastructure that supports the present and future needs of*  
865 *California.*

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#### 868 • **Equity and Access**

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871 Goal: All students and educators must be able to access and utilize all necessary and  
872 appropriate technology resources anytime, anywhere.<sup>12</sup>

873  
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875 Rationale: Large inequities exist and persist in anytime, anywhere access to operable,  
876 reliable, and assistive technology for all students and educators across all communities in  
877 California. There are significant technological infrastructure challenges statewide, some  
878 impacting rural and urban districts, others affecting schools and their communities.

Moreover, ubiquitous access to and reliable operability of assistive technology ensure  
that the learning needs of all students are met in an appropriate and timely manner.

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<sup>12</sup> For a further definition of anytime, anywhere access, refer to the Target Tech Level provided in the CEO Forum StaR Charts in Appendix II.

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Recommended Action:

- 17. The State should use the TIPI to develop incentives and allocate resources to districts and schools to help them achieve ubiquitous access for all students and educators.
- 18. The State should explore providing learning opportunities that use technology to promote State Academic Content Standards and qualify for average daily attendance (ADA) funding, allowing for greater flexibility with categorical funding and resources.

Target Tech Indicators:

- 100% of students and educators have ubiquitous access and can utilize all necessary and appropriate technology.
- 100% of districts and schools have greater flexibility with categorical funds and the allocation of resources to promote learning opportunities using technology.

- **Sustainability and Comprehensive Planning**

Goal: All districts and schools must engage in comprehensive technology planning, incorporating **total cost of ownership** into annual budget processes, and design infrastructure for sustainability and optimal utilization of present and future technology.

Rationale: Designing infrastructure for sustainability and optimal utilization means that technology cannot be treated as a stand-alone or a one-time cost in state, district, and school budgets. Sustainability requires that the technology infrastructure be scalable, reliable, upgradeable, and interoperable across the entire education system in California. As with other infrastructure costs, technology has several components, including technical support, maintenance, replacement, recycling, and disposal. Building infrastructure and acquiring technology requires state and local policymakers, educators, and education partners (businesses and nonprofit organizations) to employ a total cost of ownership model in their technology planning and budgeting. The State should encourage districts and schools to seek out new and leverage existing resources to design for sustainability and optimal utilization of technology.

Recommended Actions:

- 19. The State should require districts and schools to incorporate the total cost of ownership model as a prerequisite to receiving new educational technology funding.
- 20. The State should be required to review and update the District Planning Guidelines as necessary.
- 21. The State should provide incentives to high-quality partnerships and annually recognize exemplary partnerships that foster innovation and sustain technology acquisition and integration.

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Target Tech Indicators:

- 100% of districts and schools incorporate the total cost of ownership model in their budgeting and planning for technology.
- 100% of districts and schools have technical support available twenty-four hours a day and seven days a week.

• **Leveraging Existing Resources**

Goal: All policymakers and educators must collaborate to promote flexibility with existing state technology tools, funding mechanisms, and additional resources to coordinate and develop a sustainable, ubiquitous, and dynamic technology infrastructure.

Rationale: At all levels policymakers and educators need greater flexibility to leverage and coordinate existing resources to ensure a sustainable, ubiquitous, and dynamic infrastructure (e.g., how funds and building spaces are used and allocated for technology integration). With increased flexibility, there is a need to design policy that improves accountability in the area of technology integration emphasizing outcomes and not inputs (e.g., student achievement and administrative efficiency, and not categorical funding). Moreover, the state has invested significantly in the use of technology by creating resources such as a statewide network, a technical assistance support structure, a curriculum tool, professional development and resources for administrators and technology staff, and a student data and record-keeping system. These technology tools provide tremendous benefit to educators and can be further developed and better coordinated to realize their potential. The State must continue its support of these programs and work to structure policy incentives to encourage local policymakers and educators to collaborate and leverage these and other resources.

Recommended Action:

22. The State should develop incentives that promote the coordination of existing education policy and resources for technology acquisition and integration.
23. The State should encourage local flexibility to allow categorical funding and Lottery Funds to be used for technology acquisition and integration.

Target Tech Indicators:

- 100% of districts and schools utilize state resources and work to coordinate local technology decisions with regional and statewide education opportunities for technology acquisition and integration.
- 100% of districts and schools have flexibility to leverage their resources and reallocate funding for technology acquisition and integration.

• **Collecting, Storing, Using, and Securing Data**

Goal: All policymakers, educators, students, and parents will have anytime, anywhere access to appropriate and necessary data that is securely collected and stored to help them make better-informed decisions related to educational technology integration.

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Rationale: Technology may be used effectively to facilitate the collection and distribution of educational data and broaden the understanding of policymakers, educators, students, and parents to help them make better-informed decisions. There is a need for better student data at all levels, so that policymakers, educators, students, and parents will be able to assess and determine the educational effectiveness of their actions and decisions. While there are security and privacy issues related to record keeping, there are also sufficient technological safeguards that can secure student data. The State must support the secure coordination, collection, analysis, planning, and publishing of district, school, and student data in order to accurately assess educational improvement.

Recommended Actions:

24. The State should provide support and assistance to districts and schools to help them collect and use data to make better-informed decisions.
25. The State should use technology to coordinate state efforts to collect, secure, analyze, plan, and annually publish data related to technology integration and its impact on district, school, and student improvement.

Target Tech Indicators:

- 100% of districts and schools collect and use data relevant to technology integration and its impact on curriculum, assessment, pedagogy, and school management to make better-informed decisions.
- All education stakeholders have the necessary and appropriate data available to them through the State to help them better understand the educational effects of technology on curriculum, assessment, pedagogy, and school management.

## Appendix I: Definitions of terms used in plan

*Data-driven decision-making:* A process where educators use a variety of district, school, educator, student, and community data to make better-informed decisions about how to improve technology use, acquisition, and integration in education.

*Digital content:* The digitized multimedia material that calls upon students to seek and manipulate information in the collaborative, creative and engaging ways, which make digital learning possible. It includes video on demand, software, CD-ROMs, websites, e-mail, online learning management systems, computer simulations, streamed discussions, data files, databases, audio, and all other digital applications and devices.

*Educational technology:* The methods and materials employed to assist teaching, learning, and school management, and includes hardware, software, programs, applications, and all digital content.

*High-quality partnerships:* Collaborative agreements that are beneficial to all parties and occur between districts and schools with institutions of higher education, businesses, and nonprofits and community-based organizations, which address various educational needs.

*Information literacy:* The ability to locate, access, evaluate and effectively use information as needed from a variety of sources.

*Professional activities:* Includes all activities relating to training, mentoring, conference presentations, research, publishing, materials development and evaluation, and participation in and contributions to projects such as the Digital California Project (DCP), the California Learning Resource Network (CLRN) and other online resources.

*Rigorous and effective:* (insert definition)

*Systemic professional development:* A model for professional development that includes continuous and comprehensive anytime, anywhere training that evolves with, and accommodates all educators' needs and educational environments.

*Target Tech:* Is the desired level for every district and school to achieve and is further articulated in Appendix IV: CEO Forum School Technology and Readiness (STaR) Chart. Elements in the chart are used throughout the plan as suggested measures of progress.

*Technology integration:* Technology is seamlessly integrated into school culture, management, pedagogy, curriculum, instruction, and assessment. Effective and appropriate integration of technology is part of a planned program of school improvement as it relates to school management and student achievement of the State Academic Content Standards.

*Technology Integration Performance Index (TIPI):* An index of multiple measures that describes the learning environment for students and educators, and represents an objective

1041 standard of the level of technology integration that all districts and schools should achieve.  
1042 (See Appendix II.)

1043  
1044 *Technology literacy:* The ability to use technology to improve student achievement, and the  
1045 capability to think critically about the use and integration of technology in teaching and  
1046 learning. ISTE NETS standards describe the technology skills and knowledge students  
1047 should acquire as they progress through the K-12 system and is further articulated in  
1048 Appendix VI: ISTE NETS.

1049  
1050 *Total Cost of Ownership:* A model that incorporates all aspects of technology costs and  
1051 includes, technical support, professional development, maintenance, replacement, recycling,  
1052 and disposal.

1053  
1054 *Ubiquitous access:* Is the availability of all resources necessary to utilize technology for  
1055 teaching, learning, and school management, anytime, anywhere. It includes access to  
1056 hardware, software, online resources, digital content, curriculum, assessment, and technical  
1057 support. Ubiquitous access will ensure that student and educator work is neither impeded,  
1058 nor restricted to the school or district site.

1059

1060 **Appendix II: Technology Integration Performance Index (TIPI)**

1061  
1062 The Technology Integration Performance Index (TIPI) of multiple measures, describing a  
1063 learning environment for students and educators, should represent an objective standard on the  
1064 level of technology integration that all districts and schools should achieve. The TIPI should be  
1065 collected and published in the Annual School Accountability Report and should be considered a  
1066 parallel index to the API.

1067  
1068 The TIPI will measure the Target Tech levels of every district and school and will assist in  
1069 mapping the progress of educational technology integration throughout California. Policymakers  
1070 and educators will be able to use the TIPI to make better-informed decisions regarding the  
1071 allocation of resources and the primacy of legislation needed to improve educational technology  
1072 integration. The TIPI will assist parents, community members and other education partners to  
1073 develop high quality partnerships that address local educational technology needs and priorities.

1074  
1075 The Commission on Technology and Learning (CTL) recommends that the State study, identify  
1076 and determine the multiple measures and their relative value for inclusion in the TIPI. While the  
1077 Commission has not focused on the TIPI in depth, there has been consensus that the Index  
1078 should measure the levels of ubiquitous access, educational technology, and technology  
1079 integration, along the dimensions of curriculum, instruction, and assessment; professional  
1080 development; and infrastructure at every school and district site throughout California. In other  
1081 words, the TIPI should capture the breadth and the depth of the *Closing the Gaps Matrix* in the  
1082 Executive Summary (see page --).

1083  
1084 The Commission recommends that the State utilize those data elements already collected by state  
1085 agencies, districts, and schools, and determine their relative value for inclusion in the TIPI.  
1086 Additionally, the Technology in Schools Task Force developed a guide to assist those assessing  
1087 technology in education through the National Cooperative Education Statistics System and  
1088 funded by the National Center for Education Statistics (NCES) of the U.S. Department of  
1089 Education. The Commission strongly recommends that the State review the findings of the  
1090 Technology in Schools Task Force to develop the TIPI, including their report, *Technology in*  
1091 *Schools: Suggestions, Tools, and Guidelines for Assessing Technology in Elementary and*  
1092 *Secondary Education*, and the list of comprehensive data elements, reproduced in Appendix III  
1093 of this plan.

1094 **Appendix III: National Center for Education Statistics Technology in Schools:**  
1095 **Suggestions, Tools, and Guidelines for Assessing Technology in Elementary**  
1096 **and Secondary Education**

1097  
1098 Appendix A2 from the above document published by the National Center for Education Statistics  
1099 (NCES) contains a list of data elements to be reviewed for possible inclusion during the  
1100 compilation of the TIPI. Refer to the website at <http://nces.ed.gov/pubs2003/2003313.pdf>.

1101  
1102 **Appendix IV: CEO Forum K-12 School Technology and Readiness (STaR)**  
1103 **and Teacher Preparation StaR Charts**

1104 <http://www.ceoforum.org/starchart.cfm>

1105  
1106 **Appendix V: Information literacy skills/ Academic Content Standards**

1107 *Education Technology Planning: A Guide for School Districts: Appendix B*

1108 <http://www.cde.ca.gov/ctl/edtechplan/appendixes.pdf>

1109  
1110 Academic Content Standards for California Public Schools

1111 <http://www.cde.ca.gov/standards/>

1112  
1113 **Appendix VI: ISTE National Education Technology Standards (NETS)**

1114 <http://cnets.iste.org/>

1115  
1116  
1117

## **Appendix VII: Current state-administered technology resources**

1118 **California Learning Resource Network (CLRN).** CLRN services include the review of  
1119 supplemental electronic learning resources (including software, on-line resources, and  
1120 video) and on-line model technology lessons for alignment with the State Board-adopted  
1121 Academic Content Standards. The review criteria used in this process were approved by  
1122 the State Board of Education. The goal is to provide a comprehensive instructional  
1123 delivery package that combines standards-aligned resources and standards-based lesson  
1124 plans in a single, easy-to-use access point. The searchable website includes the review  
1125 results of the resource evaluation, the standards-based instructional lessons, and links to  
1126 other resources. Refer to the website at <http://www.clrn.org>.

1127 **California Student Information System (CSIS).** CSIS builds the capacity of Local  
1128 Education Agencies (LEAs) to implement and maintain comparable, effective, and  
1129 efficient student information systems that supports local education agency (LEA) daily  
1130 program needs and promotes the use of information for educational decision-making by  
1131 school-site, district office and county staff. It enables the accurate and timely exchange of  
1132 student transcripts between LEAs and post secondary institutions. CSIS assists LEAs with  
1133 the transmittal of state reports electronically to the California Department of Education,  
1134 thereby reducing reporting burden of LEA staff.

1135 **California Technology Assistance Project (CTAP).** CTAP works collaboratively with all  
1136 school districts and county offices of education, through a network of eleven regions statewide,  
1137 to meet locally defined technology-based needs. CTAP regional staff provide assistance in the  
1138 areas of staff development; learning resources; hardware telecommunications infrastructure;  
1139 technical assistance to school districts in developing a support system to operate and maintain an  
1140 education technology infrastructure, including improving pupil record keeping and tracking  
1141 related to pupil instruction; coordination with federal, state, and local programs consistent with  
1142 State Board-adopted Academic Content Standards; and funding for technology. Refer to the  
1143 website at <http://www.cde.ca.gov/edtech/ctap.htm>.

1144  
1145 **Digital California Project (DCP).** DCP provides California's K-12 education community with  
1146 access to the high speed, high bandwidth on-line network currently available to higher education.  
1147 DCP is designed to build the necessary network infrastructure needed to provide districts with at  
1148 least one access point in each county to the high-speed statewide network. Refer to the website  
1149 at <http://www.cenic.org/CDP.html>.

1150 **Technical Support for Education Technology in Schools (TechSETS).** This project  
1151 provides professional development and resources for technology staff. Services include  
1152 identifying technology skills needed, along with appropriate professional development,  
1153 arrayed in a user-friendly matrix; identifying cost effective sources of training aligned to  
1154 the matrix of skills; providing resources and support for California school technologists  
1155 through an online interactive helpdesk, and providing assistance for planning and installing  
1156 technology infrastructures. Refer to the website at <http://www.techsets.org>.

1157 **Technology Information Center for Administrative Leadership (TICAL).** TICAL  
1158 provides assistance for district and site administrators by providing professional  
1159 development focused on "digital school leadership" for educational administrators in the  
1160 areas of: data-driven decision making, integrating technology into standards-based  
1161 curriculum, technology planning, professional development needs of staff, financial  
1162 planning for technology, and operations and maintenance. Professional development is  
1163 conducted through a series of workshops provided by TICAL cadre members throughout  
1164 the state. TICAL maintains a web portal that features hundreds of resources that have  
1165 been reviewed and recommended by practicing administrators to assist with digital school  
1166 leadership. The portal is frequently augmented with current content that provides just-in-  
1167 time assistance for administrators and is also used as the dissemination vehicle for  
1168 information on upcoming professional development workshops. Refer to the website at  
1169 <http://www.portical.org>.

1170 **CTAP<sup>2</sup> Technology Assessment Profile.** CTAP<sup>2</sup> is an on-line, self-assessment data collection  
1171 tool that allows school administrators to gather information on their staffs technology proficiency  
1172 and use of technology for instruction. The website includes two administrative tools. The  
1173 Proficiency Assessment is an on-line, self-assessment tool that allows educators to determine  
1174 their level of technology proficiency. The self-assessment is based upon rubrics established in  
1175 each area of technology competency and aligned with the California Commission on Teacher  
1176 Credentialing (CTC) "Factors to Consider", which is the Technology Standard for a California  
1177 K-12 Preliminary Teaching Credential. Based on the results of the assessment, educators can  
1178 view and select training opportunities that will advance their proficiency. While the results for  
1179 the individual teacher are private, charts can be displayed showing the overall level for teachers  
1180 at a school site as well as within a district, county, region, or for the entire state. The  
1181 Technology Use Survey is an on-line tool that allows site, district, county and state  
1182 administrators to gather information regarding certificated staff's use of technology tools. The  
1183 survey addresses four areas of teacher technology usage: 1) use of technology tools for  
1184 classroom management and instruction; 2) their student's use of technology tools for classroom  
1185 assignments; 3) their professional development preferences, and 4) their technical support  
1186 experiences. Refer to the website at <http://ctap2.iassessment.org>.

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1189

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