

Bringing a Nation Online:
The Importance of Federal Leadership

A Project of the Digital Media Forum
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Introduction and Overview

The Internet and communications technology are transforming American society. The lightning pace of technological change and its rapid adoption is impacting every aspect of our lives from how we do business, access government services, communicate and exchange ideas, gain knowledge and skills, to how we define the notion of community. Technological innovation has brought with it extensive economic growth and opportunity for many Americans.

Recognizing that no one should be left behind in the information age, both the executive and legislative branches of the federal government, working in bipartisan fashion, have played important leadership roles in bridging the knowledge gap between the "information haves" and the "have-nots"—what some refer to as the digital divide.

Federal leadership has taken many forms from public policy, from bipartisan majorities enacting community technology programs, to speeches and summits that merged the efforts of government, industry and public interest groups working to bridge the digital divide. This leadership has helped to accelerate the adoption of 21st century literacy skills among economically and geographically distressed and otherwise underserved communities.

Earlier this year, the US Department of Commerce released its latest report examining Americans' use of computers and the Internet. Entitled, *A Nation Online: How Americans Are Expanding Their Use of the Internet*, the report paints an overly optimistic picture of Americans' use of information technology. Celebrating Americans' increased access, Commerce Secretary Donald L. Evans stated, "I am heartened by this report's findings that all groups of individuals are using [computer and Internet] technologies in increasingly greater numbers."

While some of the data clearly show that there are increasing numbers of Americans connected to the Internet and computers, the same data also shows how specific segments of society—particularly underserved communities—continue to significantly lag behind and that the digital divide remains a persistent problem.

Significant divides still exist between high and low income households, among different racial groups, between northern and southern states, and rural and urban households. For people in these communities, the enormous social, civic, educational and economic opportunities offered by rapid advances in information technology remain out of reach.

At the same time that the Bush Administration released its report, they also announced plans to zero out funding for two premier grant programs that bridge the technology gap: the Technology

Blue Collar and Unskilled Workers Have Little Access and Few Opportunities to Develop Technology Skills

In 2001, 73.2% of employed people (age 16 and older) were computer users and 65.4% were Internet users.²⁰ And although nearly 57% of adults use a computer at work (and ~74% of these use the Internet), computer use is concentrated in white-collar jobs. The proportion of people using a computer at work was 80.5% for people in managerial and professional specialty occupations and was 70.5% for people in technical, sales, and administrative support occupations. Employees in these fields are generally more educated, with a college degree or at least some college. At the other end of the spectrum, only about one in five persons used a computer at work in the occupation categories for operators, fabricators, and laborers as well as for farming, forestry, and fishing. In these professions, employees generally have just a high school diploma or GED.

Conclusion

Digital technologies provide many new and better ways to teach and learn, communicate and work. Gaps exist in Internet adoption in identifiable communities. Technology adoption is lagging in 15 states and the District of Columbia. In rural areas, Black and Hispanics, especially Spanish-speaking Hispanics, are lagging behind Asian Americans and Whites. Workers in low-skill jobs are not online because they don't use the tools at work and can't afford them at home.

This is not the time to scale back federal investment. Continued federal leadership is plainly needed to promote public and private collaborations to bring information age tools and training to the communities that can most benefit from them. The federal government can play an important role in supporting innovative strategies to achieve sustainability for technology programs that serve the public sector. To reach educational goals for our children, we must preserve and improve the E-Rate program. To train and retrain the 21st century workforce, we need programs that bring technology literacy to low-wage and unemployed workers. To ensure that today and tomorrow's information tools are deployed and used in rural areas, we need programs that provide the venture capital for demonstration programs, new applications and innovative public-private partnerships. Perhaps most of all, we need to continue to monitor the adoption of information and communication tools across income and education levels, in rural, urban and central city areas, and in various minority and age groups, so we can identify where gaps exist—and start closing them.

²⁰ In contrast, only 40.8% of people who were not employed were computer users and 36.9% were Internet users.

TOP program to provide voice and data communication to each of the villages via satellite. The network connects local administrators and residents to CATG's partner agencies including the State of Alaska, Mental Health Services, and the University of Alaska to enable distance learning and training for better tribal management.

Funding for access to high-speed Internet connections is serving as a catalyst for economic development.

In the two decades preceding the creation of Dakota Interconnect, northeast South Dakota was experiencing a significant decline in its population largely related to the decrease in farm income and agricultural mechanization. With support from a TOP grant, the Dakota Interconnect project has transformed northeast South Dakota from an unconnected, rural and sparsely populated area into a technologically advanced region. The Dakota Interconnect project tied three previously separate networks together, creating an infrastructure of linked networks, all of which are compatible with audio, video and data connections. Dakota Interconnect created a reason for companies to establish in the northeastern part of the state, which in turn created more jobs for its residents.

Education:

TOP funding is providing people with disabilities access to technology and vocational training.

The North Dakota Center for Persons with Disabilities (NDCPD) at Minot State University in 1998 established the Internet Access for Persons with Mental Retardation Project (IAPMR). IAPMR created and continues to maintain a local area network (LAN) that provides people with mental retardation access to the Internet. Not only are they able to use the Internet for recreational and social activities, program participants with moderate to severe mental retardation use IAPMR-generated software to earn up to \$15.00/hr at Internet-based jobs. NDCPD continues to make this software available at-cost to businesses and agencies hiring workers with mental retardation. One replication site operated by the Black Hills Special Services Cooperative (BHSSC) employs about 15 people with moderate and severe mental retardation. This project has made it possible for people with mental retardation who have never worked and never had money of their own to achieve the goals of employment and earned income.

Database and Information Management :

By automating information, public agencies are able for the first time to pool information and operate at greater levels of efficiency and effectiveness.

Baltimore currently ranks among the top two cities nationally for incidences of chlamydia, primary and secondary syphilis and gonorrhea and the Baltimore City Health Department clinics handle 30,000 patients annually. With support from TOP, the Multidisciplinary Information Sharing Network (MISN) will use Geographic Information Systems (GIS) mapping to track and map STD, HIV/AIDS and TB incidences in the city of Baltimore. The MISN will consolidate data from law enforcement agencies, the Department of Corrections and the City health department in order to eliminate duplicative testing and to enable data sharing between agencies. Once the existing antiquated databases are replaced, Johns Hopkins School of Public Health will overlay information on crime and housing over disease patterns to give agencies the ability to look at possible correlations. This analysis will also help public health officials in other cities nationwide combat the spread of infectious diseases.

I'm learning computers and English at the same time.” The center’s success is highlighted by Mr. Carrazco’s use of his home computer to help his children with their schoolwork.

Providing 21st Century Literacy Skills:

Beatbox, a program sponsored by Fairfield Youth Advocacy in Fairfield, Iowa, provides classes in basic web design and digital film production. Additionally, young people are given the opportunity to participate in the Cisco Certified Network Professional Program and Microsoft Certified Systems Engineer (MCSC) certifications. Prior to receiving support from the CTC program, Beatbox was a youth recreational center. Its new technology program, the “Btech,” paid for by a CTC grant and in-kind contributions from the community, now provides a space where youth between the ages 9 and 23 can socialize, engage in creative activities, and enhance their education through technology.

Community technology programs play an important role in enhancing the work of community serving organizations and are helping to bring the tools of the information age to underserved populations.

Conclusion

TOP and CTC are important engines of digital opportunity. They are emblematic of the importance of federal leadership in the effort to bridge the digital divide. Federal leadership brings the power of information to underserved communities. A federal retreat from that leadership role would undermine innovative efforts to bring digital opportunity to underserved communities and jeopardize many successful community programs. Rather than walking away from the investment, the federal government should build upon the success of these programs to bring digital opportunity to the entire nation.

| State | TOP Federal Support | TOP Non-Federal Support | CTC Federal Support | CTC Non-Federal Support | Total Federal Support | Total Non-Federal Support |
|----------------|----------------------------|--------------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Oregon | \$6,778,421.00 | \$9,138,047.00 | \$1,279,506.00 | \$657,543.00 | \$8,057,927.00 | \$ 9,795,590.00 |
| Pennsylvania | \$6,186,121.00 | \$7,096,046.00 | \$974,493.00 | \$713,887.00 | \$7,160,614.00 | \$ 7,809,933.00 |
| Puerto Rico | \$358,094.00 | \$403,895.00 | \$235,787.00 | \$110,550.00 | \$593,881.00 | \$ 514,445.00 |
| Rhode Island | \$690,000.00 | \$961,604.00 | | | \$690,000.00 | \$ 961,604.00 |
| South Carolina | \$2,952,448.00 | \$4,549,913.00 | \$1,031,557.00 | \$764,025.00 | \$3,984,005.00 | \$ 5,313,938.00 |
| South Dakota | \$4,271,918.00 | \$5,197,475.00 | \$1,034,486.00 | \$426,271.00 | \$5,306,404.00 | \$ 5,623,746.00 |
| Tennessee | \$3,747,833.00 | \$3,874,860.00 | \$1,742,216.00 | \$949,936.00 | \$5,490,049.00 | \$ 4,824,796.00 |
| Texas | \$8,360,518.00 | \$11,130,300.00 | \$5,357,349.00 | \$5,413,988.00 | \$13,717,867.00 | \$16,544,288.00 |
| Utah | \$1,783,074.00 | \$2,774,659.00 | \$293,548.00 | \$92,583.00 | \$2,076,622.00 | \$ 2,867,242.00 |
| Vermont | \$1,244,852.00 | \$1,415,489.00 | \$454,407.00 | \$533,705.00 | \$1,699,259.00 | \$ 1,949,194.00 |
| Virgin Islands | | | \$488,309.00 | \$986,421.00 | \$488,309.00 | \$ 986,421.00 |
| Virginia | \$2,454,704.00 | \$3,916,264.00 | \$2,683,356.00 | \$3,169,978.00 | \$5,138,060.00 | \$ 7,086,242.00 |
| Washington | \$3,132,145.00 | \$3,480,301.00 | \$3,158,417.00 | \$2,605,533.00 | \$6,290,562.00 | \$ 6,085,834.00 |
| Wisconsin | \$998,743.00 | \$1,381,970.00 | \$362,227.00 | \$176,694.00 | \$1,360,970.00 | \$ 1,558,664.00 |
| West Virginia | \$2,525,546.00 | \$3,531,531.00 | | | \$2,525,546.00 | \$ 3,531,531.00 |
| Wyoming | \$452,836.00 | \$478,974.00 | \$253,810.00 | \$357,350.00 | \$706,646.00 | \$ 836,324.00 |

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Alaska

Council of Athabascan Tribal Governments

Type of Grant: TOP

Amount of Grant: \$449,944

Non-Federal Support: \$188,009

Date of Grant: October 1997—September 2000

Project Partners: University of Alaska-Fairbanks, AT&T Alascom, the Yukon Flats School District, and the Council of Athabascan Tribal Governments

Contact: Patricia J. Stanley

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The Yukon Flats is an economically depressed and isolated region located deep within the interior of Alaska. Its 2500 residents are scattered across 10 villages in a 55,000 square mile area. To address the need for communication, the Council of Athabascan Tribal Governments (CATG) established a Wide Area Network with support from the TOP program to provide voice and data communication to each of the villages via satellite.

The network makes Internet access available to tribal leaders, students, and health providers at clinics (often just a small 600 square foot log cabin) and tribal facilities in each village. Health aides, who serve as the only full-time primary care providers in the smaller villages, use the Internet to access health care data and training information, and will soon be able to transmit and receive patient records, data and images via computer and video conferencing to consult with healthcare providers. The network also enabled the CATG regional health center to set up a remote patient records server at the Alaska Native Tribal Health Consortium located in Anchorage instead of maintaining and replacing expensive equipment on site. Local administrators and residents now connect directly to CATG's partner agencies, including the University of Alaska Interior-Aleutian Campus and the Yukon Flats Center, to enable distance learning and training under the Tribal Management Program.

The network has accelerated the rate of community development in the villages of the Yukon Flats through participation with and access to the outside world. "Being more in contact with people from the outside has raised the level of expectations," says project director Patricia Stanley. Apart from the qualitative benefits of increased exposure to the outside world, the network has improved health care and education while simultaneously reducing travel costs.

Louisiana

Louisiana Rural Internet Connection

Type of Grant: TOP

Amount of Grant: \$649,998

Non-Federal Support: \$651,106

Date of Grant: October 2001—September 2002

Project Partners: Grambling State University will work with black churches in six rural parishes: Claiborne, Jackson, Morehouse, Union, West Carroll and Winn.

Contact: Margaret Lowery

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In a unique partnership between Grambling State University (GSU) and five predominantly black counties, faith based organizations will soon be conduits for Internet connectivity in rural Louisiana. The state of Louisiana ranks 47th in the nation for adults with Internet access.

With funding support from TOP, matched with in-kind contributions from five local churches, GSU has built computer labs and installed high-speed satellite networks in each county. Ten families from each county will be given a computer with free Internet access. GSU's CareerNet Center will train volunteers to teach the community basic computer skills and how to use the Internet as a resource for education, health, and workforce development. Students and professors at GSU have already made a number of inquiries to use the data (collected from home computers) to correlate Internet usage with the home environment as well as to explore the potential for e-commerce in the area.

There are no local ISPs in any of the five counties that were selected. "No company is going to bother building services because maintaining it just doesn't make sense as there isn't enough of a user base," says Margaret Lowery, Project Manager at GSU's CareerNet Center.

Louisiana

INCITE (Involved Community through Integrated Technology Education)

Type of Grant: CTC

Amount of Grant: \$300,000

Non-Federal Support: \$430,430

Date of Grant: 2001—2002

Project Partners: Calcasieu Parish School System, Calcasieu Parish Career Center, Imperial Calcasieu School to Work, and Simon Properties and Youth Foundation

Contact: Sheryl Abshire

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Email: Sheryl.abshire@cpsb.org

With initial funding from a CTC grant, Calcasieu Parish School System partnered with the local public library and career center to establish two CTCs aptly named INCITE (Involved Community through Integrated Technology Education)—the North INCITE center is designed for senior citizens and the South INCITE center is for youth and family counseling.

Students who have left high school because of truancy, drugs, or crime attend the “Credit Recovery” program at South INCITE where they use educational software to make up lost credits. The center also provides Microsoft Office User Specialist (MOUS) certifications and trains job seekers on how to conduct online job searches and type and format business letters. After taking the class, job seekers realize that “it is not enough to just stand in line at the unemployment office,” says Sheryl Abshire, the Administrative Coordinator for Technology. In summer 2002, the center moves to its new location in the neighborhood mall where it will offer a series of web design and software classes for small businesses.

The INCITE North Center helps senior citizens like 70 year-old Frank Meadows and his wife, both of whom started out with a fear of computers. Mr. Meadows used to volunteer at Meals on Wheels and the local YMCA, but is now physically unable to do so. He says, “The computer gives me something to do apart from lying on the couch,” adding that he would have done this a decade ago if he had access to a CTC. Ms. Abshire’s goal is to empower senior citizens through technology so that they will be more involved in the community, be more adept at accessing the public health system, and serve as role models for their family and friends.

Maine

Northeast Maine Telemedicine Network

Type of Grant: TOP

Amount of Grant: \$600,000

Non-Federal Support: \$600,000

Date of Grant: October 1998—May 2002

Project Partners: Regional Medical Center at Lubec, Sunrise County HomeHealth Care, Visiting Nurses of Aroostook, The Aroostook Medical Center, Houlton Regional Hospital, Northern, Maine Medical Center, Aroostook Mental Health Center, Aroostook Valley Health Center, Houlton Band of Maliseet Indians Health Center, Aroostook Band of Micmacs Health Center, Cary Medical Center, East Grand Health Center

Contact name: Carol Carew

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The Regional Medical Center at Lubec (RMCL), with the support of a TOP grant, was able to install Northeast Maine Telemedicine Network (NMTN), a telemedicine system allowing nurses in northeast Maine to make electronic home visits with patients who would otherwise need to be hospitalized. Some of the sophisticated units are able to conduct remote testing of blood sugar and blood pressure levels. RMCL also provides teleconferencing equipment to link specialists in urban areas with patients and medical professionals in smaller regional medical facilities.

Joyce Frost of Calais, Maine suffers from both diabetes and first stage Alzheimer's disease and was told by the Eastern Area Office on Aging that she couldn't manage on her own anymore. A year later she is still in her own home, but she now has an added lifeline—NMTN's videoconferencing unit connected to her regular phone line. The unit provides daily meetings with a nurse who checks in to see how Ms. Frost is doing, to see if she has taken her medication and simply to provide her with reassurance. This supplements home visits, which are done through Sunrise County HomeCare Services, a division of RMCL.

The NMTN is rapidly growing into a statewide network, bringing together medical care facilities as well as other institutions like mental hospitals and law enforcement agencies. Its success is reflected in the fact that a growing number of organizations, both public and private, are seeking help developing their own telemedicine systems.

Mississippi

North Mississippi Health Services

Type of Grant: TOP

Amount of Grant: \$148,748

Non-Federal Support: \$198,601

Date of Grant: October 1999—September 2002

Project Partners: Home Health Agency, Clinical Outcomes Department, Internal Medicine Associates, and Heart Institute Biomedical Services.

Contact: Cathy Smith

Phone: (662) 377-2499

The North Mississippi Health Services (NMHS), with support from TOP, utilizes telemedicine services including cameras, monitors, speakerphones, and several remote-sensing devices to monitor patients with congestive heart failure (CHF) in 17 counties in rural Mississippi. The equipment collects readings and transmits it to the telehome care nurse on each televisit. In addition, a computer program alerts nurses when a patient's vital signs stray outside of preset clinical parameters. In rural Mississippi, patients with CHF are often geographically isolated and receive inadequate medical attention because the region has 50% fewer physicians than the national average. As a result, telemedicine plays a major role in ensuring care is delivered in remote and underserved areas.

A \$1500 unit placed in Ms. Blackwell's home, which is 15 miles from the closest medical facility, has a green and a red button that may be used to transmit vital signs and to initiate a virtual meeting with a nurse at the central station. Ms. Blackwell uses the telemedicine unit's videoconferencing facility to schedule regular meetings with Cathy Smith, a nurse and the coordinator of the telemedicine program at NMHS. Cathy Smith checks Ms. Blackwell's blood pressure, blood oxygen and blood sugar levels.

Hospitalizations and visits to NMHS have decreased by 50 percent among the 23 patients who currently use the telemedicine units. The intangible benefits, like those afforded to Ms. Blackwell, are more difficult to quantify, but could be indispensable to the 40,000 Americans who are diagnosed with CHF each year.

The station nurse monitors medical information fed from patients' homes to a central facility at NMHS on a 24-hour basis.

New Mexico

Northern New Mexico Rural Telemedicine Project

Type of Grant: TOP

Grant Date: October 1996-December 1999

Grant Amount: \$500,000

Non-Federal Support: \$511,870

Project Partners: Los Alamos National Laboratory, Northern New Mexico Community College

Contact Name: Dr. Jose Griego

Phone: (505) 747-2210

The Northern New Mexico Rural Telemedicine Project, established with a TOP grant in 1996, is designed to enable health care workers at rural sites to transfer medical records, including x-rays, to larger medical centers for analysis. The Telemedicine Project currently connects 13 rural clinics to urban medical centers via TeleMed software, which was developed specifically for the program by scientists at Los Alamos National Laboratory, a founding partner of the project.

Cuba, New Mexico is 3 hours from an urban health center. Prior to the establishment of the Telemedicine project, residents of the Dulce Apache Reservation had to travel to a health center in Colorado for advanced treatment, a trip that isn't even possible in the winter. The TeleMed software enables these isolated populations to receive advanced health services in their rural health centers.

The health centers also serve as community centers, and function as an organizing point for the populations they serve. These centers are often the first places in the community with Internet connections. Minority entrepreneurs have expressed interest in marketing the TeleMed software to other isolated communities, making this program scalable throughout the United States and the world.

Pennsylvania

Pennsylvania State University Telehealth

Type of Grant: TOP

Amount of Grant: \$603,610

Non-Federal Support: 668,972

Date of Grant: October 1997—June 2000

Project Partner: Visiting Nurse Association of Greater Philadelphia

More than 200,000 adults in the Philadelphia, PA metropolitan area suffer from diabetes. Despite the fact that there is an increasing use of telecommunications technology in health care, its use in home care, the fastest growing sector of the health care industry, has lagged behind. With a TOP grant, Penn State, in conjunction with the Visiting Nurse Association of Greater Philadelphia, developed a telehealth project using technology to deliver video, voice, and data technology over standard telephone lines to connect nurses' stations to patients' homes.

Patients feel that the program has been very positive and that using the technology has helped them to better monitor their health. It also has the added benefit of teaching adults and senior citizens technology skills; the program demonstrates that even very frail and elderly patients can use the equipment effectively.

The Visiting Nurse Association of Greater Philadelphia continues to use the technology implemented by the TOP grant to monitor the status of patients with diabetes and has now created a program specifically for patients with congestive heart failure.

referral promptly sent a respite care worker to Josephine's house. Deborah now receives eight hours of respite care a week.

Josephine still has plenty of stress, but respite care has helped ease the burden of caregiving somewhat. "It lets me feel free to go out, to get errands done—it gives me a much-needed break." Thus HCR helped Josephine get some well-deserved rest.

