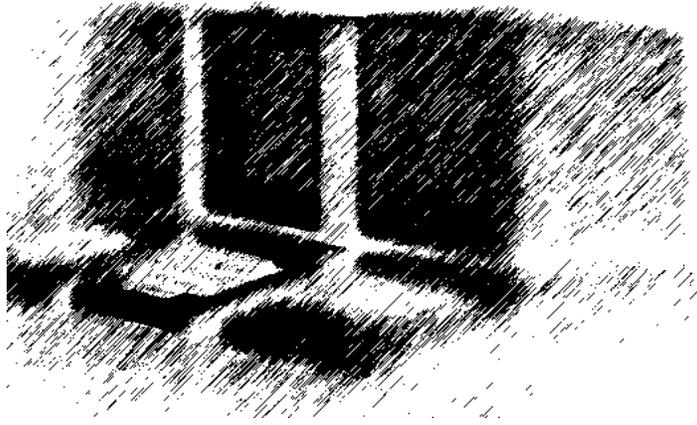




The State of E-Learning

in

the States



NGA's first-ever major initiative on higher education, ***“Influencing the Future of Higher Education”*** is co-chaired by Governors Paul E. Patton of Kentucky and Tom Ridge of Pennsylvania. The four-year initiative seeks to elevate national and state dialogue on postsecondary education and to equip governors and their advisors with the ability to diagnose problems, conceptualize issues, identify policy options and implement new public policy. The initiative focuses on three priorities: 1) increasing access, learning and attainment; 2) building and sustaining seamless learning pathways; and 3) fostering economic development.

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Summary

“E-learning”—instructional content or learning experiences by electronic technology—is expanding rapidly, and this technology is transforming how and where students learn.¹ States are using multiple strategies to expand their postsecondary e-learning capabilities for adult-centered, work-related education and training.

- States are developing *delivery systems* for e-learning, through virtual university and college models, and are establishing digital library models to support e-learners’ quest for information. States are also investing in upgrading the skills of educators so they can employ new e-learning technologies more effectively.
- States are promoting *access* to e-learning through infrastructure investments and financial incentives, including building the virtual highways for e-learning, modernizing their postsecondary institutions, and creating public-private partnerships to leverage and extend resources for building e-learning capacity. Some states are also providing tax incentives for businesses and individuals to participate in e-learning. Many states are reaching across the “digital divide” to reduce barriers and provide e-learning opportunities for the underserved and disadvantaged.
- States are exploring ways of assuring the *quality* of e-learning content, programs, and learner achievement. Emerging principles of best practices are giving states potential tools for quality assurance in e-learning programs. Some states are using competency-based credentials as a new currency of learning that recognizes prior experience. Other states are forming skills standards boards to promote performance-based and assessment-based learning.
- States are exploring *governance* issues as they bring e-learning activities into a coherent system. States are exploring ways of ensuring privacy and security in e-learning environments, as well as ways of protecting intellectual property rights in the cut-and-paste age. They are coordinating their new e-learning systems through various entities.

The state of e-learning in the states is that *most* of these measures are being implemented in *most* states. States are beginning to take advantage of the myriad of options made possible by new learning technologies, as they develop and expand their capacity to enhance the skills of a workforce preparing for the knowledge economy.

Although states are engaged in developing these e-learning opportunities, they also keenly recognize the challenges of bringing about such significant transformations across so many systems in such a short period. Current challenges frequently identified by states are the costs of developing content and training instructors, the necessary

enlargement of infrastructure capacity, the quality of courses and content, agreements on articulation and residency, the responsiveness of traditional institutions, and issues of privacy and intellectual property rights. States rank quality issues as their highest concern.

Such challenges will likely increase as states begin to address emerging issues within e-learning. These issues include reaching the digitally underserved more effectively; restructuring public postsecondary systems to eliminate duplication, now that previous barriers of geographic distance among jurisdictions have been vastly reduced; and assuring consumer protection and quality of content and programs in this dynamic environment without stifling innovation.

These findings and observations come from a National Governors Association (NGA) Center for Best Practices' e-learning survey of states conducted in April 2000.² The survey sought information on what measures and programs states are planning and implementing with regard to postsecondary and adult work-related e-learning and what challenges they are finding. The survey results are illustrative rather than statistically representative. A list of questions posed to states, a summary table of findings by state, and a list of state e-learning contacts are provided in appendixes.

“E-Learning” Is Instructional Content or Learning Experiences Delivered or Enabled by Electronic Technology

E-learning that covers adult-centered and work-related training and postsecondary education is designed to increase workers' knowledge and skills so they can become more productive, find and keep high-quality jobs, advance in their careers, and have a positive impact on their employers, families, and communities. What distinguishes this segment of e-learning from the more familiar “distance education” are its adult work-related focus and its greater flexibility, interactivity, and versatility by virtue of its emphasis on the electronic medium.

Governors, postsecondary education and training institutions, proprietary trainers, vendors, and private corporations are greatly interested in e-learning because of its perceived advantages. E-learning enables asynchronous and aspatial delivery of learning content and experience, affording truly flexible learning “anytime, anywhere.” E-learning adds to the different modes by which conventional educational materials can be delivered to the learner consumer. E-learning course content and materials can be easily and instantly updated, and they are not tied to individual instructors. Classes can be freed from the conventional physical constraints associated with location, buildings, parking, and access. Most importantly, there is little extra cost involved in serving additional learners, once the initial infrastructure and developmental costs have been met.

All this means that e-learners can be taught in very large numbers, but also in very small classes, or even as individuals, anytime, anywhere. As a result, e-learning is a highly cost-effective and adaptable medium for small education and training institutions and small businesses with limited resources for large overhead. It is also suitable for organizations with workforces that are distributed in small numbers in a large number of locations, such as state services offices, franchises, dealerships, and service depots, or for organizations with workforces that move more frequently than conventional course attendance periods would allow, such as trainees in the military or sales operations.

E-learning offers potentially universal access to “best-in-class” content, regardless of location, and it can transform education and training from a passive consumption experience to a more flexible and learner-centric experience. In an e-learning environment, the traditional institution's previous role as full-service gatekeeper evolves into a gateway to content and an aggregator of services in support of the e-learner's largely self-guided progress.

The Dynamic and Expanding New World of E-Learning Changes How and Where Students Learn

Recent studies of the e-learning industry identify the following trends:³

- The total dollar value of all e-learning products and services was estimated at \$7.1 billion for 2000. Although this amount was less than 1 percent of the \$740 billion spent on education and training of all types in the United States, e-learning is one of the fastest-growing sectors of that market, and the total dollar value of all e-learning products and services is projected to reach \$40.2 billion by 2005. Globalization, the Internet, company outsourcing, and demographic changes are playing as large a role in this rapid growth of e-learning as are developments in technology.
- The U.S. Department of Education found that 58 percent of all two- and four-year colleges offered distance learning courses in 1998; 84 percent of all colleges expect to do so by 2002.
- Within e-learning, the market for “soft-skills” training in workplace readiness, behavior, and problemsolving is growing twice as fast as that for formal information technology course training.
- Customers are shifting away from stand-alone courses. Instead they are demanding one-stop shopping for integrated e-learning solutions, including value-added services such as needs assessment, customized curriculum design, online mentoring, and performance support.
- Of the three main elements of e-learning—content, technology, and know-how—content is becoming predominant, with spending on content now overshadowing expenditures on technology by 5:1. The key future success factors for content providers are predicted to be large off-the-shelf libraries, large dedicated sales organizations, branded top-notch customizable content, and content that leverages the interactivity and personalization aspects of the Internet.

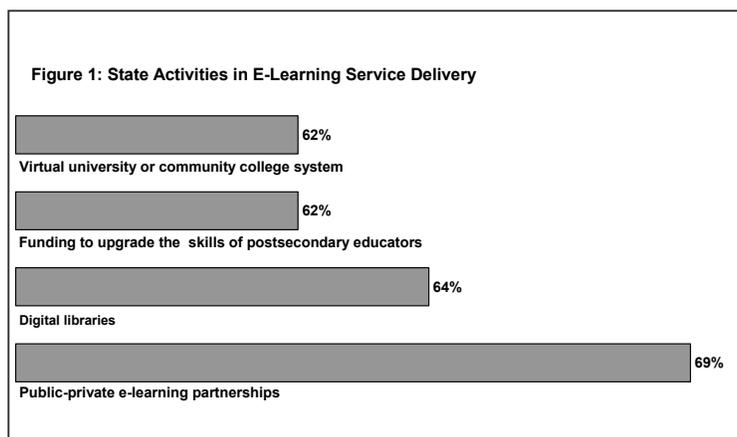
These industry trends have significant policy and budget implications for postsecondary education institutions. They suggest the need for institutions to develop greater capacity for e-learning delivery, to become more flexible in course content and length, and to be able to react more speedily to market changes.

States are Implementing Multiple Strategies to Develop and Expand Postsecondary E-learning Opportunities

States are building an impressive foundation of e-learning initiatives that address delivery, access, quality, and governance issues.

States are developing *delivery systems* for e-learning.

State e-learning delivery systems include *virtual universities and colleges*, and their supporting *digital libraries*, along with instructor upgrades to be able to deliver learning effectively using the new technologies. The prevalence of these measures found in the survey of states is shown in Figure 1.



Virtual university and college models are emerging within and across states

Of the 39 states responding to the e-learning survey, almost two thirds report they have a virtual university or virtual community college system to deliver e-learning. Several different emerging

“types” of these virtual institutions can be identified, depending on each institution’s business model, its service delivery strategy, and the degree of difference from the conventional education and training model. These virtual types indicate a healthy diversity of state strategies for adapting existing institutions to take advantage of e-learning. The types overlap, and many individual institutions can fit into more than one type.

- **Conventional courses online.** This type offers complete courses, or some parts of traditional courses, online. It offers convenient online registration and content access to the learner, and it can be a useful supplement to classroom offerings. Several other aspects, such as course length and assessment, generally remain part of the conventional

Virtual institution as a networked system: *Michigan Virtual University (MVU)*

MVU was founded in 1998 by the Michigan Economic Development Corporation in collaboration with several major industries in the state, using a \$30-million investment from the Michigan Renaissance Fund. MVU aims to provide high-quality, convenient, and cost-effective education and training to employees to equip them for high-tech, high-demand jobs. MVU does not develop courses or grant degrees itself. It brokers these through the state's colleges, universities, and private training providers to offer the state's best academic and technical courses remotely, using the Internet, CD-ROMs, interactive television, and other distributive learning devices. By fall 1999, 16 participating colleges offered 124 course titles to nearly 2,000 students through MVU. All 28 Michigan public community colleges are participating as "home colleges," providing support for participating students from their areas. In addition, the Michigan Virtual Automotive and Manufacturing College, a division of MVU, contracts with manufacturing companies to provide noncredit workforce training. In 1999 the division recorded 3,863 enrolments in programs such as Ford Motor Company's Global 8-D and FMEA courses. MVU officials expect 4,500 noncredit enrolments in 2000. Michigan also recently announced a \$750,000 grant from Ameritech to MVU to launch the Michigan Virtual Information Technology College to help the information technology skills of the Michigan workforce. For more information, visit [/www.macul.org/newsletter/1999/march99/fitzpatrick.html](http://www.macul.org/newsletter/1999/march99/fitzpatrick.html) or contact Deborah White of MVU at dwhite@mivu.org or 517/324-5357; or contact MVU directly at www.mivu.org/index.asp or 517/336-7733.

learning framework.

- **Networked Colleges.** Networked colleges offer a central online access point for learners otherwise registered at individual colleges and universities of an existing state system. This model offers the learner the advantage of being able to take any course from participating institutions and have it count as part of a program at the local one, thereby enabling access to the best the system has to offer and overcoming individual program limitations. Examples found among the survey states include the **California** Virtual University and **Michigan** Virtual University (see inset box).
- **Aligned systems.** Aligned systems go one step further than networked colleges because they may involve many more participating institutions that are not necessarily from the same system or state. This type offers the learner greatly enhanced choice, but it requires greater harmonization and many more new agreements on course review, fee structure and sharing, transferability, and principles of practice among the participating institutions. An example of this type, found in 16 of the survey states, is the Southern Regional Education Boards' Electronic Campus (visit [/www.srec.sreb.org/](http://www.srec.sreb.org/)).
- **Independent virtual universities.** Independent virtual universities have a separate corporate entity or umbrella for the participating individual colleges and universities. In this type, it is much more likely that instruction, course content, and student participation have been

developed exclusively for the online environment. The challenge for the learner is that the brand is that of a new entity, rather than a name college. An example of this type is the National Technological University (*see inset box*).

- **Privatized noncredit course delivery by public-degree-granting institutions.**

Under this type, participating public postsecondary institutions create a for-profit arm to develop and market noncredit, nondegree products and courses globally. The shareholder institutions bring the legitimacy of their existing accreditation, while the for-profit arm can more flexibly exploit

An independent virtual university: National Technological University (NTU)

NTU delivers masters-degree courses in engineering via satellite; 51 schools offer courses to corporate subscribers. In 1999, NTU established a for-profit NTU corporation to aggressively develop nondegree products and market courses globally. NTU will remain an accredited masters- degree granting institution, while the for-profit arm will take over the satellite delivery system, including creation and delivery of noncredit, nondegree courses, as well as back office operations. The for-profit and non-profit arms will be linked through service agreements. *For more information, visit /www.ntu.edu/.*

opportunities for customized corporate training, joint venturing, and high-tech spin-offs from the public institution. An example of this type is the NTU Corporation (*see inset box*).

- **Online proprietary training schools.** Online proprietary training schools are the virtual versions of traditional private occupational training schools. They offer the learners the online convenience of a narrower program, often focusing on skills and certifications leading directly to specific trades or jobs.

Virtual education and training institutions can break down barriers to participation, particularly for the homebound, those already working full time, those with family commitments, and those traveling. They afford learners flexibility, convenience, and self-pacing in the design and implementation of their personal learning plans. Online offerings expand the efficiency, capacity, and geographical market reach of postsecondary education and training institutions. They enable collaborative seamless provision of services and the elimination of costly duplication by different campuses of a single state system, and they provide a potentially low-cost alternative to traditional brick-and-mortar schools. As a result, the number of virtual universities and colleges is growing rapidly; for 2000, the *NetPromise.Com Online Directory* lists 194 degrees and 3,993 courses online at 115 institutions, while *Petersons.Com* lists 181 distance learning programs.

Many states are establishing digital library models to support e-learners' quest for information.

Two thirds of the survey states report having a digital library of e-learning course materials, background reading, and reference documents. One of the most popular models for a digital library is a central "links" hub that provides information about, and access to, distributed online collections, as does the

Wisconsin system at www.dpi.state.wi.us/dpi/dlltcl/pld/wis_lib.html. Individual university or college libraries can also develop online collections alongside their conventional paper collections. See for example, **Virginia**'s Cosner Library at www.gcc.cc.va.us/library. Multiple institutions can form an online consortium to share online library access for their students, as does **Idaho**'s LiLI-D system (*see inset box*).

Linking residents statewide: Idaho's LiLI-D (Libraries Linking Idaho) Digital Library

The Idaho Legislature, with the support of the governor; funds the LiLI-D database that links Idaho residents to full-text articles. Idaho residents can gain access to the system from their home or office after obtaining a user name and password from the Idaho State Library. Users log on through the LiLI web site. Residents can access articles on health, business, child-oriented, and general topics. The Idaho state Library produced a training teleconference, and it reserves a training video for library partners. *For more information, visit www.lili.org/isl/index.htm; or contact Rand Simmons at rsimmons@isl.state.id.us; or Michael Samuelson at misamuel@isl.state.id.us.*

Bringing public libraries into the Digital Age: The POWER (Pennsylvania Online World of Electronic Resources) Library Project

Pennsylvania's POWER digital library is offered free as a service of Pennsylvania's public libraries, school libraries, and the state library. Users can access thousands of full-text periodical articles, newspapers, a major encyclopedia, and photographs, pictures, charts, maps, and other reference materials. They can also access the Access Pennsylvania Database catalog records and locations for materials owned by more than 1,500 school, public, and academic libraries in the state. *For more information, visit www.statelibrary.state.pa.us/power01.html.*

Institutions may also make group purchases of electronic library resources, such as **Virginia**'s VIVA group purchasing consortium for electronic library resources at www.viva.lib.va.us and **Hawaii**'s statewide purchasing of databanks at www.hcc.hawaii.edu/hspl/. A more general-use and accessible public digital library model is one giving access to online collections through terminals in conventional public libraries, such as the **Pennsylvania** Department of Education Online World of Electronic Resources library project (*see inset box*).

Digital libraries are necessary to complete the e-learning system. Without them, background and reference materials would have to be retrieved in conventional fashion, adding time and transportation costs that e-learning seeks to erase. Digital libraries enable remote access anytime for e-learners, who can then spend their limited time on understanding and processing material rather than merely locating it. Digital libraries also facilitate easier and less costly acquisition, storage, copying, distribution, updating, and interlibrary loans of learning materials for the maintaining organization. Through digital libraries, multiple providers can share capital and operating costs and avoid the

congestion, shortages, and missing material problems frequently encountered with conventional paper collections. Digital libraries also enable even the smallest institution to maintain sophisticated and specialized holdings. These institutions cannot typically afford the large conventional library facilities, staff, and operating budgets—factors that usually rise in proportion to the number of physical users.

States are investing in upgrading the skills of educators so they can employ new e-learning technologies more effectively.

Successful delivery of e-learning also requires training instructors to use the new technologies effectively. Almost two thirds of the survey states report they are providing funds to upgrade the e-learning skills of postsecondary educators. Such activities are taking the form of increments to existing budgets for teacher training, continuing education, and faculty development; new development courses in university and community college systems; or dedicated plans for larger initiatives.

Specific examples reported by states include **Kansas**' Teaching Today's Teachers Through Technology (T3) program, which provides continuing education through distance learning and making these classes available to teachers at a reduced cost.

Virginia is providing institutional initiatives for faculty and staff technology training at Norfolk State University, Radford University, and Virginia State University. Teacher upgrade efforts can also include subsidies for online developmental work, such as **Mississippi**'s Blackboard Inc. training for the Mississippi Virtual Community College,

Enhancing faculty e-learning skills: Hawaii's Teaching and Learning with Electronic Networked Technologies (TALENT) initiative

TALENT provides distance learning opportunities for University of Hawaii faculty to enhance their computer skills. The program takes a three-tiered approach that includes statewide teleconferences focusing on faculty issues, student support, copyright, and technology; Internet and hands-on lab-based modules on WebCT (the designated course management tool), with on-request workshops offered in all-day format on campuses throughout the university system; and hands-on skills workshops. TALENT also runs an annual summer institute where instructors receive intensive training that equips them to create their own online course or resources for traditional courses. For more information, see the TALENT synopsis at [/www.hawaii.edu/infobits/fall99/talent.html](http://www.hawaii.edu/infobits/fall99/talent.html); visit the TALENT Web site at: www.hawaii.edu/talent/; or contact Hae Okimoto, Manager of the Distance Learning and Instructional Technology office supporting TALENT at hae@hawaii.edu or 808/956-3504.

and its Recognizing Learning Styles in E-learning and Development of Online Courses initiatives. Faculty and instructor development is often seen as requiring a multifaceted approach that combines combining courses, workshops, institutes, and teacher support, such as in **Hawaii**'s TALENT initiative (*see inset box*). Similarly, the **Wyoming** Education Gateway (WEdGate) program affords teachers access to customized curricula connected to state standards and to assessments based on those standards as well as enables teachers to exchange lesson plans (*visit www.wyoming.edgate.org/*). Instructor skill upgrading can also mean adding specific technology positions to staff rosters, as in **North Carolina**, where technology faculty positions have been allocated to each school and college of education. **South Dakota** has developed a specific plan for a Center for Statewide E-Learning to develop instructor skills (*see inset box*).

A plan for statewide service: South Dakota's Center for Statewide E-Learning

South Dakota plans to make Northern State University (NSU) a nationally recognized Center for Statewide E-Learning. The center will train teachers and school staff in distance education technology and will provide school courses via video conferencing. All NSU students will learn instructional and distance technology skills to prepare them for using such technology in the workplace. The center will increase the availability of qualified teachers, with an emphasis on placing student teachers in rural areas, and will ensure all public school students have access to the courses they need to prepare for higher education regardless of where they attend school. *For more information, visit [//www.state.sd.us/news/issues/17.pdf](http://www.state.sd.us/news/issues/17.pdf) and www.state.sd.us/news/index.cfm?Fuseaction=printerview&edit_id=742&CFID=188174&CFTOKEN=40373419.*

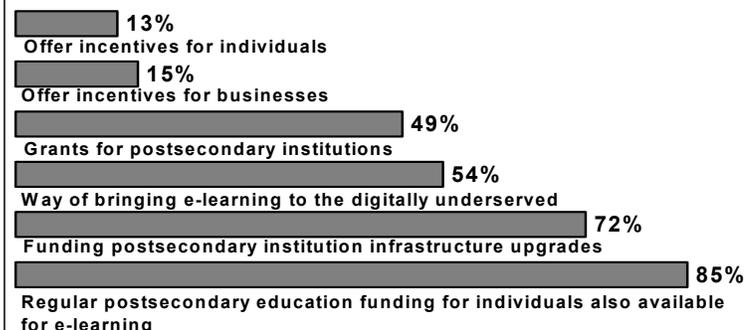
Given the demographics of the existing postsecondary teaching workforce, such state investments in instructor upgrades may be increasingly necessary. A development program in **Virginia** showed that professors could even become better instructors in traditional classrooms after they have taught a distance learning course. Faculty were provided with special training and the assistance of an instructional designer prior to teaching the distance learning course. They received training in pedagogical techniques and in the use of instructional technology, as well as a curriculum design specialist's complete review of the material to be covered by the course. Assessment results showed that when such faculty returned to teaching in traditional classrooms, their student course evaluations improved.⁴

Establishing virtual universities and colleges and digital libraries, developing online courses and content, and upgrading faculty and instructor skills are all important activities for the delivery of e-learning. After quality, delivery is the second most frequently cited challenge to further development of e-learning opportunities reported by states. Specific delivery challenges have to do with articulation, residency, degree completion, credit portability and transferability, marketing and promotion, provision of information to consumers, staff training, and student support on how to learn electronically.

States are promoting access to e-learning through infrastructure investments and financial incentives.

Students' ability to access e-learning rests on the hard infrastructure available in the external environment (e.g., Internet hubs, quality phone lines, fiber-optic and satellite links, and high-capacity networks) and inside the institution (e.g., up-to-date computers, teaching labs, local area networks, e-conferencing capability, and technical support). Access also depends on the soft infrastructure for learner support, such as information sources for e-learning opportunities, marketing and outreach, free or low-cost entry to online courses, help-

Figure 2: State Activities to Promote Access



desk assistance, mentoring and counseling, and support for e-learning skills development.

These hard and soft infrastructure upgrade requirements tend to increase as the e-learning content becomes more complex and media-rich and as the e-learner traffic increases. To help reengineer and update the infrastructure, systems, facilities, staff, and content needed for full access, states are reaching out to the private sector to leverage resources through public-private partnerships and are supporting postsecondary education institutions' modernization efforts.

Access is also a question of the user's abilities to take advantage of the infrastructure and the services delivered through it, and this may require enabling *incentives* or specific measures to reach the digitally underserved. The prevalence of access measures found in the survey is shown in Figure 2.

Ensuring access to e-learning is also a challenge frequently cited by states. Specific concerns include providing access through affordable infrastructure, informing the public of distance learning opportunities, and ensuring access in rural areas and for low-income and senior groups.

States are building the virtual highways for e-learning.

Almost three quarters of the survey states report they are funding postsecondary education institution infrastructure upgrades beyond general formula assistance. This seems to be an issue particularly in western and rural states. Infrastructure upgrades include installation of fiber-optic and high-capacity networks, statewide linking of high schools and colleges, and development of centralized special facilities (e.g., video-conferencing) to which individual institutions can have subsidized access.

- The **Iowa** Communications Network (ICN) is state-owned and operated. The digital, 3,400-mile fiber-optic communications network connects more than 750 classrooms throughout the state and supports Internet, data, voice, asynchronous learning, and full-motion live video. ICN is scheduled to deliver more than 176,000 additional hours of higher education content during fiscal 2001, and the U.S. military will be investing more than \$80 million in training and a simulation center attached to ICN (*visit [/www.icn.state.ia.us/text/txtindex.html](http://www.icn.state.ia.us/text/txtindex.html)*).
- **Wisconsin** funds BadgerNet. This high-speed network connects the University of Wisconsin (UW) system institutions, technical colleges, and elementary and secondary education (K–12) institutions and provides the infrastructure necessary to offer distance learning courses among these campuses, statewide, and to new markets outside the state. The UW Learning Innovations program uses this arrangement to design and market customized training to corporate clients (*visit <http://enterprise.state.wi.us/static/badger/>*).
- The **Wyoming** Equality Network provides data access among elementary and secondary schools in the state, and it is working on providing two-way interactive video among the state's high schools (*visit www.k12.wy.us/technology/wen.html*).

States are using incentives and financial support to modernize existing postsecondary education institutions:

About half of the survey states report offering incentives and financial support beyond general or formula-based assistance to encourage postsecondary education institutions to take advantage of e-learning techniques and delivery mechanisms. This assistance can take the form of specific, additional grants to institutions, as with **Texas'** Telecommunications Infrastructure Fund (*see inset box*), or re-appropriations of general funds among the institutions. Sometimes these incentives occur within the context of a wider plan.

Grant funding to support postsecondary education institutions modernization: Texas' Telecommunications Infrastructure Fund (TIF)

TIF provides funding for distance education-related projects, including grants to schools, colleges, and medical institutions, to develop infrastructure supporting telemedicine and distance learning. TIF recently provided \$28 million to universities and libraries, \$14.8 million to community and technical colleges, and \$9.7 million to medical schools. *For more information, visit www.tifb.state.tx.us/grantloan/timeline.html.*

- **Virginia** has discrete appropriations in 2000 dedicated to distance learning for Old Dominion University (\$6.1 million) and Virginia Polytechnic Institute and State University (\$1.3 million).
- In **Alaska** the fiscal 2001 appropriation for the University of Alaska provides for faculty development to produce courses for distance delivery, technical support for community campuses receiving distance instruction, and curriculum development and delivery of distance learning courses toward degrees in social work, nursing, and childhood development.
- In **Florida** general appropriations for both the community college and the state university systems can be used to increase the number of programs and degrees that can be obtained through distance learning. The state legislature also appropriated \$1.15 million to assist students enrolled in each system's distance learning courses.
- Within **Nebraska**'s community college system, six area colleges and 12 attendance centers offer programs via satellite to all students across the state. The faculty support staff, infrastructure, facilities, and connectivity charges are funded mostly through institutional reappropriations.

Investment in modernizing educational telecommunications infrastructure: Nebraska

Nebraska has committed millions of dollars to satellite broadcast and interactive networks as well as terrestrial synchronous and asynchronous distance learning. The Nebraska Educational Telecommunications Commission makes available 30 digital channels for satellite interactive learning and 6 digital channels for broadcast presentations for higher education and K–12 institutions as well as provides a DS-3 fiber circuit that covers two thirds of the state for use in interactive course exchange. *For more information, visit <http://www.net.unl.edu/net.html>, or call 402/472-3611).*

the higher education coordinating board coordinates the approval process for courses offered online and through distance education programs. The board also requires institutions offering distance learning courses to submit a five-year plan for faculty training and evaluation, program and course review, marketing, budgeting, replacement schedules, and student services.

These modernizing investments are important because they enable the participation of institutions that otherwise might not have the funds for e-learning technology, such as small specialist training schools. This encourages a greater diversity of providers.

States are creating public-private partnerships to leverage and extend resources for building e-learning capacity.

More than two thirds of the survey states have public-private partnerships related to e-learning. In some cases, the partnerships are contractual relationships focused on offering a particular certificate. In other cases, a public educational institution may collaborate with a private course producer to deliver a wider range of courses online. Some public-private partnerships focus more on physical infrastructure construction and operation. Still others may be existing general programs under public-private management that decide to sponsor e-learning activities as part of their broader mission.

Examples reported by states include:

- the Digital Dakota Network for infrastructure development (*visit www.state.sd.us/deca/Technology/News/DDN/*);
- the **Iowa** Community College Internet Consortium (*see inset box*);
- the **Wisconsin** Governor's Work-based Learning Board and Prepare Young Adults to Enter the State's Workforce program; and
- **Pennsylvania's** CISCO-3COM partnership for certificate training.

Public-private partnerships can help carry out several functions, including developing the e-learning environment, raising funds, marketing to customers, building networks and systems, conducting specific e-learning initiatives, developing content and curriculum, delivering services, maintaining strategic oversight, and customizing content to employer needs. Public-private partnerships can also integrate the complementary strengths of different sectors for the common e-learning enterprise. The private corporate sector can bring its strengths of real working experience, technical ability, innovation mentality, speed of development and marketing, and responsiveness to changes in customer needs. The nonprofit/foundation sector can bring its strengths of fundraising, focusing attention, and subsidizing delivery to particular disadvantaged groups. The public sector can bring its strengths of legitimacy, standards-setting, funding, diversity of public network partners, marketing to potential customers, capital for infrastructure investment, internal purchasing power to create markets, and network- and pipeline-building.

Some states are providing incentives for businesses and individuals to participate in e-learning.

Six of the survey states offer tax deductions and grants to encourage businesses to take advantage of e-learning opportunities for their workforces. To promote access, five of the survey states offer specific e-learning incentives for individuals, while almost all of them report their regular postsecondary education grants, loans, and scholarships are also available to pay for distance education and e-learning courses.

In the six states reporting they offer incentives for businesses, **Colorado** reports state proposals to provide tax credits for corporations making donations to scholarship programs and educational institutions. In **Hawaii** tuition vouchers to undertake e-learning are available to businesses for incumbent worker training by certified providers. A proposal in **Virginia** would grant a tax credit to employers for 50 percent of up to \$2,000 in wages paid to information technology interns, coupled with another \$1,000 per teacher or guidance counselor with whom the employer contracts to provide an eligible information technology training course (*visit <http://leg1.state.va.us/cgi-bin/legp504.exe?001+ful+HB859>*).

In the five states reporting incentives for individuals, **Missouri**'s Department of Higher Education offers the Advantage Missouri loan and loan-forgiveness program, which is worth up to \$2,500 per year to students working in the state in high-demand fields after graduation (*visit www.cbhe.state.mo.us/ Mostars/advmo.htm*). In **Wisconsin** individuals can take deductions worth up to \$3,000 on their state taxes to cover tuition paid for postsecondary education and workplace training, including e-learning courses.

Such financial incentives for individuals can help overcome the initial lack of capital, increase access to e-learning for a larger population, empower the e-learning consumer by enabling choice, encourage lifelong learning and job-skill upgrading, and help create a more learner-centered academic

environment. Employer incentives can encourage the upgrading of worker skills, thereby increasing the number of skilled workers available and enabling small and medium-sized companies to upgrade the skills of their workforces cost-effectively.

Providing general access: Indiana's IHETS and ICN

Indiana funds a Higher Education Telecommunications System (IHETS), whose partners include K–12 schools, public libraries and broadcasters, state government, and colleges and universities. IHETS manages the Indiana College Network (ICN), which acts as the information-providing gateway to the distance education courses offered by public and private colleges. It also provides links and descriptions for instructional development for use by educators and administrators. IHETS also supports the DegreeLink program for students who have associate degrees but who want to complete baccalaureate degrees through distance learning. *For more information, visit www.icn.org/.*

Free courses on a large scale through e-learning: Michigan's Information Technology Training Initiative

This program will make online training available through the Michigan Virtual University to as many as 850,000 faculty, staff and students in Michigan's K-12, university and community college system. In 2001 it will also make the courses available free to as many as 25,000 Michigan workers. It will provide free courses to all K-12 teachers, college faculty, and staff who want to improve their information technology (IT), management, and communications skills; provide free, noncredit courses to students enrolled in Michigan schools and colleges for skill development and IT certification study; and provide core IT content teachers and faculty can use to enhance or create new courses and programs. For further information, visit www.migov.state.mi.us/; or call the Michigan Governor's press office at 517/373-3400.

States are reaching across the "digital divide" to reduce barriers and provide e-learning opportunities for the underserved and those with low incomes.

Conventional incentives may not be enough to increase e-learning opportunities for all if they do not reach the most underserved groups, or if potential learners do not have the computer self-sufficiency and literacy to make use of these opportunities. Consequently, more than half of the survey states report having specific ways of bringing e-learning tools and services to the digitally underserved.

The measures these states are using include completing a statewide network and portal, such as **Indiana's** Higher Education Telecommunications System (*see inset box*); offering free online courses, as does **Michigan's** Information Technology Training Initiative (*see inset box*); providing free Internet access through public and college library terminals; arranging loan subsidies for computer purchase (*see inset box*); targeting training of underserved groups through nonprofits entities, as in **Maryland** (*see inset box*); offering grants for community and neighborhood recycling of computer equipment; and encouraging conventional institutions to broaden their

existing outreach and support.

Reducing barriers for welfare recipients and the working poor: Maryland's Better Opportunities Through Online Education

This joint venture between the University of Maryland's University College and Goodwill Industries of the Chesapeake provides free online education to former welfare recipients and working poor individuals who have completed one of Goodwill's job-readiness courses and entered the workforce. The program aims to provide them with the opportunity to obtain the skills demanded in the changing economy and move out of low-paying jobs by earning certificates in areas such as accounting, management, and computer applications. Participants earn credit toward a degree through the university's adult education institution. They must have a high school diploma/or equivalent certification and demonstrate some basic computer skills. They then receive a four-week writing course prior to entering the program. They are given donated personal computers and receive mentoring, tuition, books, and instruction for up to three years. At the end of the program, students keep the computers they received. The program is funded through donations, which are then matched. For more information, contact Goodwill at mjohnson@goodwillches.org or 410/534-0332.

Access initiatives are important because research on the digital divide has shown the rates of computer literacy and use and Internet access and use are significantly lower for certain groups, such as African Americans, seniors, low-income families, and remote rural populations.⁵

Successful initiatives reaching these groups, such as in **California** and **Maryland** (see inset boxes), would expand the skilled workforce available for the new economy and help narrow income gaps that can result from uneven access to educational opportunities.

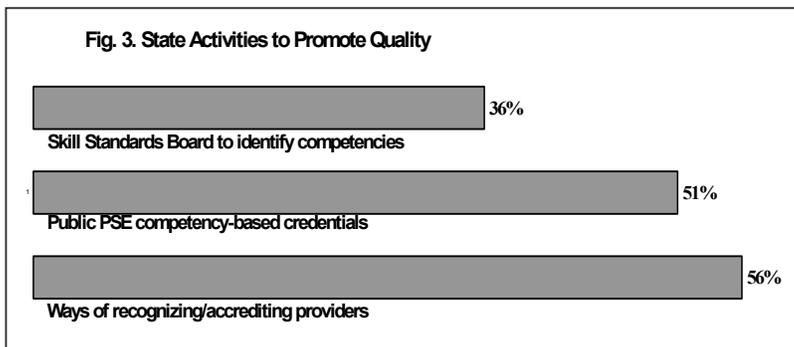
Family loan subsidies bridge the digital divide: *Riverside (California) Computer Investment Program (RCIP)*

In its first year, RCIP has helped 145 low-income households get computers. It has also arranged free training classes, 90 days of free bilingual phone technical support, free Internet access, and free warranties for recipients. The program is a public-private partnership between the city, the county's credit union, Jaguar Computers, and the Riverside Community Online Project. A \$20,000 capitalization provides a \$225 subsidy per qualified low-income family to purchase personal computers and keep monthly loan repayments below \$20. The credit union finances the loans at reduced interest rates and also waives prior credit history requirements. Emerging collateral benefits for families are that 81 percent of recipient families report their children watch less television and 69 percent report grades of their school-age children have improved since the purchase of their computer. *For more information, contact Steve Berry, at sberry@rcol.org or 909/826-5897; or visit www.govtech.net/magazines/story.phtml?id=253000000001593)*

States are assuring the *quality* of e-learning content, programs, and learner achievement.

The quality and performance of e-learning providers, programs, and learners are important, but they are not well captured using traditional institution-based approaches to credentialing individuals for completion of classes and programs of study in accredited institutions. States are trying new strategies including competency-based credentialing systems. Under these systems, the learner can earn credentials for demonstrated knowledge and skill regardless of the sources of prior learning, which may

include life experiences and on-the-job training. Competency-based credentialing systems are easier to implement if a skills standards board has also done the groundwork of assembling,



organizing, and disseminating industry-validated skill standards describing what it is an individual needs to know and be able to do to perform work successfully. Virtual institutions can be recognized and encouraged to meet quality criteria through an accreditation process grounded in the principles of best practice. The prevalence of these quality assurance measures found in the survey is shown in Figure 3.

Some states are using competency-based credentials as a new currency of learning that recognizes prior experience.

About half the survey states report they have public postsecondary institutions that award competency-based credentials not tied to specific course participation. Several of these states are members of the Western Governors' University, which awards competency-based credentials (*see inset box*). **Utah's** Davis Advanced Technology Center is an individual institution that's offering a competency-based program (*see inset box*).

Many institutions also use the College Board's College-Level Examination Program assessments of prior learning to identify candidates for testing courses (*visit www.collegeboard.org/clep/*), and some public institutions' external programs use portfolio reviews to provide accelerated certifications. Competency-based assessment is also used for specific technician and vendor certifications.

Competency-based assessment as a core feature: Western Governors' University (WGU)

WGU, an initiative of the Western Governors' Association, began issuing degrees and certificates in 1998. Students enroll in courses taught through various distance-learning techniques, such as interactive television, satellites, and the Internet. Enrollment and end assessment is based completely on competencies. *For more information, visit www.wgu.edu/wgu/academics/understanding.html*

Learner-centric progress: Utah's Davis Applied Technology Center (ATC)

Utah's Davis ATC offers open-entry/open-exit technical training to high school and adult learners. Students progress at a rate suited to individual learning styles by demonstrating mastery of prespecified skills. Maximum program lengths are based on the performance averages of past students. Actual completion time may vary because of a student's prior experiences, the amount of time spent in class per day, and individual learning differences. This flexibility allows a student to become job-ready in the shortest time by focusing on the skills still needed to achieve their career goal. *For more information, visit www.datc.tec.ut.us/*.

Competency-based systems reward individuals for their knowledge and skills gained on the job and through life experiences. They also allow for accelerated learning and certification, thereby enabling students to work at their own pace. Such systems can provide a measure of effectiveness for instruction that can be tied back to content providers and instructors for continuous improvement purposes.

Some states are forming skill standards boards to promote performance-based and assessment-based learning.

About one third of the survey states report having a skill standards board that identifies competencies. The board acts as a catalyst and broker in facilitating the recognition and adoption of existing industry-validated skill standards throughout the state’s education and training systems.

- ***Texas Skill Standards Board.*** The board’s mission is to validate and recognize nationally established skill standards to guide curriculum development, training, assessment, and certification of workforce skills; convene industry groups and develop skill standards and certification procedures for industries and occupations in which standards have not yet been established or adopted; review standards developed by other states and nations and enter into agreements for mutual recognition; and promote the use of standards and credentials among employers. The board plays a leadership and system-building role while working through two critical state partners—the Texas Workforce Commission and the Texas Higher Education Coordinating Board—to ensure consistency in the use of the standards among their respective local partners. The skills standards board was instrumental in establishing a skill standards requirement for training providers eligible for Workforce Investment Act (WIA) funds. *For more information, visit www.tssb.org/.*
- ***Illinois Occupational Skill Standards and Credentialing Council.*** This council’s three major functions are to recognize and develop skill standards and credentialing systems; market and promote these systems within the private sector; and work with state councils and agencies to promote standards and credentials within all workforce development programs. The council encourages the use of skill standards as a foundation for curriculum building, assessment, and credentialing systems, and it leverages resources through state consortia and other networks to promote skill standards and credentialing system adoption and compatibility throughout the state. *For more information, visit www.standards.siu.edu.*

**Voluntary adoption of skill standards and certification through an existing agency:
*Michigan Department of Career Development’s Technical Excellence Council***

This council will address standards and certification issues in emerging education and technology areas, including certifying existing and emerging secondary and postsecondary technical education programs for consistent quality throughout the state. It will also recommend a system to award the Great Lakes Technical Certificate to individuals upon completion of approved programs, involve the Michigan Virtual University to support the initiative, work with the Council of Great Lakes Governors to establish portable credentials across the region, construct a skill standards database to improve information access and dissemination, and work with the National Skills Standards Board to develop strategies. *For more information, visit www.migov.state.mi.us/gov/ExecutiveOrders/index.htm; or contact Robert Sherer at 517/373-0366.*

States that have not created specific boards report working through an existing entity, such as the state workforce investment board, or else they encourage voluntary adoption of skill standards. For example, in **Colorado** the State Workforce Development Council focuses on serving as a catalyst for K-12 curriculum modifications that can help students become prepared for e-commerce opportunities in the Colorado economy. In **Hawaii** the state's Workforce Development Council has led the effort to identify workforce competencies for six key industries. **Michigan** is using an existing agency and a voluntary adoption strategy (*see inset box*).

Skill standards are important because they offer a systems approach to organizing information about what is required to perform successfully in a particular occupation or industry. Individuals can use skill standards to map out a career path. Employers can use skill standards to assess potential hires' and existing workers' skill attainment. Education and training providers can use them as a guide to curriculum development, to focus students on skill sets that will get them a job, and to produce graduates with the skills employers demanded. Regulatory agencies can use skill standards to oversee provider performance. In the e-learning realm, skill standards can provide the common language needed for awarding competency-based credentials.

Emerging principles of best practice give states potential tools for quality assurance in e-learning programs.

Of the 39 states responding to the survey, about half report their higher education governing board or regulatory agency has ways of recognizing and accrediting e-learning institutions and online education and training providers. About half also report they have examined interstate issues related to accreditation and regulation of e-learning providers.

To assure the quality of online providers, states are promulgating their own list of principles; adhering to some external industrywide statement of best practices; or adhering to principles of best practice developed collectively by the participating institutions in the virtual system.

- **Texas'** Higher Education Coordinating Board has developed principles of good practice for academic degree and certificate programs and credit courses offered electronically. The principles cover curriculum and instruction, institutional context and commitment, and evaluation and assessment (*visit /www.theceb.state.tx.us*). The board has also eliminated outmoded restrictions, reduced the complexity of its rules, and streamlined the process of board review of distance learning proposals. In addition, the board recently modified its rules concerning the certification of private out-of-state providers that want to operate in Texas with authority to grant degrees or credits toward degrees to protect residents from low-quality distance learning programs. *For more information, contact David Linkletter at 512/483-6225.*
- The 1997 report, *Access, Collaboration and Transformation for the 21st Century (ACT 21)*, by the Distance Education Advisory Committee of the **Pennsylvania** State System of Higher Education contains guiding principles covering assuring high quality, serving all citizens, building in flexibility, integrating other technology, reducing apprehension, increasing accessibility, encouraging diversity and innovation, and

“cultivating student centrality.” In 1998 the committee also issued *Guidelines for the Development of University Distance Education Plans*. (Visit www.sshechan.edu/DEA/C0497.pdf, and www.outreach.psu.edu/DE/IDE/guiding_principles/).

- The Southern Regional Education Board has developed principles of good practice for participating institutions in its Electronic Campus (see inset box).

Quality through adherence to principles of good practice: Southern Regional Education Board's Electronic Campus (SREB)

SREB offers an electronic marketplace of hundreds of college courses and programs from participating institutions in 16 states: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Credits are transferable, and all courses are reviewed according to the board's *Principles of Good Practice*. These principles identify the expectations and requirements for participation in the Electronic Campus and emphasize institutions being accredited and performing self-review for course compliance. Areas covered include curriculum and instruction, institutional context and commitment (student services, faculty support, resources for learning), and evaluation and assessment. (For more information visit www.electroniccampus.org/student/srecinfo/publications/Principles_2000.pdf)

Many states already have regulatory bodies with statutory and certifying authority over private, for-profit, and proprietary education and training providers. Yet these bodies usually have jurisdiction only over entities doing business in the state (i.e., those with a physical location or with a resident agent soliciting customers in the state). It is unclear what, if any, influence these state-based regulatory bodies can have on out-of-state, exclusively online providers except through their control of public funds for in-state e-learners taking the providers' courses. This suggests the quality issue may need to be addressed on a multistate basis.

States also commonly rely on established accreditation practices for quality assurance. The 1998 federal Higher Education Act Amendments put distance education providers under the same quality criteria as other institutions. The chief mechanisms for assuring quality are the six U.S. Department of Education-recognized regional accreditation offices that conduct peer reviews and qualify providers to participate in Title IV financial programs.⁶ The University of **Hawaii**, for example, is a member of the Western Interstate Commission for Higher Education and its regional accrediting body, which has developed guidelines for best practices (visit www.wascweb.org/senior/guide/pgpa1.htm). However, e-learning providers often criticize the official federally recognized accreditation mechanisms as being overly focused on inputs and too oriented to bricks-and-mortar institutions. Exclusively online providers have found it difficult to gain any recognition or to gain it in a reasonable timeframe. As a result, state systems may need to consider broadening the scope, expertise, and authority of their postsecondary oversight bodies to cover online providers beyond the reach of existing accrediting bodies.

To address e-learning providers' concerns, several of the regional commissions have adapted the *Principles of Good Practice for Electronically Delivered Academic Degree and Certificate Programs*, originally developed in 1996 by the Western Cooperative for Educational Telecommunications. These principles have evolved into *Guidelines for*

Distance Education, now also adopted by the Accrediting Commission for Community and Junior Colleges (visit [/www.accjc.org/dislearn.htm](http://www.accjc.org/dislearn.htm)).

Assuring quality in e-learning was the challenge that was most frequently cited by states responding to the survey. Specific concerns the states articulated included providing professional development and training in alternative media for faculty, maintaining course quality, assessing the effectiveness of e-learning, and regulating the market to assure quality without stifling innovation.

Other quality-based initiatives could help address some of these challenges. Since 1926, the Distance Education Training Council has been accrediting nonresidential study programs, ranging from technical and professional training through master's-degrees programs. The Canadian-based International Association for Continuing Education and Training issues *Guidelines for Distance Education* for “authorized

Providing consumer information for quality choices: New Jersey's Consumer Report Card system.

New Jersey's Consumer Report Card will provide easy online access to training provider performance information, so consumers can make informed choices about how to spend their individual training account resources. The system will also be used to track providers against performance standards. For more information, visit www.njtrainingproviders.org and <http://wnjpin.state.nj.us/OneStopCareerCenter/SETC/Training%20Provider%20Letter.htm>.

provider organizations” of continuing education units. The National Education Association, in conjunction with the Institute for Higher Education Policy and Blackboard Inc., recently suggested standards for online providers in their report *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*. The 1998 Workforce Investment Act also affords states an opportunity to recognize and promote quality online learning. WIA gives governors, through the new state and local workforce investment boards, the power to set performance measures and standards for deciding “initial” and “subsequent” eligibility of a provider to be on the statewide WIA eligible training provider list, as has been done in **New Jersey** (see inset box). Only training providers on this list can receive WIA funds. See inset box for links to all of these sources of quality measures.

Links to other prototype “standards”

Distance Education and Training Council (DETC): www.detc.org/

International Association for Continuing Education and Training (IATEC):
<http://www.iacet.org/guidelines/tableofcontents.htm>

The Institute for Higher Education Policy (IHEAP): www.ihep.com/quality.pdf

National Education Association (NEA): www.nea.org/he/bbnear.html

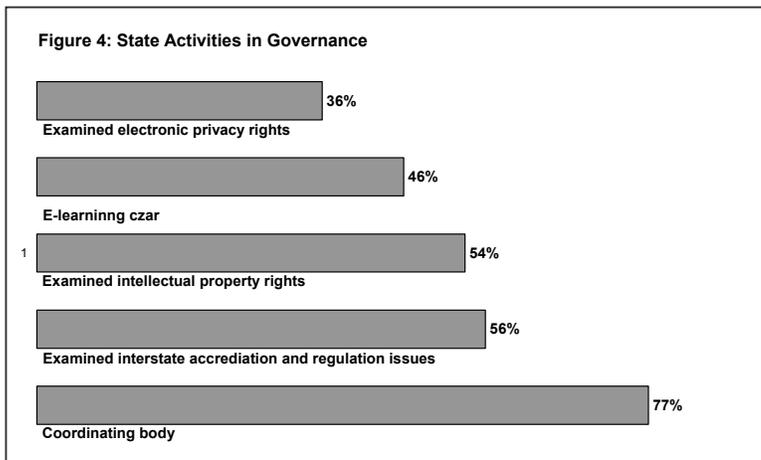
Western Interstate Commission for Higher Education (WICHE):
www.wiche.edu/telecom/Projects/balancing/principles.htm

U.S. Department of Labor: www.usworkforce.org/resources/eligible.htm

Accreditation is significant because the process helps develop, organize, and promote quality in the training and education market. Accreditation can give providers some standards to guide the preparation of their products and services and consumers some signals about quality and performance to guide their purchasing decisions. An accreditation process can help determine whether various public funding streams can go to certain providers, and it provides a basis for excluding fraudulent operators in the new Internet environment.

States are exploring a variety of *governance* issues as they bring e-learning activities into a coherent system.

Governance systems for e-learning can include policies and agreements for confidentiality, security, privacy, and intellectual property rights, as well as coordinating bodies and e-learning “czars” for the strategic development and oversight of e-learning. The prevalence of these measures found in the e-learning survey of states is shown in Figure 4.



More than half the responding states report they have examined intellectual property rights issues as they relate to e-learning, and more than one third report they have examined electronic privacy rights as they relate to e-learning. More than three quarters report they have a body or bodies to coordinate

e-learning services across the postsecondary education system, while almost half report they have an e-learning “czar” or educational technology policy advisor in the governor’s office. States responding to the survey frequently mentioned governance as a challenge in developing e-learning systems. Specific concerns they noted are the difficulty of coordinating with industry and across different providers to reduce duplication and the lack of leadership and a clear vision.

States are exploring ways of ensuring privacy, security, and intellectual property rights in e-learning environments.

The survey states are using several approaches to address privacy, security, and intellectual property rights issues as they relate to e-learning, including overall state standards and institution-specific policies or codes of conduct for e-learning participants (*see inset box*).

- For privacy, **Connecticut** has state standards for electronic communications (visit www.state.ct.us/cmac/policies).

- For security, the University of **Hawaii** has established guidelines for the use of its information technology resources to “define and provide effective protection, equitable access, and administrative guidelines.” These guidelines supplement existing laws and emphasize password protection and online security (visit www.hawaii.edu/infotech/policies/itpolicy.html).
- For intellectual property, the University of **Minnesota** has a code of conduct (see inset box).

Such policies and codes of conduct are important parts of an overall framework for postsecondary institutions, much of which was developed in earlier times but which now potentially affects the growth and future development of e-learning. For an e-learning environment, postsecondary institutions may need to adapt the confidentiality and security requirements for information systems. They may also need to determine and make known the respective rights and responsibilities of the learner, the instructor, the content developer/provider, the host, and the institution. Intellectual property agreements can safeguard the credibility of the institution and the instructor. Such an agreement can also maintain the incentive to create content and resources while allowing access, use, and the parceling out of downstream ownership rights and benefit streams in an equitable manner.

Dealing with intellectual property rights: *University of Minnesota’s Code of Conduct*

The University of Minnesota’s Code of Conduct includes an Acceptable Use for Technology Resources policy. The code specifies that users of the system must not engage in, or permit, harassment or illegal discrimination. The code suggests that authors creating documents on university systems guarantee the originality of their work and give credit to others who have contributed substantially. *For more information, visit the University of Minnesota Web site at www.umn.edu and the Acceptable Use for Technology Resources policy at www.fpd.finop.umn.edu/groups/ppd/documents/policy/Acceptable_Use.cfm; or view the Code of Conduct at www.umn.edu/regents/policies/academic/Conduct.pdf.*

States are coordinating their new e-learning systems through various entities.

Given the multiple governance, quality, privacy, and other issues and the numerous organizations, government agencies, and providers involved in e-learning, many states find it advantageous for a designated entity or office to focus more broadly and strategically on e-learning system development and to review and coordinate different agencies’ plans in order to avoid fragmentation and duplication. Some survey states report using as a coordinating body the state university system’s board of regents, the office of the vice president for planning and policy at a university or community college, or the state’s existing higher education commission or coordinating council. In other states, the coordinating body is a special committee that reports more directly to the governor and legislature.

Examples given by states include:

- **California**’s community colleges maintain a Distance Education Technology Advisory Committee that advises the chancellor on strategies to advance distance learning. California’s Assembly Bill 1123 established the California Distance Learning Policy requiring the

California Postsecondary Education Commission to convene a working group to consider programmatic priorities for the use of distance learning technology.

- In **Hawaii** e-learning coordination is the function of a Special Assistant for Long-Distance Learning in the Office of the Vice President for Planning and Policy of the University of Hawaii. For more information, visit www.hawaii.edu/ovppp/distlearn/policy.htm.
- Within the **Connecticut** Distance Learning Consortium, coordination is a pooled function. *For more information, visit /www.CTDLC.OLCT.*
- In **Virginia** lawmakers created a Distance Learning Steering Committee in 1999 to serve in an advisory capacity to the governor and general assembly. The committee is charged with making courses and degree programs more accessible through distance learning.
- The Central **Florida** Consortium of Higher Education's Distance Learning Demonstration Project uses a step-by-step learning approach under which seven institutions work together and share lessons on developing and using distance learning technology and programs.

A coordinating body can develop, promote, and disseminate a strategic plan for e-

learning across multiple networks. It can review and comment on other agencies' plans and initiatives, so different strands of state activity related to e-learning all point in the same strategic direction and any redundancies and cross-purposes are

minimized. A coordinating body can act as a central hub agency for e-learning developments in a state, and it can become the recognized focus for information about, and advocacy of, e-learning. It can be a forum for developing new initiatives for e-learning. An e-learning "czar" can do the same within the cabinet, and his or her existence can signal to the outside world the importance being placed on e-learning by the state's highest office.

Coordination through: South Dakota's Electronic University Consortium (EUC)

This consortium brings together the resources of six state universities to offer distance learning classes accessible from its web site. Several committees, composed of state educators, members of the South Dakota Board of Regents' Office of the Executive Director, and EUC staff, determine policy, quality assurance, and course development. EUC's goals include facilitating identification of courses and programs needed for state economic development and job skills for the citizens of South Dakota." *For more information visit /www.hocnet.org/euc.*

Coordination through a membership consortium: *South Carolina Partnership for Distance Education (SCPDE)*

SCPDE was established in 1999 to help state agencies and educational institutions provide greater access to electronic education. It is a consortium of public and independent higher education institutions, pre-K–12 schools, public libraries, government agencies, and businesses. Any organization that is a consumer or provider of distance education is eligible for free membership. Its goals include centralizing distance education information and services, helping to reduce costs, and promoting collaboration among state organizations. Education providers and recipients will also be able to participate in practical activities, such as course collaborations and group buys, and there will be an online clearinghouse of distance courses. Eventually, it will offer free and reduced-fee training and education activities. A Virtual Resource Center will give members access to online information and courses in distance learning development, from copyright to instructional design. To further these goals, the legislature provided grant money to map the state's current technology capacity, determine needs for distance education, and support the development of workforce and continuing professional educational courses and programs. *For more information, visit www.sc-partnership.org; or contact Bob Noe at bnoe@scetv.org or 803/737-3463.*

Conclusion

States and their postsecondary education institutions systems are engaged in facilitating new e-learning delivery systems, expanding capacity, upgrading infrastructure and instructor skills, promoting access, and shaping the regulatory environment. Many of the examples highlighted in this report are innovative and bold in their pursuit of the opportunities new e-learning technologies offer for adult work-related education and training.

States can build on their impressive e-learning foundations as they address emerging questions in this area.

- Should duplicative and costly programs be restructured in light of students' growing anytime, anywhere access to high-quality content that may come from out-of-state providers?
- What incentives may be needed to stimulate private-sector involvement in e-learning courseware to improve the productivity of low-skill, low-wage workers, which otherwise yields lower returns on investment than courseware for higher-paid, already-educated, technologically sophisticated employees?
- How can states help integrate the best content and delivery from both the public and private sectors to increase access to state-of-the-art e-learning?
- How can states best pursue their legitimate public interest in consumer protection and quality assurance, while not stifling the rapid evolution of e-learning and the entry of dynamic new providers?

The time is ripe for states to address this next round of challenges and opportunities in e-learning. The solid base of initiatives revealed in this e-learning survey points to continued state progress in bringing the benefits of these technologies to adult workers.

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¹ This definition is taken from the report by the American Society for Training and Development and the National Governors Association, *A Vision of E-Learning for America's Workforce: Report of the Commission on Technology and Adult Learning* (Washington, D.C.: American Society for Training and Development and National Governors Association, June 2001).

² Questionnaires were sent to governors and their education, workforce, and technology policy advisors, as well as governors' Washington, D.C., representatives. These surveys were frequently rerouted to, or included response material from, a state's higher education commission, a state university system or community/technical college system's central planning office, or the state's chief information officer (CIO). Contact information on individual completers is given in Appendix C. Thirty-nine states responded to the survey. Supplementing the survey information are e-learning examples reported by states as responses to Question 3 in Table 13 of *The Fiscal Survey of States: December 2000*, by Greg von Behren, Nick Samuels, and Jill Schamberger, of the National Association of State Budget Officers, Washington, D.C. (visit <http://www.nasbo.org>).

³ See the following four studies:

Gregory Capelli, Scott Wilson, and Michael Husman, *E-Learning: Power for the Knowledge Economy* (New York, N.Y.: Credit Suisse/First Boston Equity Research, March 10, 2000).

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⁴ Individual response to a National Association of State Budget Officers' survey. See Greg van Behren, Nick Samuels, and Jill Schamberger, *The Fiscal Survey of States: December 2000* (Washington, D.C.: National Association of State Budget Officers, December 2000).

⁵ See various reports on the digital divide at <http://www.digitaldivide.gov/reports.htm>.

⁶ The six regional accrediting bodies and the states covered are:

Middle States Association of Colleges and Schools, www.msache.org (*District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, U.S. Virgin Islands*);

New England Association of Schools and Colleges, www.neasc.org (*Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont*);

Northwest Association of Schools and Colleges (*Alaska, Idaho, Montana, Nevada, Oregon, Utah, Washington*);

North Central Association of Colleges and Schools, www.ncacihe.org (*Arizona, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Oklahoma, South Dakota, West Virginia, Wisconsin, Wyoming, and Navaho Nation*);

Southern Association of Schools & Colleges, www.sacs.org (*Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Texas, Virginia*); and

Western Association of Schools & Colleges, www.wasc.mills.edu (*California, Hawaii, Guam, American Samoa, Palau, Federated States of Micronesia, Northern Mariana Islands, and Marshall Islands*).

Appendix 1. Questions on the NGA “E-Learning Survey of States”

Related to general government and regulation:

Does the state have a coordinating body whose mission is coordination of e-learning services across postsecondary education?

Does the governor’s office or cabinet have an educational technology policy advisor or e-learning “czar?”

Does the state have any public-private partnerships focused on e-learning for adults?

Has the state examined interstate issues around accrediting and regulation of e-learning providers?

Has the state examined electronic privacy rights as they relate to e-learning and distance education?

Has the state examined intellectual property rights as they relate to e-learning and distance education?

What are the three main challenges for governmental and regulatory areas perceived in trying to implement e-learning policy and initiatives for adults within the states?

In postsecondary education and work-based learning:

Are the state’s regular postsecondary education grants, loans, and scholarships available to individuals to pay for distance education courses and e-learning courses?

Does the state offer other incentives, such as tax deductions, to encourage individuals to take specific advantage of postsecondary e-learning opportunities?

Does the state offer incentives, such as tax deductions and grants, to encourage businesses to take advantage specifically of e-learning opportunities for their workforces?

Does the state offer incentives, such as competitive grants, beyond general or formula-based assistance, to encourage its public postsecondary education institutions to take advantage of e-learning techniques and delivery mechanisms?

Does the state have specific ways of bringing e-learning tools and services to the digitally underserved adults (e.g., minorities, rural populations, older returning adult students and seniors, or those lacking basic literacy skills)?

Does the state have a skill standards board or other entity that identifies workforce competencies?

Do any of the state’s public postsecondary institutions award competency-based credentials not tied to specific course participation?

Does the state’s higher education governing board or regulatory agency have ways of recognizing and accrediting e-learning institutions and online education and training providers?

Is the state funding physical telecommunications infrastructure upgrades in public postsecondary education institutions beyond general or formula-based assistance?

Is the state funding the development and upgrading of e-learning skills of educators in postsecondary education beyond general assistance?

Is there a virtual university/virtual community college system linking public postsecondary institutions?

Does the state have digital libraries where the majority of content is in electronic form, or any other digital content initiatives to support e-learning?

What are the three main challenges for postsecondary education and work-related training systems perceived in trying to implement e-learning policy and initiatives for adults within the state?

Appendix 2: E-learning features in States

E-LEARNING FEATURE *	N	%	STATES REPORTING FEATURE/INITIATIVE "IN PLACE" OR "PLANNED"
Regular post-sec educ funding for individs also available for e-learning	33	85%	AK, CO, CT, HI, ID, IN, IA, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NJ, NM, NC, ND, OH, PA, SC, SD, TN, TX, UT, VT, VA, WI
Coordinating body	30	77%	CO, CT, HI, ID, IN, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, ND, OH, SC, SD, TN, TX, UT, VT, VA, WV
Funding PSE infrastructure upgrades	28	72%	CO, CT, HI, ID, IN, IA, KY, LA, ME, MD, MA, MI, MN, MS, MO, NE, NJ, NC, OH, PA, SC, SD, TX, UT, VA, WV, WI, PR
Public-private e-learning partnerships	27	69%	CO, CT, IN, IA, KS, KY, ME, MA, MD, MI, MN, MO, NE, NH, NJ, NC, ND, OH, PA, SC, SD, TN, TX, UT, VT, VA, WI
Digital libraries	25	64%	CO, HI, ID, IA, KY, LA, ME, MD, MI, MN, MS, MO, NE, NV, NJ, NC, OH, PA, SC, SD, TX, UT, VA, WI, PR
Funding upgrade of e-learning skills of PSE educators	24	62%	CO, HI, ID, IN, IA, KS, KY, LA, MD, MI, MN, MS, NE, NV, NJ, NC, ND, OH, PA, SC, SD, TX, VA, WI
Virtual univ/comm coll system	24	62%	CT, HI, ID, IN, IA, KY, LA, ME, MD, MI, MN, MS, MO, NJ, NC, OH, PA, SD, TX, UT, VA, WV, WI, PR
Ways of recognizing/accrediting providers	22	56%	AK, CO, HI, ID, IN, KY, LA, ME, MD, MA, MN, MO, NE, NV, NH, NC, OH, TX, VA, WV, WI, PR
Examined interstate accreditation/regulation issues	22	56%	CT, HI, ID, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, SD, TN, TX, UT, VA, WV
Examined intellectual property rights	21	54%	CO, CT, HI, ID, IN, KS, KY, LA, ME, MD, MN, MS, MO, MT, NE, ND, SC, SD, TN, UT, VA
Way of bringing to the digitally underserved	21	54%	CO, CT, HI, ID, IN, IA, KY, LA, ME, MD, MI, MO, NH, OH, PA, SC, SD, TX, VA, WI, PR
Public PSE competency-based credentials	20	51%	AK, CT, IA, KS, KY, ME, MN, MO, MT, NE, NJ, NC, ND, SC, SD, TN, VT, VA, WV, WI
Grants for PSE institutions	19	49%	CO, CT, ID, IN, LA, MD, MI, MN, MS, MT, NJ, OH, PA, SC, SD, TX, UT, VA, WI
Educ technology policy advisor or e-learning czar	18	46%	AK, CT, CO, IN, IA, ME, MI, MN, MO, NH, NC, OH, PA, SC, SD, TX, VA, WI
Skill Standards Board to identify competencies	14	36%	HI, ID, IN, ME, MN, MS, MT, NE, ND, OH, PA, TX, VA, WI
Examined electronic privacy rights	14	36%	CT, HI, ID, KY, ME, MD, MS, MO, MT, SD, TN, UT, VA, WV
Offer incentives for businesses	6	15%	CO, HI, ME, MO, SD, VA
Offer incentives for individuals	5	13%	CO, ME, MO, VA, WI
TOTAL NUMBER OF STATES RESPONDING	39	100%	

* tabulated from state responses to NGA e-learning survey only; numbers do not include responses to NASBO survey.

