*i*Delta

Volume I: Report and Data for INFORMATION TECHNOLOGY IN THE DELTA

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DELTA REGIONAL AUTHORITY

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*i*Delta

Information Technology in the Delta

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*i*Delta was researched and written by Southern Growth Policies Board on the behalf of the Delta Regional Authority.

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Recommendations for Action for *i*Delta are included in the companion piece to this report; **Volume II: *i*Delta Recommendations for Information Technology in the Delta.**

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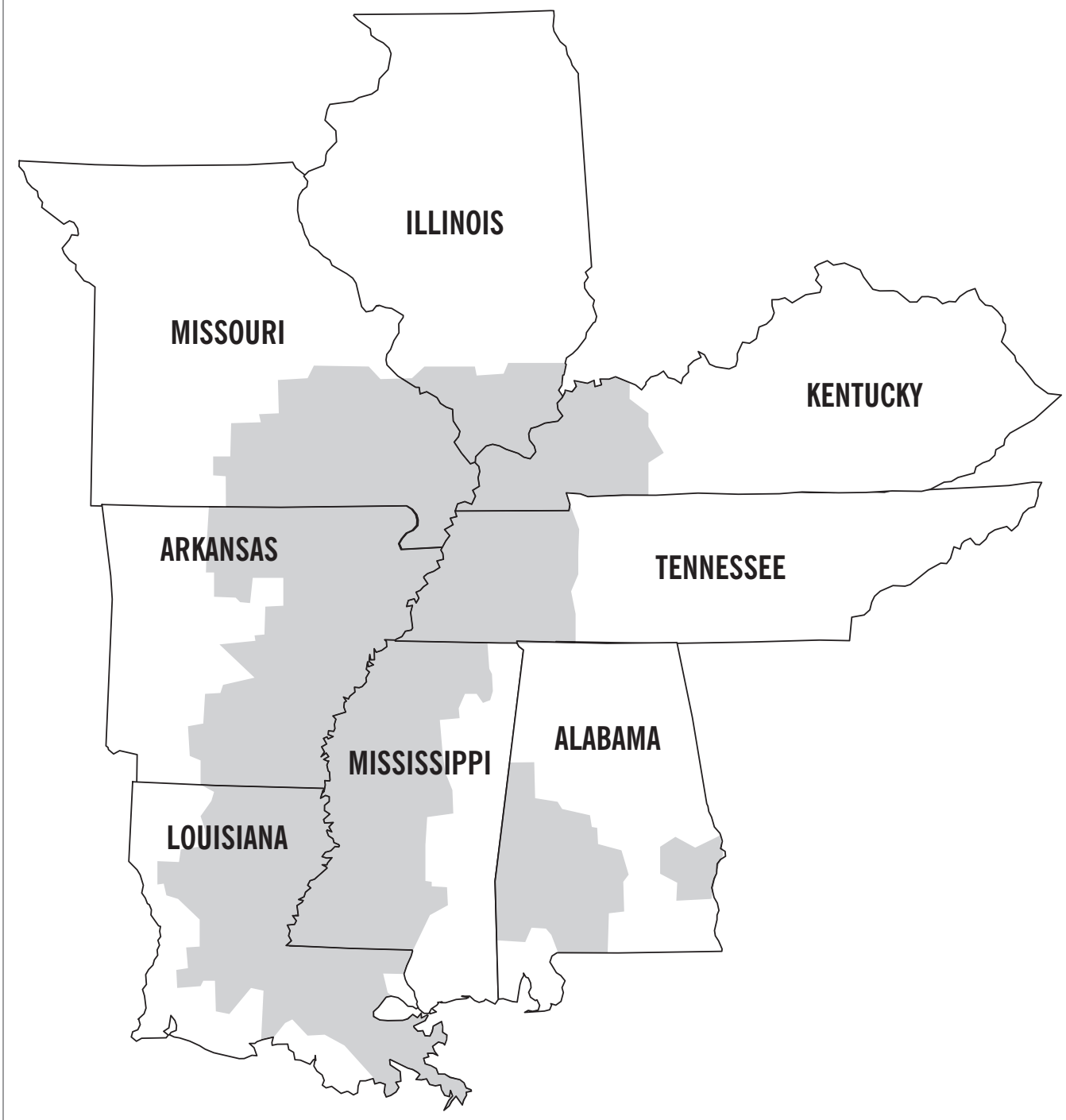
Delta Regional Authority Coverage Map



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Executive Summary

With funding from the U.S. Department of Agriculture, the Delta Regional Authority (DRA) contracted with Southern Growth Policies Board to assess the usage of information technology for economic development in the DRA region. As a first step in the research, Southern Growth coordinated a regional planning retreat, two focus groups and conducted more than 160 interviews with state and local officials. In addition, Southern Growth staff assembled information on federal Information Technology (IT) programs, IT performance indicators and promising initiatives in all the DRA member states. The staff also developed an annotated bibliography and a survey of literature on the importance and relevance of information technologies.

From this research, three fundamental conclusions were drawn:

- The accessibility, awareness and utilization of broadband infrastructure and resources are absolute necessities for individual, business, government and institutional success.
- DRA counties and parishes, generally, trail non-DRA counties and parishes and the U.S. in accessibility, awareness, and utilization of broadband infrastructure and resources.
- The Delta Regional Authority is the ideal organization to play a lead role in assembling and distributing resources for information technology in its constituent counties and parishes.

The DRA region is notably less populated, less educated and less affluent than the U.S. and non-DRA counties and parishes. This social and economic gap presents three main challenges towards a fully realized *i*Delta – access, awareness and affordability. The DRA lacks universally accessible high-speed Internet service – more than 15 percent of DRA zip codes do not have a high speed Internet service provider compared to 10 percent of non-DRA zip codes. Even when services are available, the lack of competing service providers and lower per capita incomes make the cost of broadband a major barrier. Education levels and comfort with technology may prevent DRA residents from fully leveraging the benefits of information technology.

Despite the region's access, awareness and affordability challenges, the report provides examples of how communities are and can continue to leverage information technologies. Broadband has a direct bearing on the region's ability to participate successfully in the national and global economies. This participation hinges on information technology applications in five key areas:

EDUCATION: Broadband access is crucial to educational progress in the DRA counties. Elementary and secondary schools cannot make the progress expected of them without technological support that is up to the challenge. Distance learning is a non-starter without broadband capacity. The indicators and regional survey suggest that the DRA region's IT education capacity could be improved. For example, 54 percent of the DRA school districts have websites compared to 68 percent of non-DRA school districts.

HEALTHCARE: Telemedicine presents the opportunity to increase the availability of healthcare to rural DRA region residents, while reducing the cost of services. However, telemedicine cannot be successfully deployed to areas lacking broadband access. Progress in the areas of diabetes care and services to children and adults with autism offers an enticing look at what is possible when appropriate resources are brought to bear. While Southern Growth estimates that the percent of counties with telemedicine programs is 33 percent, only 16 percent of public officials are aware of these initiatives.

GOVERNMENT: The use of both Internet and intranet resources is fundamental to efficiencies in government, and broadband access is crucial to applications in this area. Only 15 percent of local governments in the DRA region have websites, compared to 20 percent of the U.S. The DRA region lags in the development of effective Web resources, a key indicator of e-government progress.

BUSINESS: The liberation of business from geographic limitations is one of the most exciting aspects of the advent of the Internet and World Wide Web. More and more businesses locate where the owner wants to live rather than be restricted to a physical location close to markets or suppliers. For example, the firm eBay has provided thousands of vendors in fields such as antiques and collectibles with the ability to sell anywhere in the world – without a physical storefront. But, it is impossible to create or grow e-business without broadband access. Southern Growth's interviews revealed e-business resources to build on in the Delta, with 63 percent of county managers identifying a high tech company within their county and 72 percent naming at least one company in their county engaged in e-commerce.

COMMUNITY: Finally, the existence of Internet hotspots in coffee houses, hotels, libraries and other locations is fueling new kinds of social interaction and civic engagement. The absence of broadband access in rural areas is a significant inhibitor to progress in this arena.

Under its federal mandate, the Delta Regional Authority "…works to improve life for the residents of its 240 counties and parishes." The DRA is empowered to create partnerships and to use its funds to leverage other federal and state funds. The DRA is the ideal organization to take principal responsibility for building access to and utilization of broadband services throughout the region.

The DRA should concentrate its efforts on building affordable broadband infrastructure, building awareness of the critical importance of these resources, building knowledge and skills for the utilization of the resources, and dramatically expanding utilization of broadband for education, healthcare, government, business and community needs.

*i*Delta provides a broad platform to examine the opportunities and challenges in utilizing IT to advance the Delta region. Southern Growth Policies Board and the Delta Regional Authority developed a detailed set of recommended actions to create *i*Delta. The recommendations were crafted with feedback from more than 500 Delta citizens who participated in focus groups and surveys. The *i*Delta recommendations are printed separately as a companion document to this report.

Introduction

"Now, more than ever before, high-speed connections promise to enhance our Nation's productivity and economic competitiveness, improve education and expand healthcare for all Americans. High-speed networks provide the power to erase geographic, economic and cultural gaps. With high-speed connections, American workers can find jobs; small businesses can have global markets; rural doctors can consult with specialists; and students can take classes that are taught from across the country."[1]

– U.S. Department of Commerce, *A Nation Online: Entering the Broadband Age*

BACKGROUND

Information technology offers a promising opportunity for the lower Mississippi Delta to come into economic parity with the rest of the nation. Established by Congress in 2000, the Delta Regional Authority (DRA) is charged with improving the standard of living in 240 counties and parishes across the lower Mississippi River delta. The DRA serves more than 9.5 million people in eight states – Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee – and supports economic development in one of the nation's highly distressed and largely rural regions.

There is a general consensus among public and private leaders that information technology (IT) has become a major driver of the U.S. economy. New technologies help rural businesses overcome market proximity and transportation costs. E-learning exposes students to curriculum, materials and ideas that are otherwise unobtainable. The use of IT increases productivity across sectors, enhances communication and improves the overall quality of life.

Ensuring high-speed Internet access is a key investment to the country's continued advancement and growth. According to the U.S. Department of Commerce report, *Falling through the Net: Toward Digital Inclusion*,

> *Each year, being digitally connected becomes ever more critical to economic, educational and social advancement. Now that a large number of Americans regularly use the Internet to conduct daily activities, people who lack access to those tools*

are at a growing disadvantage. Therefore, raising the level of digital inclusion – by increasing the number of Americans using the technology tools of the digital age – is a vitally important national goal.[2]

The impact of broadband access on economic growth further emphasizes the role that IT infrastructure will play in improving the quality of life in rural or distressed areas.3 Jane Smith Patterson, executive director of e-NC, a rural broadband access group and national leader in state telecommunication policies, explained, "A ten percent increase in broadband use in a community can result in an average $7,000 economic difference per household."[4]

According to the U.S. Department of Commerce report, *Digital Economy 2003*, thirty percent of Gross Domestic Product (GDP) growth during the late 1990's stemmed from IT producing companies.[5] Even in non-IT industries, IT-related jobs pay 18 percent more than non-IT jobs.[6] IT jobs in the manufacturing, transportation and utilities and wholesale and retail trade industries pay the highest wage premiums. *Links to the Future* authors found a statistically significant relationship between the economic vitality of a region and the availability of broadband Internet access. Population density, education attainment and the presence of innovative companies act as the main drivers of high-speed Internet access.[7]

TYPES OF BROADBAND

This report references "broadband" mechanisms as high-speed lines that can move large files and information faster than traditional phone lines. The Federal Communications Commission defines high-speed Internet as data transmission speeds exceeding 200 kilobits per second (Kbps), or 200,000 bits per second, in at least one direction: downstream (from the Internet to your computer) or upstream (from your computer to the Internet).

Broadband Internet access is available in a variety of platforms, including cable modems, digital subscriber lines (DSL), wireless, satellite, broadband over power line (BPL), fiber optics to the home (FTTH), or Long Reach Ethernet (LRE).

Sources: Federal Communications Commission, *Consumer Facts* and Cisco, *Government Affairs: High Tech Policy Guide.*

GOALS OF *i*DELTA

President George W. Bush emphasized the importance of high-speed Internet service and established the national goal of "universal, affordable access for broadband technology by the year 2007."[8] But DRA's historically agricultural and manufacturing jurisdictions lack the basic infrastructure (roads, water, sewer and technology) needed to compete in today's global economy. The DRA region is notably more rural, less affluent and more diverse than the average county or parish in the United States. Furthermore, the DRA region has, on average, a larger percentage of minorities and seniors and its population is less educated than the United States as a whole.

This report lays the foundation for the Delta Regional Authority's Information Technology for Economic Development Project, a comprehensive initiative designed to build and strengthen the region's information technology infrastructure, healthcare, education, government and business. Funded through the U.S. Department of Agriculture, the project will help ensure that the region capitalizes on IT by linking infrastructure investments to three explicit goals:

•Improve Education

Improving education ensures the DRA region is supporting and developing a knowledge economy workforce, increasing awareness of the potential of IT and creating a culture of lifelong learning through community dialogues and training.

During the last two decades, the Delta, along with the rest of the world, has seen and felt the effects of the "knowledge economy." America's industries increasingly compete on the basis of intellectual capital, creativity and skills. Bill Gates, during an address to the National Conference of State Legislatures,

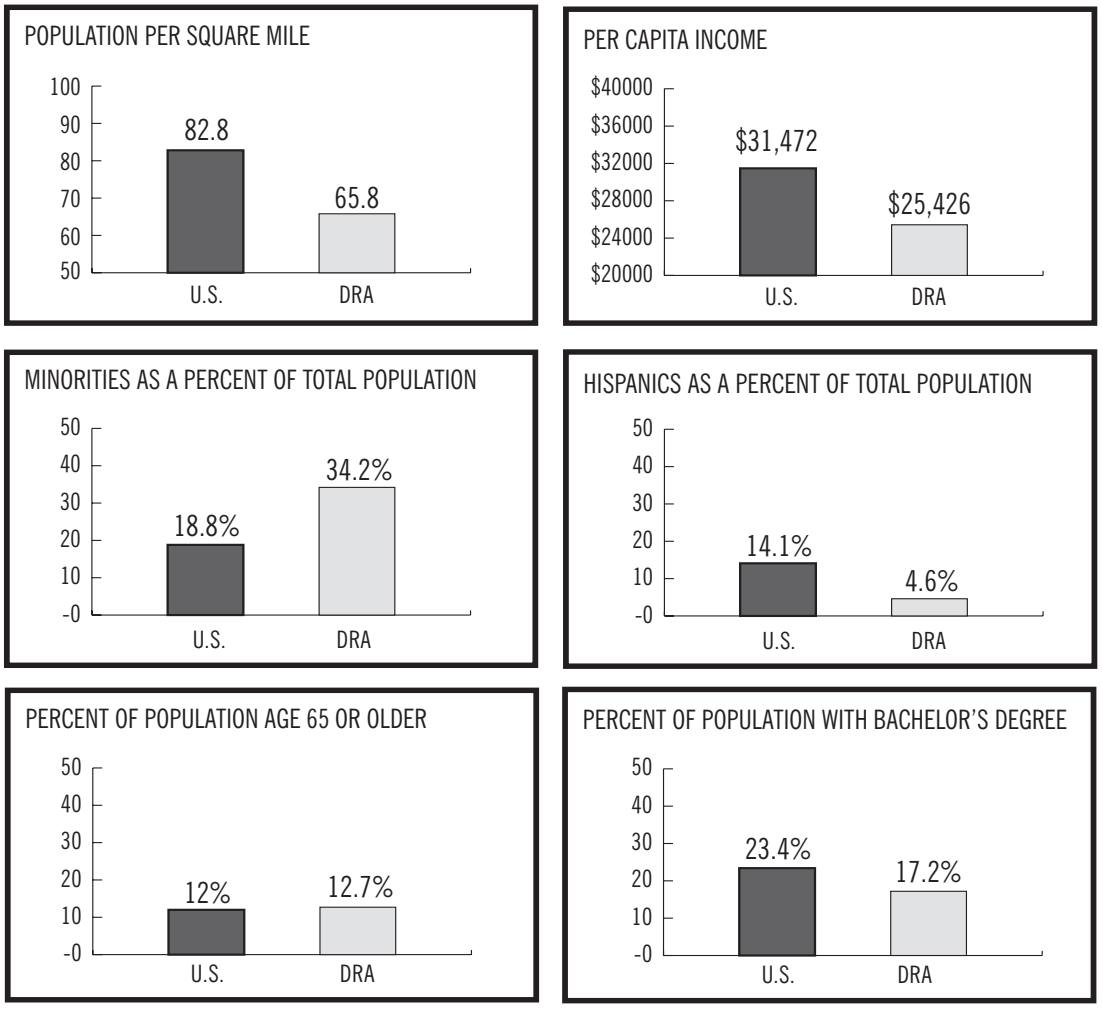
emphasized the need to strengthen the links between technology, education and economic growth. The Microsoft billionaire remarked, "There's no more important topic for the future of the country." [9]

·Enhance Entrepreneurship

Enhancing entrepreneurship can increase employment in high tech industries and IT producing and using companies. Through increased investment and entrepreneurial support, utilize IT to improve the competitiveness of existing companies in the DRA region.

Entrepreneurship, coupled with the benefits of information technology, would add jobs and wealth in the DRA region. Young and small companies drive innovation in the American economy, accounting for two-thirds of the nation's net new jobs and employing half of all private sector workers.[10] In addition to creating jobs, entrepreneurs build wealth and are more likely to reinvest in their communities.[11] Although entrepreneurship plays a significant role in improving the quality and standard of living in many communities, rural businesses often lack access or the capacity to utilize broadband. The U.S. Small Business Administration

Chart A: DRA Demographics



found that the lack of information technology utilization presents "a major concern" that rural businesses are not receiving the benefits associated with the availability and adoption of broadband.[12]

•Improve Healthcare

Improving healthcare in the DRA region can increase the quantity and quality of healthcare, and ensure a higher quality of life for the region's constituents.

The lack of high quality and affordable access to healthcare plays a significant role in the quality of life and economic well-being of the DRA region. According to the Commonwealth Fund, lost time and labor due to health issues costs the U.S. $260 billion in economic output each year.[13] DRA's constituents face healthcare access and affordability issues due to the region's below average population density rates and per capita income levels. The full integration of information technology into the healthcare system has the potential to increase the quality and quantity of healthcare in the Delta through reduced costs, remote health monitoring and future healthcare innovations. President Bush noted the importance of information technology to healthcare when he said, "One of the reasons why there's still high cost in medicine is because they don't use any information technology…People tell me that when the health field is fully integrated with information technology, it'll wring some 20 percent of the cost out of the system."[14]

REPORT OVERVIEW

This report identifies opportunities and current activities in the DRA region to utilize high-speed Internet access. A literature review offers the state of and opportunities to utilize information technology as an economic driver in five sectors – education, healthcare, government, business and community. The section following the literature review highlights the Delta's current utilization of broadband and other IT in terms of access, awareness and affordability. This section features anecdotal information on the innovations and opportunities to overcome the region's broadband access, awareness and affordability challenges.

To investigate the state of IT in the Delta, Southern Growth employed a three-pronged methodology:

Focus Groups

More than 300 participants contributed to the development of this report through a retreat in Jackson, Mississippi (January 2006) and focus groups in Memphis, Tennessee and Cape Girardeau, Missouri. The Memphis focus group was held in partnership with the Memphis Regional Chamber and University of Memphis in April 2006. The Cape Girardeau focus group was held in partnership with Southeast Missouri State University, Southern Illinois University and the Missouri Department of Economic Development in July 2006. In each of these meetings, participants identified broadband and IT utilization challenges in their communities, shared information about innovative IT companies and initiatives and developed recommendations. The feedback from these focus groups shaped the data indicators and recommendations included in this report.

Data Analysis

Eighteen indicators related to education, healthcare, government, business and community development highlight demographic trends and IT utilization in the DRA region and the U.S. The statistics also note differences between DRA's rural and urban communities.

Regional Survey

Southern Growth interviewed more than 160 public officials in the DRA region on IT access, awareness and affordability in their community.[15]

The report concludes with an annotated bibliography discussing broadband as a tool for economic development, a sample of federal and state initiatives designed to increase the availability and utilization of high-speed access and a state-by-state snapshot of indicators used to benchmark DRA's current IT capacity.

Why is Information Technology Important?

THE IMPORTANCE OF INFORMATION TECHNOLOGY TO EDUCATION

In the rural area along the Yazoo and Mississippi rivers, technology does not play a big role in the day-to-day life of the community," said NetDay, a national non-profit educational technology organization, describing Rosedale, Mississippi. "Yet, the children know that it will be an important part of their future. In order to remain competitive in a changing global economy and to improve economic opportunities, these students need access to technology and the resources of the Internet," NetDay emphasized.[16] They partnered with the West Bolivar School District to launch the Technology Enhances Student Success (TESS) program. The program includes technology infrastructure as well as training and professional development for teachers. Within four years, the district reduced its student to computer ratio to three-to-one, compared with a nine-to-one ratio for comparable communities. In addition to teacher training, parents received training in how to access new online school information.

"Technology, many believe, is the next printing press – capable of opening countless doors for people who would otherwise find them locked," said a recent article in *Government Technology*.[17] "There's a clear understanding that success in daily life and the job market requires a working knowledge of technology," elaborates Wendy Lazarus, co-founder and co-president of the Children's Partnership, a national child advocacy organization. "If students are going to graduate prepared to succeed in their work and home life, they need basic technology skills and they need information literacy skills."[18] According to the latest Census figures, more than half of all workers age 18 and over currently use a computer at work.[19] In addition, jobs in the computer field are among those expected to experience the most rapid growth in the coming decade.[20]

Not only does IT education help students develop critical workforce skills, the Southern Regional Education Board has highlighted a number of other important uses of information technology in schools. These include:

- Communicating with teachers, students, parents, administrators and the community
- Performing administrative tasks, such as grading and attendance
- Monitoring student progress
- Enhancing classroom teaching
- Giving students the ability to access courses not available locally
- Providing professional development to teachers[21]

Among the examples they offer is EAST (Environmental and Spatial Technology), a nationally recognized initiative where students use cutting-edge technological tools to address real life community issues. Originally launched in a single classroom in rural Arkansas, the EAST program now involves students in more than 230 schools in six states. Among its accolades, EAST was the recipient of a Southern Growth Policies Board Innovator Award in 2006.

The Education Commission of the States also highlights a number of ways that technology is helping teachers, students and administrators. For example:

- Teachers can tailor instruction more toward individual student needs and can encourage a more active role for students than simply listening to a lecture.
- Students can work on real-world projects and connect with experts and peers from around the world.
- Administrators can track student progress and facilitate more parental involvement.[22]

Wireless connections offer even greater potential. The number one benefit is portability, emphasizes the Consortium for School Networking. "By untethering the machines, districts are able to send laptops and handhelds on field trips with groups of students, home with individuals for 24-hour learning and from class to class in the form of mobile computer labs," they explain.[23]

Today's new generation of cell phones – with features such as cameras and Internet access – are also beginning to attract some notice in terms of their educational potential. A 2005 nationwide survey by NetDay indicated that three-quarters of sixth to twelfth graders, nearly half of third to sixth graders and almost 40 percent of kindergarten to third graders used cell phones on at least a weekly basis.[24] Cell phones and other mobile devices, because of their lower cost, appear to have some potential to erase gaps in Internet coverage. The Pew Internet and American Life Project reports that more than half of non-Internet users have cell phones. While there is still a considerable gap between the percentage of African Americans and whites using the Internet, there is virtually no gap in terms of cell phone usage.[25]

The good news is that, like Rosedale, Mississippi, more and more schools now have access to computers and the Internet. In fact, according to the latest data from the National Center for Education Statistics, virtually all the nation's public schools and 93 percent of classrooms had Internet access by 2003 – up from 35 percent of schools and three percent of classrooms in 1994.[26] An estimated 95 percent of schools with Internet access have broadband connections.[27] In the Delta region, four states (Arkansas, Kentucky, Missouri and Tennessee) are at or better than the national average of eight students per Internet-connected computer in the classroom.[28]

In terms of wireless, only 11 percent of public school classrooms currently have wireless Internet connections.[29] However, a recent survey of school superintendents suggests that wireless is moving more into the mainstream, with 62 percent of respondents saying they were currently implementing some form of wireless technology in their districts and 35 percent saying they were reviewing wireless options.[30]

Policymakers are also recognizing the educational benefits of providing computer access at home, noting that students without home computers are often at a disadvantage in terms of completing homework and learning technology skills. In 2002, Maine was the first state to launch an initiative to provide laptop

computers with wireless Internet access to all seventh and eighth grade students. Other states and school districts have since followed their lead, including Illinois, which plans to implement a pilot laptop program in nine schools across the state during the 2006-2007 school year. According to the latest data from the National Center for Education Statistics, eight percent of the nation's public schools (12 percent of rural schools) lent laptop computers to students during the 2003 school year, for periods ranging from less than a week to the entire school year.[31]

Accompanying the growth in computer connections has been explosive growth in online learning. A 2006 study on state policies related to online learning reported that 24 states had statewide online learning programs as of September 2006 and cyber charter schools and district level online programs were found in nearly every state (although no cyber charter schools were identified in Delta states).[32] In the Delta region, statewide online learning programs include the Alabama Online High School, Arkansas Virtual High School, Illinois Virtual High School, Kentucky Virtual High School, Louisiana Virtual School and Mississippi Virtual Public School. Missouri will be added to the list in 2007 when it launches a statewide virtual K-12 school that was created by legislation passed in 2006.

While the Alabama Online High School initially targeted students needing remediation, most programs do not focus on any particular student populations. The Kentucky Virtual High School, for example, offered 50 courses and enrolled more than 2,200 students during the 2004-2005 school year. Approximately half the courses were Advanced Placement courses. The online school also offers online professional development for teachers. It is part of what Kentucky describes as a "comprehensive package of online educational resources," including the Kentucky Virtual University and the Kentucky Virtual Library.

Nationally, 36 percent of school districts and nine percent of all public schools had students enrolled in distance education courses in 2002-2003. A greater proportion of rural districts had students enrolled in distance education courses (46 percent vs. 28 percent in suburban and 23 percent in urban districts). Among institutions of higher education, almost two-thirds of all schools offering face-to-face courses now offer online courses as well. More than half of all institutions and nearly three-quarters of all Associate's degree-granting institutions see online courses as a critical long-term strategy.[33]

What has triggered the tremendous growth in online courses? The ability to provide access to opportunities not available in the local area is a key reason at the elementary and secondary levels. "Where you live determines the quality of your education," observes Tom Layton, the founder of Oregon's CyberSchool. "Distance education is the great leveler."[34] Eighty percent of all public school district superintendents and 95 percent of rural superintendents surveyed by the U.S. Department of Education said being able to offer courses that were not otherwise available was an important reason for offering distance education courses in their districts.[35]

Recent reviews of studies that explored the impact of online learning on student achievement conclude that there is little difference in academic achievement between online and traditional education – a positive for those whose main concern is providing access to classes that would otherwise be unavailable, but a potential concern for those hoping to use online education to accelerate achievement.[36]

Louisiana is exploring an interesting model that combines both face-to-face and online instruction as a means of providing students with access to qualified math teachers, while at the same time providing professional development for uncertified math teachers. The pilot effort, the Algebra I Online Project, targets schools in which Algebra I is being taught by an uncertified math teacher. The uncertified teacher is paired with an online teacher who is certified. The certified teacher takes the lead with instruction through an Internet-based course, while the uncertified teacher facilitates in-class learning activities and benefits from the support and mentoring of the online teacher. Preliminary results look promising in terms of student achievement, with 41 percent of Algebra I online students scoring at the "Mastery" or "Advanced" levels on the state's standardized test for eighth graders, vs. seven percent scoring at that level statewide.[37]

Of course, a big question for policy makers at all levels is to what extent investments in technology have improved educational outcomes. As noted in the 2004 National Education Technology Plan, virtually every public school in the nation now has access to the Internet. "Yet in most schools, it is business as

usual," they observe. "Computers are enclosed in computer rooms rather than being a central part of the learning experience…The problem is not necessarily lack of funds, but lack of adequate training and lack of understanding of how computers can be used to enrich the learning experience."[38]

According to Education Week's *Technology Counts 2006*, 15 percent of the nation's schools report that the majority of their teachers are "beginners" when it comes to use of technology. Louisiana, Mississippi and Tennessee exceed the national average, with more than one-third of schools in Mississippi reporting that the majority of their teachers are beginners. Among the Delta states, only Illinois, Louisiana and Kentucky require teachers to take technology coursework or pass a test in order to obtain their initial license and only Alabama, Arkansas and Kentucky require training or a test for re-certification.[39] Even where training is provided, all too often it focuses on the basic skills of how to operate a computer rather than on ways to use technology to enhance student learning. As the national Web-Based Education Commission has observed, the training is typically "too little, too basic and too generic."[40]

In addition to teacher training, the Southern Regional Education Board has identified four other factors that are critical to the successful use of technology. These include:

- Effective leadership
- Adequate and sustainable funding
- Development of a technology plan focused on student outcomes and achievement
- Competent and available technical support [41]

THE IMPORTANCE OF INFORMATION TECHNOLOGY TO HEALTHCARE

High-speed Internet access is transforming healthcare, especially in rural areas. In Mississippi, Dr. Marshall Bouldin, associate professor of medicine at the University of Mississippi Medical Center, uses telemedicine capabilities at the University of Tennessee to meet with the staff of diabetes clinics, review patient records and train local doctors to use the system he has developed for diabetes care. Patients in the program have averaged a two-point drop in their blood sugar levels within six months, equating to a 70 percent reduction in risk for complications from the disease. In Alexandria, Louisiana, St. Mary's Residential Training Facility is partnering with Tulane University Health Sciences Center in New Orleans on a telecommunications network that would enhance its services to children and adults with mental disabilities and autism, including linkages to experts in other areas of the country.

These are just two examples of telemedicine, broadly defined as "the provision of healthcare and education over a distance, using telecommunications technology."[42] While face-to-face consultations with specialists in other locations may be the application that most often comes to mind when hearing the word "telemedicine," use of information technology in the healthcare field ranges from administrative functions, such as tracking and scheduling, to clinical functions, including sophisticated telesurgery. Telemedicine applications include:

- Replacement of paper records with electronic health records (an issue that came to the forefront in the wake of Hurricane Katrina)
- Electronic prescriptions
- Transmission of diagnostic images and data
- Real-time consultations with physicians in remote locations (often aided by the use of peripheral devises – such as electronic stethoscopes – attached to computers)
- Telesurgery using robotics equipment
- Surgical follow-up
- Remote intensive care monitoring

- Home monitoring
- Medication checks
- Patient education
- Health provider education
- Wireless technology in ambulances that enables physicians to provide pre-hospital advice and care

The U.S. Department of Commerce's Office of Technology Policy (OTP) traces the advent of telemedicine back to the 1950s, when psychiatric consultations were first held via two-way closed circuit TV using microwave technologies. The field later expanded to include the transmission of radiology images, using what is referred to as "store and forward" (not real-time) technology. The 1980s added the transmission of images in fields such as dermatology and pathology. The movement towards more interactive applications – what OTP calls the "third generation" of telemedicine – has been relatively recent.[43]

Skyrocketing costs and changing demographics are two factors driving the increasing interest in telemedicine. In 2004, the U.S. spent $1.9 trillion on healthcare, accounting for 16 percent of the nation's Gross Domestic Product (GDP). By 2015, the nation's healthcare spending is projected to reach $4 trillion and 20 percent of GDP.[44] All but one of the states in the Delta region had personal healthcare expenditures that were at least 15.5 percent of the Gross State Product in 2004, with three Delta states (MS, AL, KY) ranking in the top five in the nation.[45] Given figures such as these, "even incremental improvements in delivery can have a significant economic impact," emphasizes the Office of Technology Policy.[46]

Recent research suggests that savings could, in fact, be substantial. A report from the Rand Corporation concludes that annual savings from increased efficiency alone could be $77 billion or more if health information technology were widely adopted and properly implemented.[47] Writing for the New Millennium Research Council, a scholar affiliated with The Brookings Institution and Kauffman Foundation suggests that acceleration of broadband just among seniors and the disabled could result in savings over the next 25 years that exceed what the nation currently spends annually on healthcare for *all* citizens, citing lower healthcare costs, lower costs of institutionalized living and a greater likelihood of keeping these individuals in the workforce.[48]

Changing demographics – most notably a growing population of seniors – are fueling a demand for telemedicine. As the population ages, the percentage of people with chronic diseases is on the rise. According to the Centers for Disease Control and Prevention, care for patients with chronic diseases accounts for three-quarters of all medical care costs in the U.S.[49] The burden in the Delta states is particularly great. For example, five of the eight Delta states rank in the top ten in the nation in terms of the percentage of adults with diabetes, seven rank in the top ten in the nation in terms of the heart disease death rate per 100,000 population and four rank in the top ten in terms of number of stroke deaths per 100,000 population.[50]

Medical experts see a need for radical changes to the healthcare system in order to address both increasing costs and changing demographics.

"The healthcare sector is undergoing a critical transition from a delivery system aimed at providing episodic institutional care for the treatment of illnesses to an emphasis on information systems that support community-based care, with greater consumer involvement in the prevention and management of illness across the life span," said the National Academy of Sciences in a 2005 report on the future of rural healthcare.[51] *"The development of an information and communications technology is a critical element in this transition,"* they emphasized.

"Increasingly capable telehealth systems and the Internet are not only moving the point of care closer to the patient, but the patient can now assume a more active role in his or her own care," concluded the Office of Technology Policy in its 2004 report on telehealth.[52]

"A growing number of policymakers, healthcare providers and consumers believe information resources hold the key to improving the healthcare system," reported the Benton Foundation in a report on healthcare in the "information age." *"These advocates say that judiciously collected and effectively communicated information can help professionals provide better care, turn patients into enlightened consumers of health services and ultimately enable individuals and communities to address some of the root causes of illness before professional intervention is required."*[53]

Experts note that a movement towards more proactive care will necessitate greater knowledge and involvement on the part of consumers. Patient education – but also Internet access and speed – will be key issues. A Pew Internet and American Life Project report on health information online finds that access speed influences the decision to look online for information.[54] Changes toward a more seamless continuum of care will also require communication and access to records between different healthcare providers – sharing that could be facilitated through electronic networks.

In 1999 the Southern Governors' Association formed a Task Force on Medical Technology to examine telemedicine's potential to improve healthcare in the South. The Task Force identified a number of key reasons why telemedicine was important to the region's future. They concluded that telemedicine could:

- Improve access to care and to the expertise of medical specialists
- Move healthcare delivery from inside the hospital to remote clinics and rural sites
- Enhance the quality and timeliness of care
- Cut medical costs by moving information, instead of people
- Increase the efficiency of healthcare providers
- Build communication between healthcare providers
- Secure patients' medical records and access to information
- Improve the health and wellness of people while making them more productive[55]

Keeping healthcare closer to home not only promises benefits to patients, but also to their communities. Studies have shown that healthcare plays a major economic role in many rural communities. A 2004 study covering six Delta counties in Western Kentucky described four major roles that the healthcare sector plays in rural economic development: 1) keeping healthcare dollars in the local economy; 2) attracting external dollars into the community; 3) retaining existing businesses and attracting new industries; and 4) supporting and promoting a healthy and productive workforce. The study estimated that the healthcare sector generated $195 million in local revenue and a total of 3,500 jobs in the six county area in 2000.[56]

A recent article in *Government Technology*, notes that experts have complained that "the U.S. telemedicine revolution lags the rest of the world."[57] One of the biggest barriers is lack of broadband access. Without broadband connectivity, telemedicine would not be possible; phone lines do not allow fast enough transmission rates for telemedicine.[58] As one expert points out, reliability is critical. "Even more important than not having your streamed movie interrupted by heavy traffic from other Internet users is not having your vital signs transmitted without interruption to the individual or computer that is remotely monitoring your health."[59] According to the latest figures from the Organization for Economic Co-operation and Development (OECD), the U.S. ranks 12th among the 30 OECD nations in terms of broadband subscribers per 100 inhabitants.[60]

Other barriers to the adoption of telemedicine include: 1) affordability issues for rural hospitals, clinics and providers; 2) legal and regulatory barriers, including licensure and credentialing across state lines, reimbursement policies for healthcare services provided remotely and liability issues for physicians not providing hands-on care; 4) privacy and confidentiality issues, including access to electronic health records; and 5) lack of coordination and system interoperability.

THE IMPORTANCE OF INFORMATION TECHNOLOGY TO GOVERNMENT

In the year 2000, the National Electronic Commerce Coordinating Council predicted that government would change more in the coming decade than in the past century – all due to the application of information technology to government, otherwise known as e-government or digital government.[61] While some may argue with the boldness of this prediction, few can argue that there hasn't been tremendous progress over the past six years. Citizens can now go online to pay their property taxes, renew their vehicle tags and view minutes from the latest Board of Supervisors meeting in Hinds County, Mississippi, pay traffic fines and request a birth certificate in Jackson County, Illinois and submit an application for a building permit in St. Bernard Parish, Louisiana. A 2006 study of state websites found that 77 percent of states now offer at least one service online, compared with just 25 percent in 2001.[62] At the municipal level, the National League of Cities estimates that 84 percent of cities with over 30,000 population had an Internet presence in 2005, versus 57 percent just two years earlier. The percentage of these cities offering online service transactions increased from 27 percent to 37 percent during the same time period.[63]

Local governments in DRA counties appear to be behind their peers in terms of creating a website presence. According to data from the 2002 Census of Governments, fewer local governments in DRA counties maintain a website compared with local governments in non-DRA counties. In some cases the differences are dramatic, such as in Alabama, Illinois and Tennessee, where the percentage of DRA counties with websites is less than half that of non-DRA counties.[64]

What is e-government? The federal E-Government Act of 2002 defines e-government as using Internet applications and other information technologies to: 1) enhance the access to and delivery of government information and services to the public, other agencies and other government entities; or 2) bring about improvements in government operations that may include effectiveness, efficiency, service quality, or transformation.[65] Key e-government activities include:

- Providing information on topics ranging from governing board minutes to school performance to parks and recreation programming.
- Enabling users to conduct transactions online, such as paying property taxes, renewing licenses, or filing required reports.
- Providing electronic transfers of government benefits, such as public assistance and food stamp benefits.
- Encouraging public participation through vehicles such as online feedback forms, virtual meetings, chat rooms and citizen surveys.

E-government continues to evolve and become more sophisticated over time. As recently as 2001, an evaluation of the web sites of all cities in the U.S. with populations over 100,000 found that most web sites were little more than "electronic brochures," with basic information on government departments and little opportunity for interaction or online services.[66] Many government web sites remain at this beginning stage, typically organizing their sites by agency or department. But, as one report notes, "Who ever actually went to a government web site to find a description of a particular department?"[67] KyCARES is an example of a more customer friendly web site that brings together information on federal, state and community resources in the areas of health and human services for Kentucky citizens. Users can fill out a questionnaire that will screen them for eligibility for a wide variety of services, participate in facilitated searches designed to help them find resources to address needs such as housing, food, childcare and transportation, or contact KyCARES for help.[68]

Experts identify three stages of evolution beyond an initial Internet presence. These include: 1) interaction, where users can provide feedback, ask questions, or otherwise interact with government; 2) transaction, where users can conduct transactions, such as paying taxes, utility bills, or fees online; and 3) transformation, including greater coordination between

government departments and the elimination of redundant systems that require users to enter duplicate data for different agencies or programs.[69]

It is this last stage of evolution – transformation – that many suggest offers the most benefits, but at the same time is the most difficult to implement. "E-government is not getting any easier," emphasizes the National Electronic Commerce Coordinating Council. "The most sophisticated government entities have already plucked the low hanging fruit; others, less advanced can follow their example, but all are learning that the expectations for e-government…are changing. The fruit is increasingly higher and harder to reach. The more complex – and more productive projects often require transformations in organizations and business functions, as well as collaboration at different levels and between different constituencies."[70]

Technological advances are also leading to new e-government applications. Wireless Internet use is expected to account for nearly half of all Internet use in the U.S. by 2007, according to one report.[71] Governments should also consider – and take advantage of – the rapid growth in mobile phone and other mobile device usage, others point out, with more than 130 million mobile telephone subscribers versus an estimated 100 million Internet users in the U.S.[72] The growth in wireless technologies and mobile devices – such as pagers, personal digital assistants and cell phones – offer emerging opportunities for digital government, experts point out. Not only are government workers beginning to use mobile devices to enter data directly from the field (particularly important for emergency workers), but governments are also moving ahead in providing mobile access to web sites, offering podcasts and providing other services to mobile devices.

What is driving the rapid growth in e-government? One explanation is that citizens have higher expectations for government, with an increasing concern for cost-efficiency and convenience.[73] Another argument is that e-government applications can improve an area's economic competitiveness by: 1) providing readily available information to businesses looking for a new site location, since an increasing number do an initial search online; 2) streamlining businesses' interactions with government, reducing their cost of doing business; 3) reducing government's cost of doing business, thereby saving money for more productive uses; and 4) indicating a culture of innovation in the public sector that is valued by the private sector and knowledge workers.[74] E-government can also give higher visibility to government programs, enabling governments to more cost effectively expand their outreach efforts and promote the availability of services and can result in performance gains by encouraging more coordination and integration between agencies, along with the elimination of duplicative work. [75]

However, "the public's vision of governmental use of technologies goes beyond a more efficient government that offers accessible high-quality services online," says the Council for Excellence in Government.[76] When asked to name the most important potential benefit of e-government, 28 percent of those responding to a 2003 nationwide survey cited a government that is more accountable to its citizens, 19 percent said a government that is more efficient and cost-effective, 18 percent said greater access to public information and just 13 percent said more convenient government services. (In contrast, in a companion poll of government officials, 34 percent chose public access to information as the greatest benefit, while only 19 percent chose accountability.)[77] As the authors of a report on building a digital government for the 21st century emphasize, it is important to look at issues of "governance" as well as "government" in the digital age.[78]

What is the role of information technology in promoting citizen participation in governance? According to the Pew Internet and American Life Project, more than one-third of the adult population and nearly two-thirds of Internet users used the Internet to get political news and information, discuss candidates and debate issues, or volunteer for or contribute to a candidate during the 2004 presidential election.[79] Governments – and candidates – are responding to this trend. States across the nation, including several in the Delta, are making available live online coverage of state legislative sessions, while others are experimenting with vehicles such as online dialogues, virtual town meetings and even online voting. Governments are also making available online more information on agency performance – responding to citizens' call for greater accountability.

The move towards e-government raises issues of access. The availability of the Internet appears to influence the likelihood of citizens interacting with government. In 2003, 72 percent of Internet users contacted government (for something other than the

routine filing of taxes), versus 23 percent of non-Internet users.[80] Unfortunately, as many have observed, "The citizens who need government services most are also those without ready access to the Internet."[81] Others remind governments to think about access for those with disabilities, those who cannot speak English and those who do not have the high-speed connections needed for some of today's more advanced multi-media applications.[82]Other key challenges for e-government include ensuring privacy and security and addressing technical issues and costs.

How are DRA states doing in terms of e-government? It depends on the criteria. The Taubman Center for Public Policy at Brown University recently completed its seventh annual review and ranking of state websites, looking at criteria that emphasize accessibility (no access fees, foreign language availability, PDA accessibility, etc.) as well as services offered. While one Delta state ranked in the top ten in the nation (Illinois), three ranked in the bottom ten (Arkansas, Mississippi, Alabama).[83] Interestingly, at roughly the same time, Arkansas received a 2006 award for the fifth best state web portal in the nation in the 2006 Best of the Web awards from the Center for Digital Government (CDG), while Alabama and Tennessee were among the ten finalists.[84] No DRA counties or cities have yet been named winners of Digital Counties or Digital Cities awards from CDG.

Finally, the Government Performance Project, funded by the Pew Charitable Trusts, cited electronic government as a strength in Louisiana and Tennessee as part of *Grading the States 2005*, an assessment of the quality of management performance in the nation's 50 states. The remaining DRA states were given mid-level ratings on their e-government efforts. [85]

THE IMPORTANCE OF INFORMATION TECHNOLOGY TO BUSINESS

The Internet Tax Freedom Act defines e-commerce as "any transaction conducted over the Internet through Internet access, comprising the sale, lease, license, offer, or delivery of property, goods, services, or information, whether or not for consideration and includes the provision of Internet access."[86] Companies engaging in e-commerce may be an online only business or may a combination of an online and traditional bricks-and-mortar company, also referred to as "bricks and clicks" or "clicks and mortar."

When e-commerce is mentioned, online companies such as Amazon or e-Bay are the first to come to mind, followed by other retailers and service providers such as Apple iTunes and Travelocity. In 2004 the value of "shipments, sales, or revenue" through e-commerce totaled almost $2 trillion. But of that $2 trillion, only $71 billion came from retailers and service providers (business-to-customer). Instead 93 percent ($1.8 trillion) came from manufacturing and merchant wholesalers (business-to-business).[87]

The U.S. Census Bureau counts all manufacturing and merchant wholesale e-commerce as business-to-business transactions. In the manufacturing sector, e-commerce accounted for 23.4 percent ($996 billion) of all manufacturing shipments in 2004, an 18 percent increase from 2003. For wholesalers, e-commerce accounted for 17 percent of revenue ($825 billion) an increase of 9.1 percent from 2003.[88]

Retail and service industries make up the business-to-customer transactions. While the retail industry cannot compete with the monetary value of business-to-business transactions, the retail e-commerce industry is exploding. Retail e-commerce sales had an average annual growth rate of 26.4 percent from 2000 to 2004, while the retail industry as a whole had an average annual growth rate of only 3.9 percent. The service industry saw a 15.1 percent increase from 2003 to 2004 in e-commerce revenue, to $59 billion. The top four e-commerce service sectors are Computer Systems Design & Related Services; Publishing; Securities, Commodities & Brokerage; and Travel Arrangement and Reservation Services.[89]

The Internet for Small Businesses: An Enabling Infrastructure for Competitiveness[90] categorizes small business Internet activities into seven broad areas:

- Consumer prospecting and advertising
- Involvement in specialized groups for knowledge and intelligence exchange
- Research and development ideas/opportunities
- Efficient communications
- Preparation for the global marketplace
- On-demand linkage with customers and suppliers
- Geographic reach/general accessibility

In order for both manufacturers and retailers to take advantage of e-commerce applications, the proper infrastructure, in terms of speed and bandwidth, is needed for processing more information in less time. Businesses that are connected to broadband have a larger capacity for innovation, efficiency and communication. First, with broadband access, firms are able to develop new products in less time with "rapid access to information, the ability of ICT technology to screen and correlate information and the high level of interactivity offered by contemporary networks."[91]

Second, efficiency is improved when firms can interact with both their customers and their suppliers via online interfaces. This allows for 24-hour purchasing ability and order tracking as well as efficient shipping schedules and inventory replenishment activities. Ordering, pick-up, tracking orders and verifying delivery are all broadband functions. In his article *Debunking Five Myths to Global Expansion*, Michael Tobin says it is a myth that "shipping across borders is too costly:"

> *Today, shipping companies have become more creative, resourceful and valuable by offering shipping software applications for customers with low- to high-volume shipping needs. Whether it's a single handcrafted piece of jewelry or 10,000 engine parts being shipped, there's a cost-effective solution. This allows businesses to accelerate, streamline and enhance not only their shipping processes, but financial and customer service processes as well.*[92]

Third, faster connections and larger bandwidths allow businesses to communicate with new markets and services. For example, they can access a larger market segment outside their region (domestically and internationally) and improve their visibility with web pages and web-based marketing. This can be seen in the dramatic increase in exporting companies, 98 percent of which are small- and medium-sized enterprises. The Commerce Department's Exporter Data Base reveals that in 2002 the total number of U.S. firms exporting goods stood at 223,013 – up 98 percent (almost double) from the 112,854 firms that exported in 1992.[93]

Broadband access is a necessary requirement for participating in the global economy. The reduction of trade barriers in the U.S., coupled with advanced communications and logistics technologies, has translated into tremendous opportunities for American businesses, but also fierce global competition. Broadband allows identification of and communication with, customers regardless of geography. Activities ranging from accessing design specifications for job quotes to the exchange of trade documents can only be accomplished with high-speed communications.

These issues are particularly acute in DRA's rural communities. According to a 2005 report from the Small Business Administration, rural businesses are less likely than their urban counterparts to use and benefit from broadband access.[94] In this survey, 43 percent of rural small business used broadband services compared to 54 percent of urban small businesses.

Consumers as well as businesses benefit from e-commerce. Crandall and Jackson estimate that *universal* adoption of broadband could result in consumer benefits valued between $200 and $400 billion per year, based on 94 percent of U.S. households adopting broadband (the rate of telephone adoption).[95] They calculate such benefits coming from savings in four areas: retailing, transportation, home entertainment and healthcare. First, consumers that have broadband connections benefit from the ease of buying products and services online with faster web browsing, transaction rates and image quality available to view the products. Second, broadband adopters can save travel time by not needing to travel to various department and retail stores looking for the product they want. In addition, employees that have the same broadband access at home as they do at work can reduce travel time through telecommuting. Third, the home

entertainment industry is now at one's fingertips. Broadband deployment provides ease in downloading music and video games as well as access to movie previews and rental services such as Netflix, where movies are rented from an online database and delivered to one's door at a cheaper price than local video stores. Fourth, telemedicine can save consumers money by accessing basic medical information through online healthcare professionals and purchasing prescriptions online at a cheaper price.

One factor affecting the success of e-commerce is individual state policy. The Progressive Policy Institute (PPI) surveyed each state to identify which states had policies that encouraged e-commerce activity.[96] In the survey, Kentucky and Louisiana ranked among the best states for e-commerce, Alabama ranked among the worst and Arkansas, Illinois, Mississippi, Missouri and Tennessee fell in the middle. Much of the state rankings were based on the presence of protectionist laws for bricks-and-mortar businesses, but also included evaluation of taxes on Internet access, availability of e-government transactions and legality of digital signatures. Examples of protectionist laws include the following.[97]

- Requiring contact lens transactions to occur face-to-face, prohibiting online sales
- Prohibiting online purchase of prescription medications
- Requiring mortgage brokers to have a physical presence in the state if they are to provide loans to residents

The Southern Rural Development Center (SRDC), based at Mississippi State University, is one organization working to promote e-commerce in the Delta and surrounding regions. As host of the Rural E-commerce Extension Initiative, SRDC has four objectives to promote e-commerce in rural small businesses, governments and communities:[98]

- Invest in promising rural e-commerce Extension educational programs
- Catalog current and emerging e-commerce educational products being produced by Cooperative Extension Service educators
- Strengthen the capacity of Extension educators to become engaged in the delivery of sound outreach e-commerce educational programs
- Initiate the transformation of e-commerce educational training resources in accordance to the E-Extension protocol

Through this program, extension educators will be better equipped to train rural businesses and communities in e-commerce applications.

THE IMPORTANCE OF INFORMATION TECHNOLOGY TO PERSONAL & COMMUNITY ENGAGEMENT

Now that we can instantly connect with people anywhere in the world, what remains to hold our neighborhoods together?" asked the National Telecommunications and Information Administration (NTIA) in its report *Community Connections*, posing a question that expresses a fear felt by many across the nation. Fortunately, the impact of computers and technology on community life does not appear to be the bleak picture that many have painted. As NTIA observed in looking at community technology projects around the nation, "communities are using IT not to escape local bonds, but rather to strengthen them."[99] It found that communities were using information technology

to provide better data and information to guide grassroots initiatives, for creating venues to talk about community issues and for finding new opportunities and markets to enable rural businesses and farmers to remain in their communities.

Want to share stories with other knitters about misshapen sweaters – or find a new pattern to knit a toilet tissue holder? All you have to do is to visit any one of the more than 900 knitting blogs online.[100] Want to expand your circle of friends? Join virtual online communities such as Facebook or MySpace. More than 80 percent of Internet users have contacted an online group such as these at one time or another.[101]

What does all this have to do with community building? First, virtual communities offer the opportunity to link with others across the county, state, region and nation that are involved in community building efforts. But, just as important, according to a survey by the Pew Internet and American Life Project, the Internet not only appears to link people in long-distance relationships, but it also appears to intensify individuals' connections to their local community. "Internet access is helping people join all kinds of communities, including those that are not exclusively virtual communities," they find. One-third of those responding to the survey said that the Internet helped them meet new people and increase their involvement with their community. Young people, in particular, were found to turn to the Internet as an avenue for becoming more involved in the community. Even existing members of community organizations found that their connections were strengthened and contacts increased due to the Internet.[102]

This seems to be the experience in Blacksburg, Virginia. Andrew Cohill, founding director of the Blacksburg Electronic Village – a national model in community networking – observed that those who were online in that community tended to get out more and to be more involved in community life. He also heard from civic and community groups that when they created a web presence their attendance went up. Even churches got online early on. "They want to keep young people coming to church," commented Mr. Cohill, "and young people expect them to be online and sending emails."[103]

"Before computers took center stage, the term 'community network' was a sociological concept that described the rich web of communications and relationships in a community," says Doug Schuler, a founder of the Seattle Community Network. "New computer-based 'community networks' are a recent innovation that are intended to help revitalize, strengthen and expand existing people-based community networks in much the same way that previous civic innovations (like public libraries) have helped communities historically." He sees information technology as a tool to rebuild community by strengthening six core values: conviviality and culture; education; democracy; health and well being; economic equity, opportunity and sustainability; and information and communication.[104]

Community technology networks first began to emerge in the 1980s, as communities looked for ways to broaden access to computer technology. In some cases these were efforts to provide more widespread Internet access to individuals in their own homes or places of work. In other cases, community technology centers were established to provide access to computers and the Internet in communal places such as libraries, community centers and churches. The concept spread in the 1990s with support from federal agencies and private foundations. The U.S. Department of Housing and Urban Development, for example, launched its Neighborhood Networks Initiative in 1995 to encourage the establishment of technology centers in federally assisted housing developments, the Gates Foundation created the U.S. Library Program in 1997 to provide the public with computer access in libraries across the nation and the U.S. Department of Education created a Community Technology Centers Program in 1999 to expand computer access to disadvantaged populations. Individual communities, such as Blacksburg, Virginia, also explored ways to extend Internet access community-wide.

One of the primary ways that community computer networks can increase community involvement is by increasing residents' awareness of community issues, organizations and events. Common web offerings of community networks include: community news and announcements; event calendars; information about

area businesses, organizations and schools; and job and volunteer listings. More sophisticated networks go beyond this to offer services such as audio and video streaming of community meetings and events, chat rooms and collaborative work environments for community organizations and boards.[105] A 2003 report on promising practices in community engagement at community technology centers highlighted the work of the East Palo Alto Community Network in California. The network's website includes such features as:

- A question of the week designed to initiate online discussion about a local issue
- Selected media articles to keep people informed about local issues
- Community Voices and Forum sections to encourage discussions on issues ranging from careers to childcare
- Profiles of local political candidates, with links to voter education websites.[106]

Community technology centers – which have a physical presence in the community – are important not only for their work to bridge the digital divide, but also hold promise due to their potential to "act as key public spaces in areas where there is a dearth of such community places."[107] In Madisonville, Kentucky the Cross Creek Neighborhood Networks Center opened in January 2003 in the Cross Creek Apartments, a federally assisted housing development. The Center provides computer and Internet access and also hosts GED classes and an after school program for children. In rural Louisiana, the Louisiana Rural Internet Connection, a program of Grambling State University, has established computer labs in African-American churches in five rural parishes.

By being the enticement that gets people in the door at centers such as these, computer access can often lead to other individual and community benefits. Evaluations of the Gates Foundation's U.S. Library Program found that patrons were visiting libraries twice as often and for twice as long, as a result of computer availability. In addition, new patrons who were drawn to the libraries due to computer services often began to use other library services as well. As an overall benefit, staff of rural and small town libraries reported that computer access improved the visibility and reputation of their libraries in the community.[108]

While there are numerous positive examples of community technology centers that have served as catalysts for broader community change, a 2003 report to the Ford Foundation concluded that "the community technology movement has yet to fully align its efforts with the community building movement."[109] In other words, there are missed opportunities to apply technology to community problem solving rather than focusing solely on computer access and training. Another study suggested that community development organizations are not using information technology to its full potential. The study found that such organizations had made significant progress in using technology for internal operations, but that few had used technology in innovative ways to strengthen their services to distressed communities. Lack of technical know-how and support were identified as key barriers.[110]

Measuring Information Technology in the Delta

To what extent are Delta communities currently using information technology? What is their capacity to take advantage of its full potential? Southern Growth engaged in three major activities to answer these questions. First, Southern Growth compiled data on 18 indicators to assess the Delta's current utilization and capacity to utilize information technology in five areas: education, government, health, business and personal and community access. Second, Southern Growth conducted a regional survey involving personal interviews with more than 160 public officials from DRA counties and parishes. Lastly, Southern Growth organized three meetings in which participants identified relevant demographic and information technology indicators and politically feasible strategies to increase broadband utilization in the Delta.

The data and survey results present a troubling yet hopeful story, a story of not two, but three Mississippi Deltas. The first Delta is the one bridled with the urban poverty that reared its head in the aftermath of Hurricane Katrina. The second Delta still fights to revive itself from a "when cotton was king" economy. One county manager highlighted the growing divide in a phone interview, "I think high-speed Internet is real important, but 35 percent of my county isn't covered by community water and sewer. It's real hard for me to sleep at night knowing that many of my people don't have running water."[111]

Contrasting sharply with the other two, the third Delta consists of the bright spots of innovation and regional cooperation – places like rural Haywood County, Tennessee, which used DRA funds to build the Tennessee Technical Center. The Center, located in a regional industrial park, will offer healthcare, computer and technology training classes and manufacturing technology courses. County officials hope to use the Center as a regional community college

and university extension center, providing residents with onsite courses from the University of Tennessee-Martin, University of Memphis and Jackson State Community College.[112]

The statistics, regional survey and focus groups revealed that the DRA region faces three main information technology barriers:

- **ACCESS**: a large percentage of the DRA region lacks access to high-speed Internet services.
- **AWARENESS**: many DRA citizens and are not aware of or place a low priority on the benefits of broadband utilization.
- **AFFORDABILITY**: the cost of broadband is often unaffordable even when available, due to low per capita income levels and the high cost of services.

ACCESS TO INFORMATION TECHNOLOGY

The DRA region lacks access to high-speed Internet services both at the individual and community levels. Fifteen percent of DRA zip codes, compared to 11 percent of zip codes in the U.S., have no access to high-speed Internet services. Regional partnerships and federal support play a critical role in increasing DRA communities' connectivity. For example, Missouri Highlands Health Care, funded through the U.S. Department of Health and Human Services, operates seven clinics in the DRA region, with three located in Iron County, Missouri.[113] Missouri Highlands links all of their regional health clinics to a high-speed network which provides broadband infrastructure in every Iron County zip code.[114] Similarly, Tensas, Louisiana hired a company using USDA grant funding and plans to provide parish-wide wireless Internet access.[115]

The lack of reliable county-level data on high-speed Internet access and usage served as a significant barrier in assessing the availability of high-speed Internet services and the IT capacity of DRA communities. While the Federal Communications Commission (FCC) provides detailed state-level data, such as the number of high-speed business and residential subscribers, the lack of comparable information for counties and zip codes served as a major hindrance.

Percent of Zip Codes without A High-speed Internet Service Provider

To assess the availability and utilization of high-speed Internet services, Southern Growth calculated the percent of zip codes without high-speed Internet service providers using a proprietary zip code database and FCC data. The results, coupled with the phone interviews of public officials, provides a measurement for what Southern Growth could not directly quantify, a county-level measure of high-speed Internet access.

As shown in Table 1 and Map 1, DRA counties in seven of the eight states have less access to high-speed Internet service than their non-DRA counterparts. Fifteen percent of DRA zip codes, compared to 10 percent of non-DRA zip codes, lack a high-speed Internet service provider. The digital divide between DRA and non-DRA counties is widest in Alabama, Louisiana, Mississippi and Missouri.

Kentucky is the only state to have more zip codes with high-speed Internet service in DRA counties than non-DRA counties. Seventeen percent of the zip codes in non-DRA areas lack a high-speed Internet service provider. Only 12 percent of Kentucky's DRA zip codes lack high-speed Internet access and connectivity rates almost mirror the national average.

TABLE 1. PERCENT OF ZIP CODES WITHOUT A HIGH-SPEED INTERNET SERVICE PROVIDER, 2004

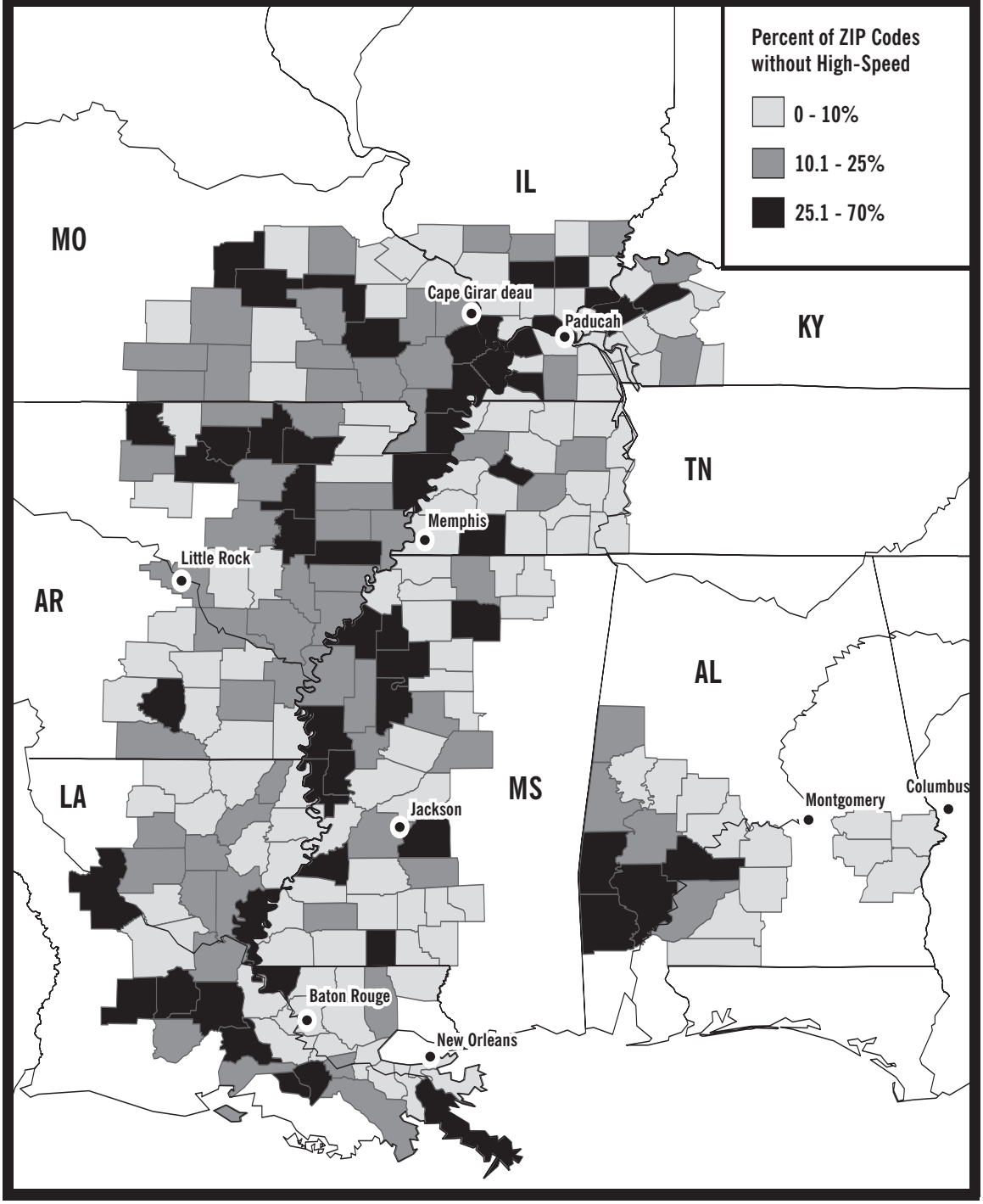
	DRA	NON-DRA	STATE
ALABAMA	18.5%	8.8%	10.4%
ARKANSAS	18.4	9.7	14.6
ILLINOIS	14.2	10.3	10.6
KENTUCKY	12.6	17.4	16.6
LOUISIANA	18.2	7.5	10.8
MISSISSIPPI	18.1	7.0	13.3
MISSOURI	20.7	11.0	13.0
TENNESSEE	5.5	4.6	4.9
DRA	**15.4**	**10.4**	–
UNITED STATES	–	–	**11.8%**

Source: Federal Communications Commission (FCC); Local Telephone Competition and Broadband Deployment, Form 477, December 31, 2004.
* The Southern Growth data set includes more zip codes than used in the FCC analysis (See appendix for details).

DRA URBAN = 8.9 PERCENT OF ZIP CODES WITHOUT ACCESS

DRA RURAL = 17.6 PERCENT OF ZIP CODES WITHOUT ACCESS

MAP 1. PERCENT OF ZIP CODES WITHOUT A HIGH-SPEED INTERNET SERVICE PROVIDER, 2004



Source: Federal Communications Commission and ZIP-Codes.com (Proprietary ZIP Code database)

Population Density

Similar to electricity, water and sewer services, the infrastructure needed for high-speed Internet can be costly in rural, low-population areas. *A Nation Online: Entering the Broadband Age* found that 24.7 percent of rural households connected to the Internet use broadband technology, while 40.4 percent of urban Internet users use broadband. According to the FCC, as population density decreases so does the availability of broadband services.[116] The Pew Internet and American Life Project illustrates that many rural consumers who would potentially use high-speed Internet are restricted to dial-up. In Pew's survey of dial-up Internet subscribers 27 percent of rural dial-up Internet users, said that broadband Internet services were not available in their communities, compared to 15 percent of all dial up subscribers.[117]

As shown in Table 2 and Map 2, population density in the DRA region is lower than the national average – 82 people live per square mile in the U.S., compared to 66 people per square mile in the DRA region. In six of the eight DRA states, the DRA counties are less densely populated than their non-DRA counterparts. The differences in population density between DRA and non-DRA counties in Alabama, Illinois, Kentucky and Missouri are dramatic, because these states have major metropolitan areas outside the DRA region.

TABLE 2. POPULATION DENSITY, NUMBER OF PERSONS PER SQUARE MILE, 2004

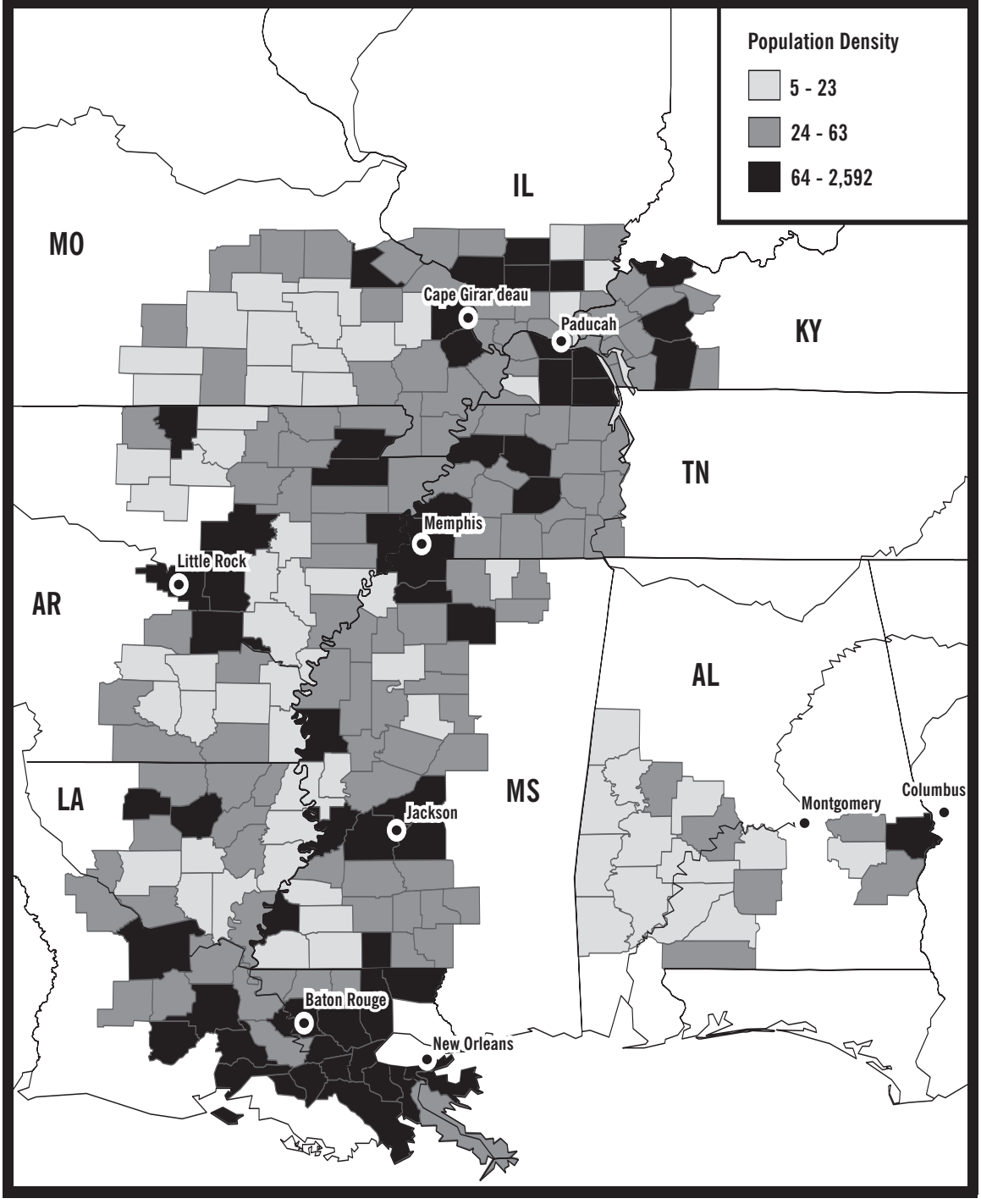
	DRA	NON-DRA	STATE
ALABAMA	25.8	120.3	88.8
ARKANSAS	47.9	58.1	52.4
ILLINOIS	56.6	248.5	227.6
KENTUCKY	65.0	112.8	103.7
LOUISIANA	110.7	89.7	103.2
MISSISSIPPI	58.5	65.0	61.5
MISSOURI	33.8	102.5	83.0
TENNESSEE	142.4	141.6	141.8
DRA	**65.8**	**131.3**	–
UNITED STATES	–	–	**82.2**

Sources: Population, Bureau of Economic Analysis, Regional Economic Accounts for land area, U.S. Census Bureau, Census 2000 Gazetteer Files.

DRA URBAN = 225.7 PEOPLE PER SQUARE MILE

DRA RURAL = 37.8 PEOPLE PER SQUARE MILE

MAP 2. POPULATION DENSITY, NUMBER OF PERSONS PER SQUARE MILE, 2004



Sources: Population, Bureau of Economic Analysis, Regional Econimic Accounts for land area, U.S. Census Bureau, Census 2000 Gazetteer files.

Age

In his book, *Being Digital*, Nicholas Negroponte warns, "People worry about the social divide between the…haves and the have-nots…but the real cultural divide is going to be generational."[118] Senior citizens are among the least likely age group to log onto the Internet. According to the U.S. Census Bureau, less than a quarter of people over the age of 65 had a home computer and less than a fifth had home Internet access in 2000.[119]

While the percent of the population over the age of 65 appears to be evenly concentrated between DRA and non-DRA counties, some DRA states have older populations than the national percentage. DRA counties in Illinois, Kentucky, and Missouri are somewhat older. Senior citizens represent 16 percent of the population in the Illinois DRA counties compared to 12 percent of the population in non-DRA counties. Likewise, nearly 16 percent of the population is over the age of 65 compared to 13 percent for non-DRA counties in Missouri's DRA region.

TABLE 3. PERCENT OF THE POPULATION 65 AND OLDER, 2004

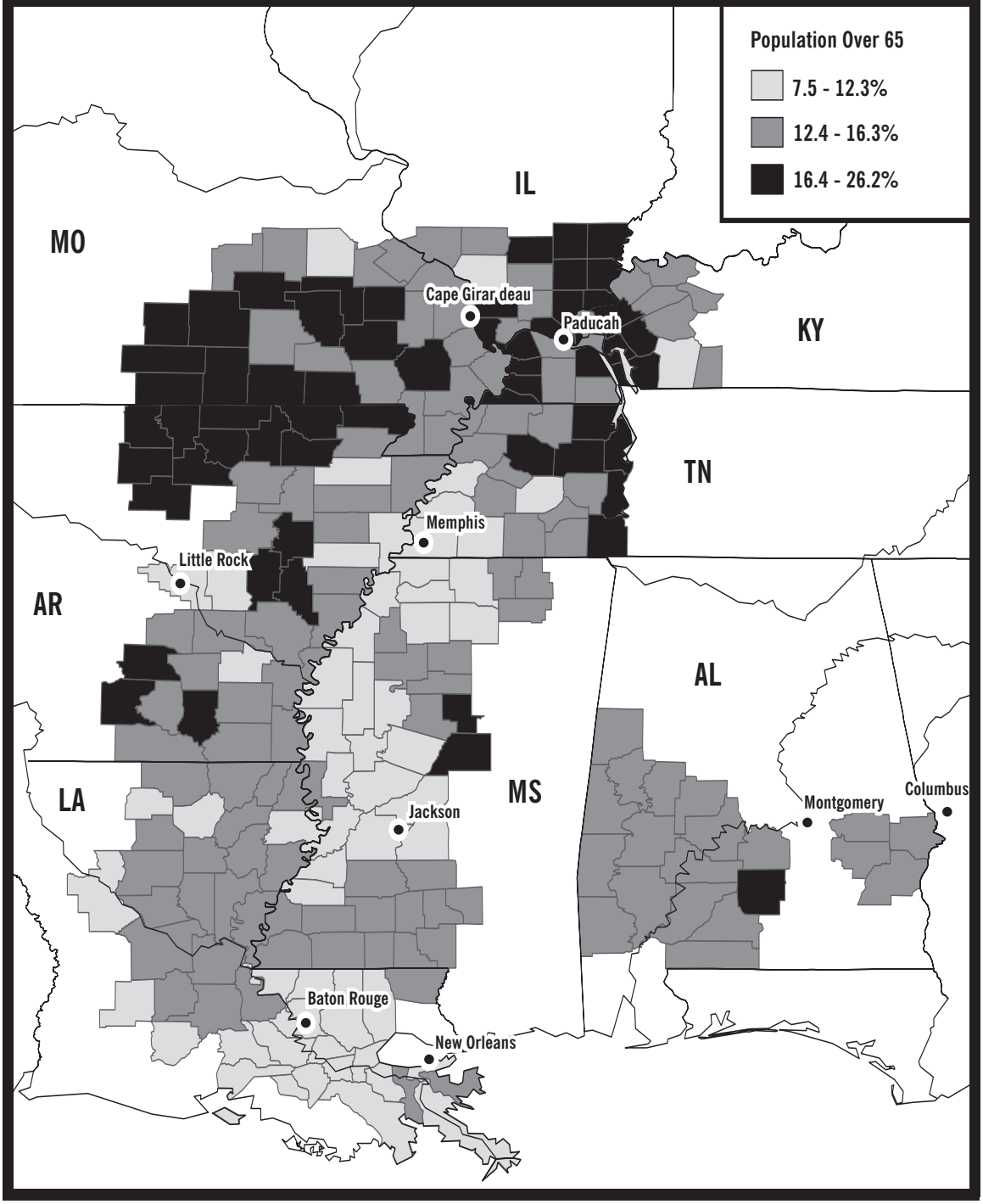
	DRA	NON-DRA	STATE
ALABAMA	14.0%	13.1%	13.2%
ARKANSAS	14.0	13.7	13.8
ILLINOIS	16.0	11.8	12.0
KENTUCKY	14.6	12.2	12.5
LOUISIANA	11.6	11.9	11.7
MISSISSIPPI	11.6	12.7	12.2
MISSOURI	15.5	13.0	13.3
TENNESSEE	11.6	12.8	12.5
DRA	**12.7**	**12.5**	–
UNITED STATES	–	–	**12.0%**

Source: U.S Census Bureau, County Population Estimates

DRA URBAN = 11.0 PERCENT 65 YEARS OLD AND OLDER

DRA RURAL = 14.4 PERCENT 65 YEARS OLD AND OLDER

MAP 3. PERCENT OF THE POPULATION 65 AND OLDER, 2004



Source: U.S. Census Bureau, County Population Estimates

Ethnicity and Race

A Nation Online notes the digital divide between America's ethnic and racial groups. Between 12 and 14 percent of Hispanic and African-American households use broadband Internet while nearly 26 percent of white households and 34 percent of Asian households use broadband.[120] There is conflicting research on the role race plays in broadband Internet and computer access. University of Vanderbilt researchers found that the disparity in computer ownership between whites and African-Americans disappears for household incomes above $40,000.[121] In contrast, other researchers found that the gaps in computer ownership and Internet use persist for whites, Hispanics and African-Americans even after accounting for income differences for individuals with incomes of $60,000 or less.[122]

Cultural barriers also play a role in whether certain racial and ethnic groups utilize the Internet. For example, the IBM Hispanic Digital Divide Task Force explained, "English language literacy stands out as a substantial determining factor of the degree to which Latinos can access the wealth of information and resources on the web."[123] The digital divide poses critical implications for the DRA region because the fastest growing segments of America's future workforce are the children from Hispanic and low-income families. [124]

Overall, diversity, defined as the percent of individuals identifying as African-American, Native American, or Asian and Pacific Islander, is much higher in DRA counties as compared to non-DRA counties. More than a third of DRA's constituents are people of color as shown in Table 4 and Map 4. In Alabama and Mississippi DRA counties, people of color represent a substantial proportion of the population, comprising 53 percent and 47 percent, respectively. In Illinois and Missouri, both states with a large metropolitan area outside of the DRA region, minorities represent a lower percentage of the population.

According to the Pew Charitable Trusts, America's Hispanic population increased by 5.7 million people, accounting for half of the nation's population growth between 2000-2004.[125] Hispanics represent 14.3 percent of the population and America's largest minority group.[126] Despite the national Hispanic population increase, this ethnic group only represents five percent of the DRA population (Table 5 and Map 5).

TABLE 4. MINORITIES AS A PERCENT OF THE POPULATION, 2004

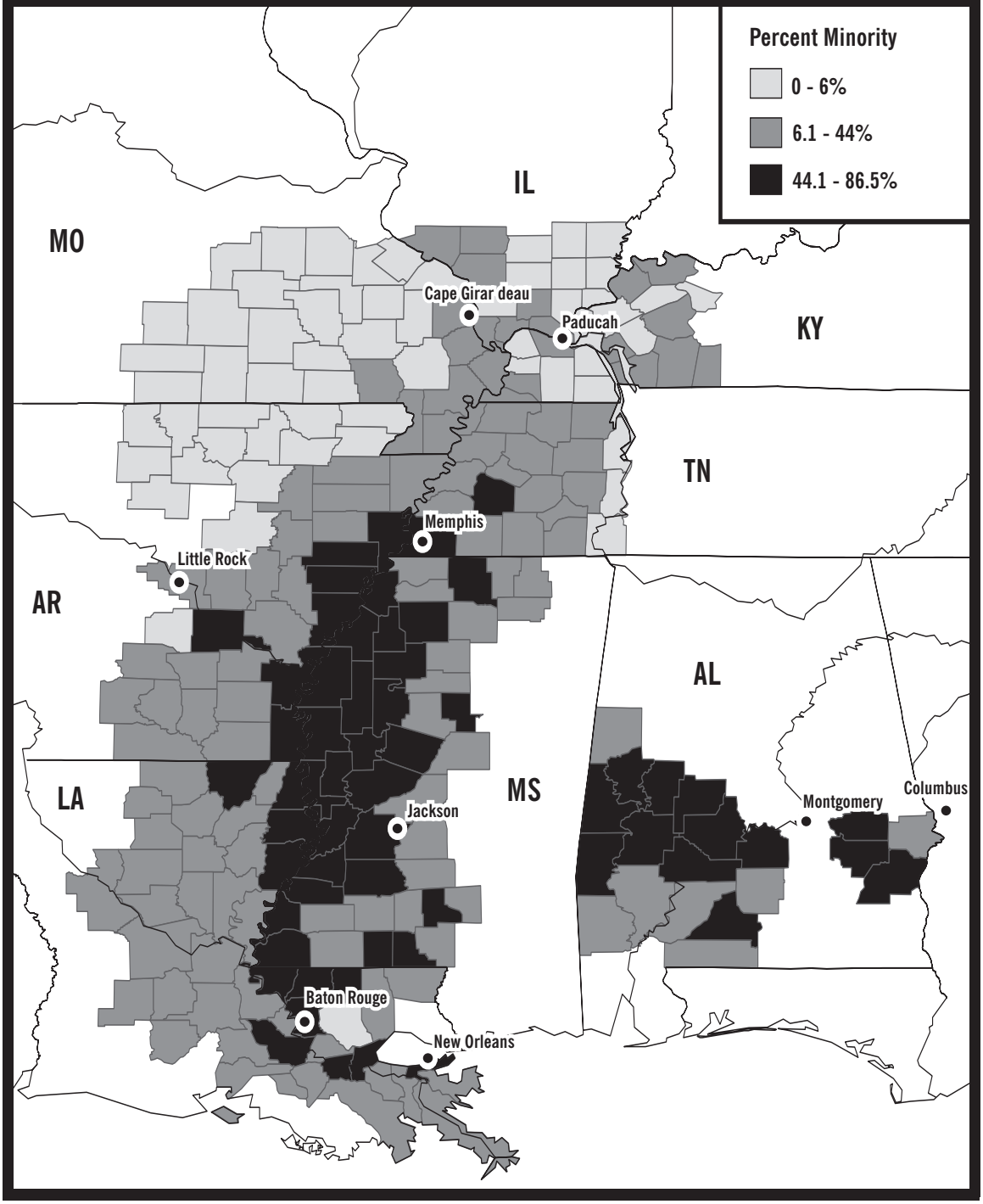
	DRA	NON-DRA	STATE
ALABAMA	53.3%	25.4%	28.1%
ARKANSAS	26.2	9.2	17.9
ILLINOIS	8.5	20.3	20.0
KENTUCKY	10.0	8.9	9.0
LOUISIANA	38.8	28.2	35.4
MISSISSIPPI	47.0	28.9	38.3
MISSOURI	5.8	14.9	13.9
TENNESSEE	40.3	11.2	18.7
DRA	**34.2**	**17.9**	–
UNITED STATES	–	–	**18.8%**

Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics

DRA URBAN = 40.7 PERCENT MINORITY

DRA RURAL = 27.4 PERCENT MINORITY

MAP 4. MINORITIES AS A PERCENT OF THE POPULATION, 2004



Source: U.S. Dept. of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics

TABLE 5. HISPANICS AS A PERCENT OF THE POPULATION, 2004

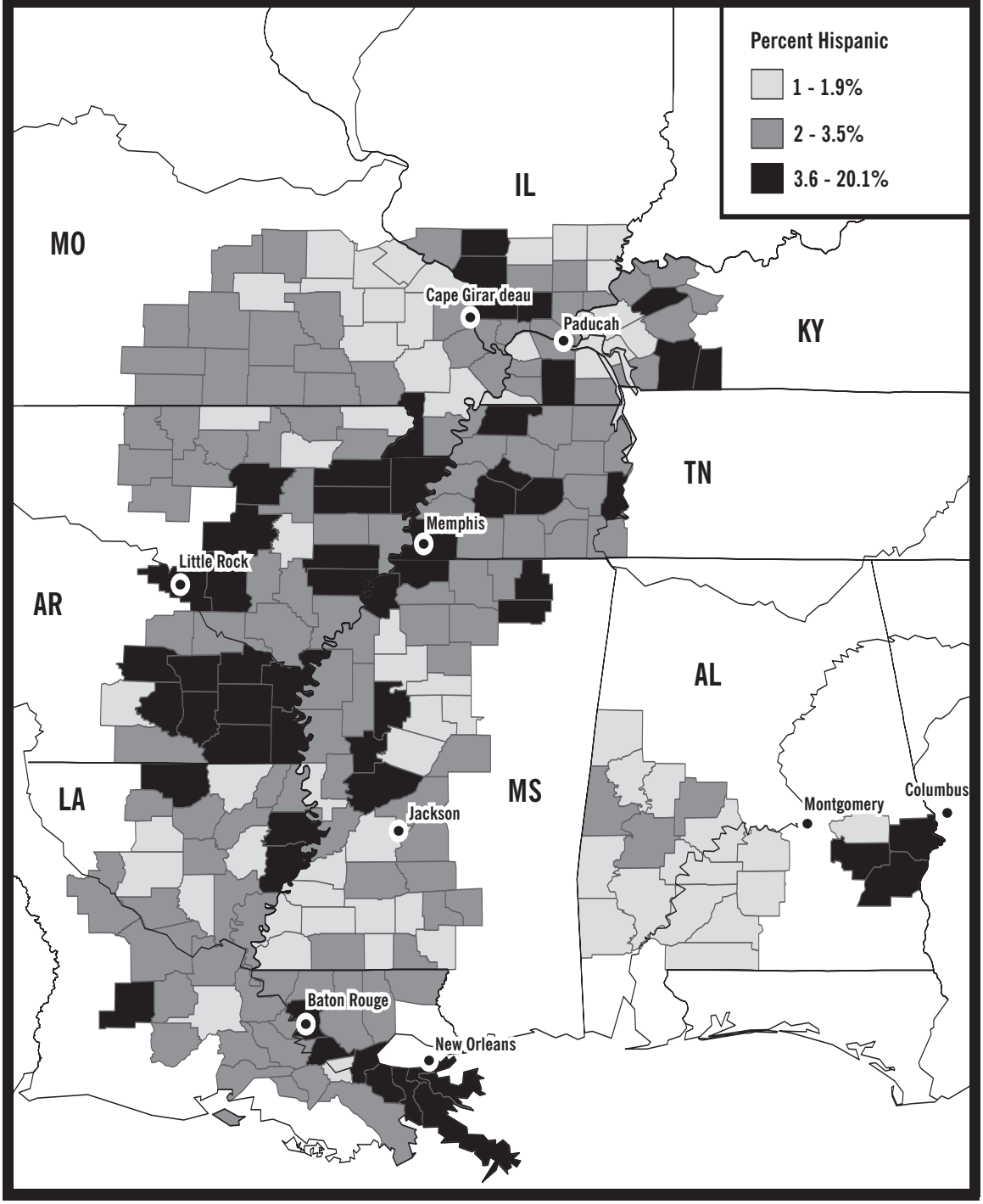
	DRA	NON-DRA	STATE
ALABAMA	2.5%	4.6%	4.4%
ARKANSAS	4.6	13.3	8.9
ILLINOIS	3.4	28.7	28.0
KENTUCKY	3.9	3.8	3.8
LOUISIANA	5.9	4.7	5.6
MISSISSIPPI	3.0	3.9	3.4
MISSOURI	2.4	5.6	5.2
TENNESSEE	5.4	5.8	5.7
DRA	**4.6**	**14.0**	–
UNITED STATES	–	–	**14.1%**

Source: U.S. Census Bureau, County Population Estimates

DRA URBAN = 6.0 PERCENT HISPANIC

DRA RURAL = 3.1 PERCENT HISPANIC

MAP 5. HISPANICS AS A PERCENT OF THE POPULATION, 2004



Source: U.S. Census Bureau, County Population Estimates

Community Access

The Pew Internet and American Life Project found that close to 30 million people, or 23 percent of adults, have accessed the Internet from somewhere other than home or work. Of these individuals, "27 percent have used the Internet at school, 26 percent have used it at friends' or neighbors' homes and 26 percent have used it at libraries."[127] This study also concludes that those who depend on some place other than home or work are less educated than those with Internet access at home or work and tend to live in areas that are poorer and more rural.

Library Access

Analysis of National Center for Education Statistics data indicates that there is slightly less library computer and Internet access in DRA counties when compared to non-DRA counties. However, on a state-by-state basis, Kentucky, Louisiana and Tennessee are the only states where the DRA counties have more people per Internet computer terminal. As shown in Table 6 and Map 6, the five remaining states have fewer people per library Internet terminal in the DRA counties than in the non-DRA counties, but this may be due to omission. A large percentage of Mississippi and Arkansas DRA counties participate in regional library systems and only publish multi-county access statistics, preventing county-level calculations.

TABLE 6. POPULATION PER INTERNET CONNECTED LIBRARY TERMINAL, 2002

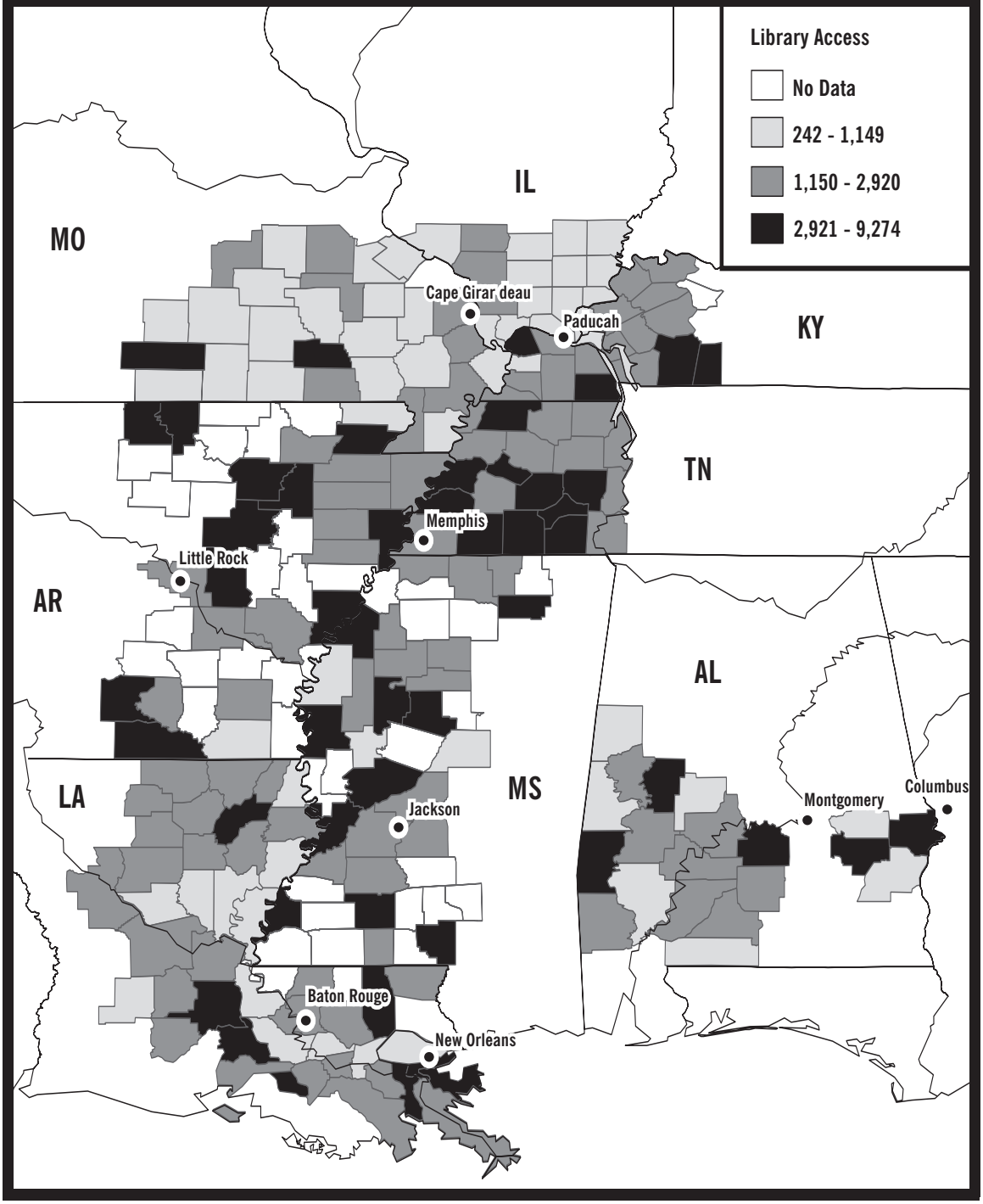
	DRA	NON-DRA	STATE
ALABAMA	1,322	1,535	1,513
ARKANSAS	2,280	2,585	2,415
ILLINOIS	937	1,673	1,648
KENTUCKY	2,349	1,925	1,967
LOUISIANA	2,140	1,514	1,893
MISSISSIPPI	1,615	2,276	1,868
MISSOURI	1,111	1,652	1,577
TENNESSEE	2,474	2,087	2,176
DRA	**1,898**	**1,759**	–
UNITED STATES	–	–	**1,810**

Source: U.S. Department of Education, National Center for Education Statistics Common Core of Data

DRA URBAN = 2,205 PEOPLE PER LIBRARY INTERNET COMPUTER TERMINAL

DRA RURAL = 1,628 PEOPLE PER LIBRARY INTERNET COMPUTER TERMINAL

MAP 6. POPULATION PER INTERNET CONNECTED LIBRARY TERMINAL, 2002



Source: U.S Department of Education, National Center for Education Statistics, Common Core of Data

School Computer Access

According to the U.S. Department of Education's National Education Technology Plan, *Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students are Revolutionizing Expectations*, "education may serve as the greatest demand for the expansion of broadband connectivity to schools and homes. In this regard, school leaders have an opportunity and an obligation to shape telecommunications as it has the potential to affect schools." According to the National Center for Education Statistics, 60 percent of students living at or below the poverty line only access the computer at school, compared to 33 percent of students not living in poverty.[128]

Because the DRA region is largely rural and low-income, Southern Growth also measured the number of students per computer aggregated for all public schools in a county and the percent of school districts in the county with a presence on the Internet to assess connectedness. Computers per student is a well-established indicator of student access to technology and is often cited as a benchmark of educational technology. For example, the National Center for Educational Statistics uses this measure in determining educational technology levels in its *Digest of Education Statistics*.

There are slightly fewer students per computer in DRA counties than in non-DRA counties, but this figure may be skewed by the omission of data from Kentucky and Illinois.[129] The difference in the number of students per computer in DRA versus non-DRA regions is small. Many states, like Tennessee and Mississippi, have developed their own extensive education technology compendiums that provide information on a district-by-district basis.

TABLE 7. STUDENTS PER INTERNET CONNECTED COMPUTER

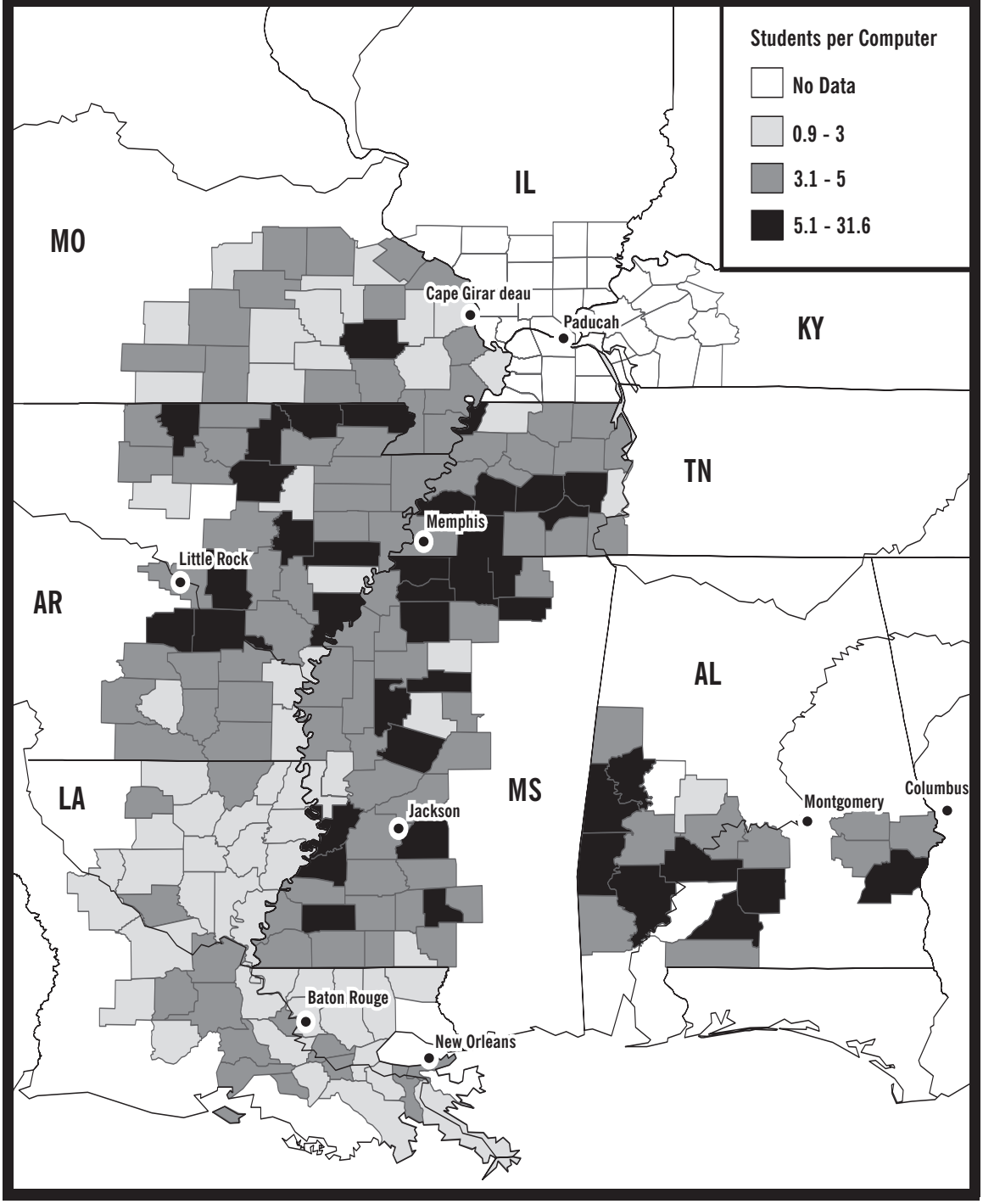
	DRA	NON-DRA	STATE
ALABAMA	4.51	4.59	4.58
ARKANSAS	4.21	4.26	4.24
ILLINOIS*	–	–	3.80
KENTUCKY*	–	–	4.10
LOUISIANA	3.04	2.81	2.95
MISSISSIPPI	4.54	4.12	4.33
MISSOURI	3.10	–	–
TENNESSEE	4.46	4.33	4.36
DRA	**3.73**	**4.10**	**–**
UNITED STATES	**–**	**–**	**4.04**

Source: Varies by state and year | *Information not provided through the state. Data taken from Technology Counts 2006.

DRA URBAN = 4.12 STUDENTS PER COMPUTER

DRA RURAL = 4.06 STUDENTS PER COMPUTER

MAP 7. STUDENTS PER INTERNET CONNECTED COMPUTER



Source: Varies by State; Data Not Available for Kentucky and Illinois

School Districts with a Website

Using Census of Governments information, Southern Growth assessed community connectivity by measuring the percent of school districts with a website. The percent of school districts in the county with a presence on the Internet is also proxy for Internet access. The percent of DRA school districts with a website is much smaller than non-DRA districts in seven of the eight DRA states. Only in Missouri do more DRA school districts have a website than non-DRA districts. Nearly 70 percent of school districts outside the DRA region have a district website compared to less than 55 percent of schools within the DRA region (Table 8 and Map 8). There is little, if any, difference between DRA's rural and urban school distrtricts with a website.

TABLE 8. PERCENT OF SCHOOL DISTRICTS WITH A WEBSITE, 2002

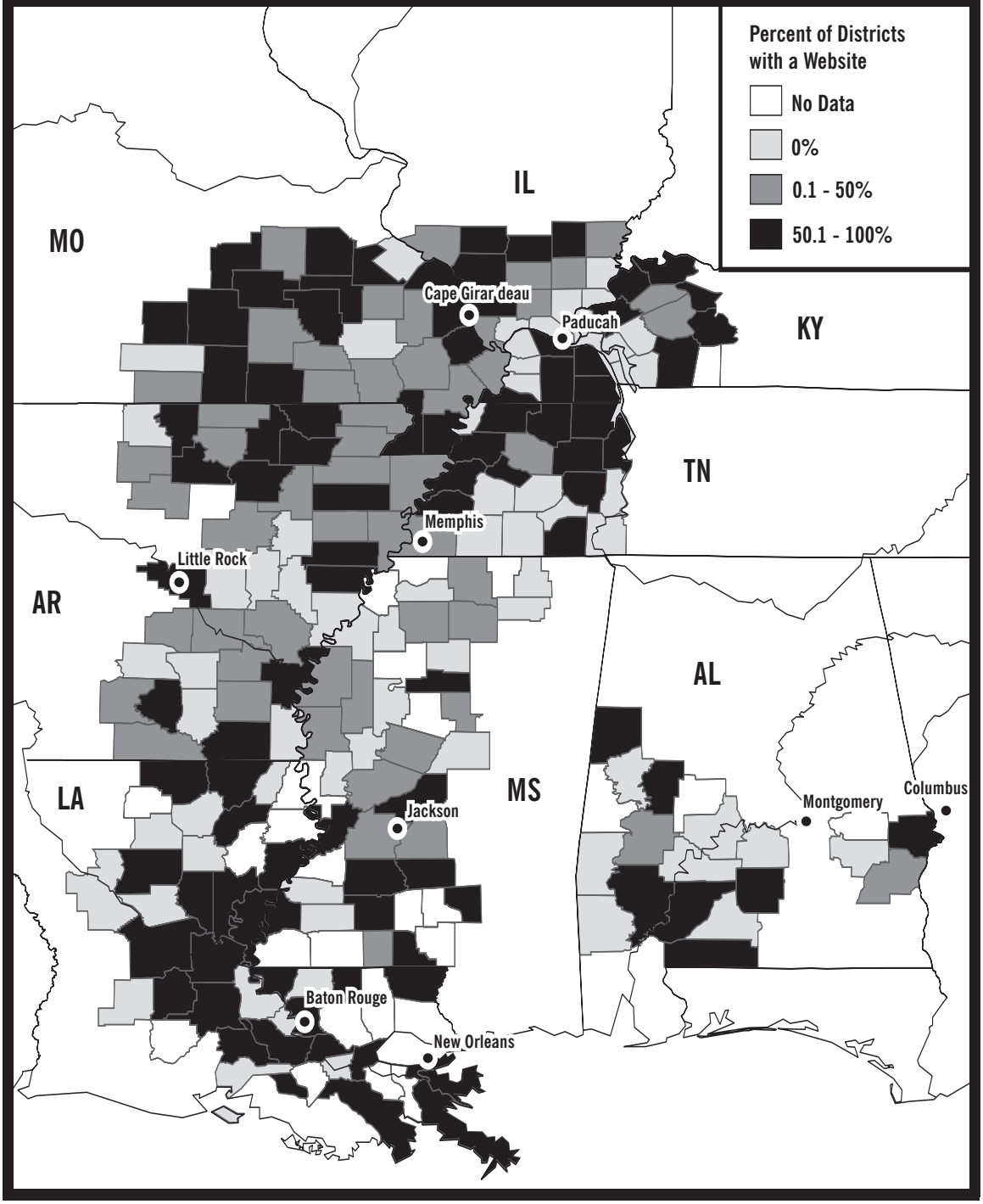
	DRA	NON-DRA	STATE
ALABAMA	54.5%	61.3%	59.8%
ARKANSAS	43.3	58.1	50.4
ILLINOIS	57.6	71.5	70.4
KENTUCKY	62.5	80.3	77.5
LOUISIANA	66.7	92.9	74.0
MISSISSIPPI	41.1	59.2	51.2
MISSOURI	64.5	63.1	63.4
TENNESSEE	59.5	70.8	67.0
DRA	**54.2**	**68.4**	–
UNITED STATES	–	–	**62.2%**

Source: U.S. Census Bureau, Census of Governments

DRA URBAN = 55.8 PERCENT HAVE A WEBSITE

DRA RURAL = 54.0 PERCENT HAVE A WEBSITE

MAP 8. PERCENT OF SCHOOL DISTRICTS WITH A WEBSITE, 2002



Source: U.S. Census Bureau, Census of Governments

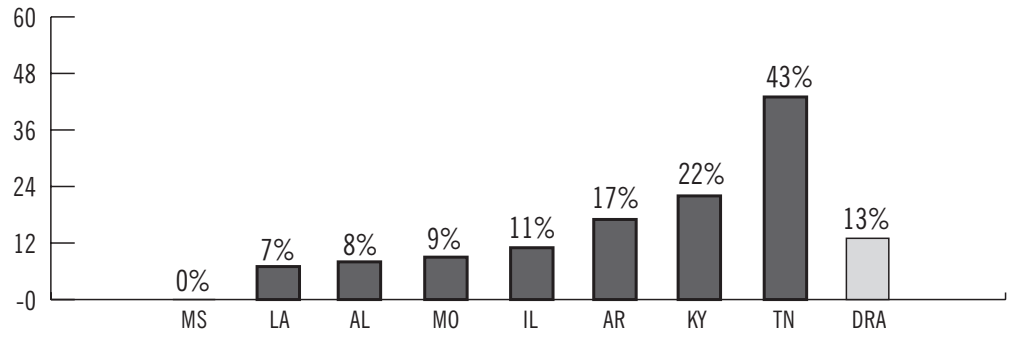
Other Community Internet Access

Very few DRA communities use schools to provide community computer and Internet access. Less than 12 percent of the counties surveyed provide after-hours use of their school computer facilities to county residents. Thirty-seven percent provide computer and Internet access to residents in locations outside of the schools and libraries. The counties that provide IT access to residents often involve multi-government partnerships and university resources. Madison County and Cape Girardeau, Missouri residents have access to computers through the local university extension offices. In Montgomery County, Mississippi, Winona High School partners with the university agricultural extension office to offer residents evening computer-training classes.[130]

Realizing the importance community partnerships play in providing computer and Internet access, Bolivar, Mississippi in 1993 partnered with Cleveland City and the local school district to renovate an old abandoned railroad depot building, using the facilities to provide computer and Internet access to residents. The partnership founded Bolivar Literacy Council, Mississippi's largest single county literacy program.[131] In 2002, using public and private funds, the Bolivar Literacy Council expanded the 1,500 foot depot building to a 5,500 square foot library with three classrooms and three computer labs. The Literacy Council provides learning opportunities for all ages, including money management courses, a prenatal literacy library and computer and Internet training.

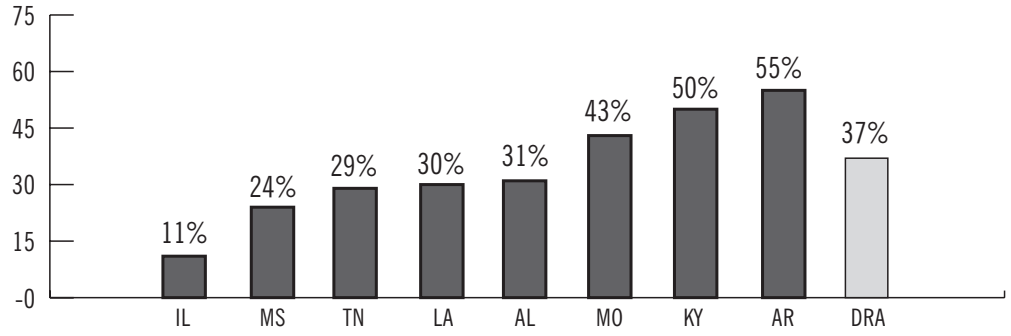
Other Delta communities, like Desoto County and Sunflower County, Mississippi, provide computer and Internet access in the annexes of the county courthouses. Jackson Parish, Louisiana turned the county courthouse into a Wi-Fi hotspot and public officials are exploring ways to provide wireless in the county's more rural areas.

CHART B: PERCENT OF COUNTIES WITH SCHOOLS OPEN AFTER HOURS PROVIDING COMPUTER & INTERNET ACCESS TO THE COMMUNITY



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

CHART C: PERCENT OF COUNTIES WITH COMMUNITY COMPUTER ACCESS POINTS OUTSIDE OF SCHOOLS AND LIBRARIES



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

AWARENESS & UTILIZATION OF INFORMATION TECHNOLOGY

In the report to the Economic Development Administration, *Identifying Technology Infrastructure Needs in America's Distressed Communities*, researchers explored how distressed communities utilized technology infrastructure as a tool for economic development. They identified five barriers prohibiting communities from successfully harnessing high-speed Internet for economic growth, including the lack of citizen engagement, political will and leadership awareness.[132]

Even when high-speed Internet services are available, many communities are not aware of its benefits or how to use technology as a tool to create economic prosperity. This section discusses the awareness and utilization of information technology in DRA communities and also identifies opportunities for broadband as a tool for economic growth. Statistics like entrepreneurship, voter participation and infant mortality are not direct measures of broadband utilization, but indicate the long-term success of high-speed Internet applications in business, government and health. Southern Growth quantified the utilization of, and capacity to utilize, broadband access in three areas:

- **COMMUNITY UTILIZATION**: the capacity to utilize high-speed Internet services, as measured by education attainment. The proximity of a local community college or other postsecondary institution offering IT training classes served as a proxy for the capacity to train technologically proficient workers.
- **PUBLIC SECTOR UTILIZATION:** the capacity to boost awareness through civic engagement as measured by voter participation rates and the utilization of high-speed Internet and information technologies by government and health organizations.
- **PRIVATE SECTOR UTILIZATION:** business engagement in IT and the capacity to utilize information technology, as measured by the prevalence of self-employment, the presence of what county managers consider "a high tech company" and local companies engaging in e-commerce.

During the regional survey, DRA's public officials expressed their concerns and needs. The Delta's needs ranged from communities requesting additional technical assistance in implementing technology plans to those adjusting to the expanding knowledge economy. Take, for example, West Feleciana Parish, Louisiana, a rural community with an integrated technology plan involving multiple public sectors – schools, police and fire safety and the tax assessors' office. The West Feleciana Parish Manager asked during the phone interview, "When can we get wireless?" West Feleciana officials, in the process of implementing an extensive technology plan that included community visioning and an integrated GIS system, understood that broadband cable access was not a viable option for the community's rural, Ozark-like terrain.

In contrast, St. Martin, Louisiana, a Baton Rouge suburb, is still recuperating from the loss of its largest employer. The company closed in 2001, laying off more than 3,000 workers and leaving a vacant one million square foot manufacturing facility. St. Martin and other jurisdictions along the Mississippi River are still working to add good paying jobs to their local economy, retrain dislocated workers and increase community awareness about the benefits of technology.

Overall, the wide disparity among Delta communities emerged again when evaluating awareness levels and high-speed Internet utilization, presenting mixed results:

- DRA's education-related predictors of high-speed Internet utilization – education attainment rates – lie below the national and non-DRA averages.
- Sixty-three percent of DRA counties have locally owned businesses that public officials consider high tech companies. Proprietorship also counts as a larger share of employment in DRA jurisdictions than in non-DRA jursidictions.
- E-government in the DRA region is below the national average. According to the U.S. Census of Governments 2002 survey, only 15 percent of DRA city and county governments maintain a local website. Today, less than a quarter of DRA county governments (22 percent) provide government services online, such as putting tax bills, or car and deed registration online.
- Many of DRA's public officials are unaware of the current use and potential of technology in their communities. According to information from the Office for the Advancement of Telehealth and the U.S. Department of Agriculture, telemedicine programs currently operate in 21 percent of DRA counties. However, only 16 percent of county and parish officials responded, "yes," when asked whether a telemedicine program operated in their community.

COMMUNITY UTILIZATION

Education attainment rates will have strong implications for any information technology based economic development plan because education is strongly linked to the utilization of high-speed Internet services. The National Center for Education Statistics study, *Computer and Internet Use by Students in 2003*, showed that students with well-educated parents were more likely to utilize computers and the Internet, with parental education being one of the largest predictors.[133] According to the Pew Internet and American Life Project, "Forty percent of adults who have less than a high school education use the Internet, 64 percent of adults with a high school degree go online. Among those who have some college education, 84 percent use the Internet and 91 percent of adults with at least a college degree go online."[134] While Internet usage is highest among the most educated, Internet usage among individuals with just a high school degree grew more than any other education attainment group between 1998 and 2001 (30 percent).[135] The communities left "behind and offline" are those with a high proportion of less educated individuals. Although computer and Internet use increased substantially for individuals educated at the high school level or beyond between 1998 and 2001, utilization rates for those without a high school degree changed the least.[136]

Population with a Bachelor's Degree

Individuals with a bachelor's degree are those most likely to utilize information technology, but very few DRA counties exhibit the education attainment levels that indicate utilization. DRA's predictor of awareness and high-speed Internet utilization – education attainment rates – sit below the national and non-DRA averages. Seventeen percent of DRA's adult population has a bachelor's degree compared to the non-DRA average of 22 percent and national average of 23 percent. The education attainment gap between the U.S. and DRA is not evenly distributed between the region's rural and urban areas. Education attainment rates in DRA's urban areas nearly mirror the national average – 22 percent of DRA's urban adult population has a bachelor's degree or higher compared to 23 percent for the U.S. As shown in Table 9 and Map 9, DRA's rural areas are far less educated than their urban counterparts – the rural adult population with a baccalaureate education or higher only represents 12 percent of the population.

However, urban graduation rates and dropout rates are worse than those of rural DRA and the national average. DRA's rural high school graduation rates exceed those of non-DRA counties and parishes and the national average. Sixty-two percent of American students finish high school in four years. While 66 percent of DRA's rural ninth graders finish high school in four years.

TABLE 9. PERCENT OF THE ADULT POPULATION (25 YEARS +) WITH A BACHELOR'S DEGREE OR HIGHER, 2000

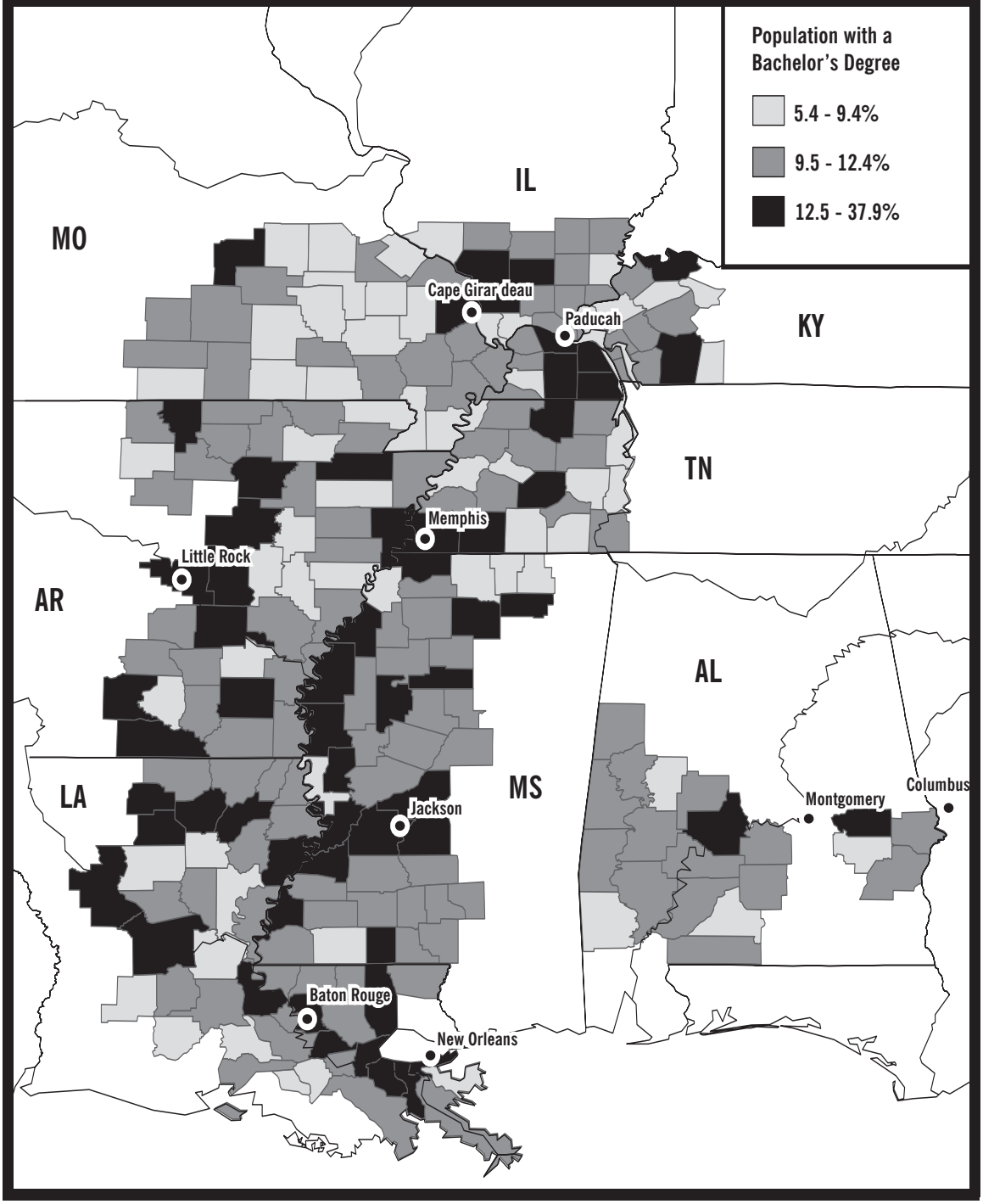
	DRA	NON-DRA	STATE
ALABAMA	11.2%	19.9%	19.0%
ARKANSAS	16.7	16.7	16.7
ILLINOIS	14.9	26.4	26.1
KENTUCKY	12.9	17.7	17.1
LOUISIANA	18.8	18.6	18.7
MISSISSIPPI	18.1	15.6	16.9
MISSOURI	11.7	22.9	21.6
TENNESSEE	19.8	19.5	19.6
DRA	**17.2**	**22.1**	–
UNITED STATES	–	–	**23.4%**

Source: U.S. Census Bureau, 2000 Summary File 3.

DRA URBAN = 22.0 PERCENT WITH BACHELOR'S OR HIGHER

DRA RURAL = 12.4 PERCENT WITH BACHELOR'S OR HIGHER

MAP 9. PERCENT OF THE ADULT POPULATION (25 YEARS +) WITH A BACHELOR'S DEGREE OR HIGHER, 2000



Source: U.S. Census Bureau, Census 2000 Summary File 3

Four-Year High School Graduation Rates

Four-year graduation rates provide an estimate of the number of ninth graders that successfully complete high school in four years. The estimates in this report may differ slightly from state and nationally published statistics due to the methodology, which is noted in the appendix. Overall, as depicted in Table 10, high school graduation rates are slightly lower in DRA counties as compared to non-DRA counties. Graduation rates vary substantially across the eight DRA states, ranging from 55 percent in Tennessee to 91 percent in Illinois. The graduation rate is not consistently higher or lower in DRA versus non-DRA counties, with Arkansas, Illinois, Kentucky, Missouri and Tennessee counties pulling ahead of their non-DRA counterparts and DRA's Alabama, Louisiana and Mississippi jurisdictions falling behind.

TABLE 10. FOUR-YEAR HIGH SCHOOL GRADUATION RATES, 2002

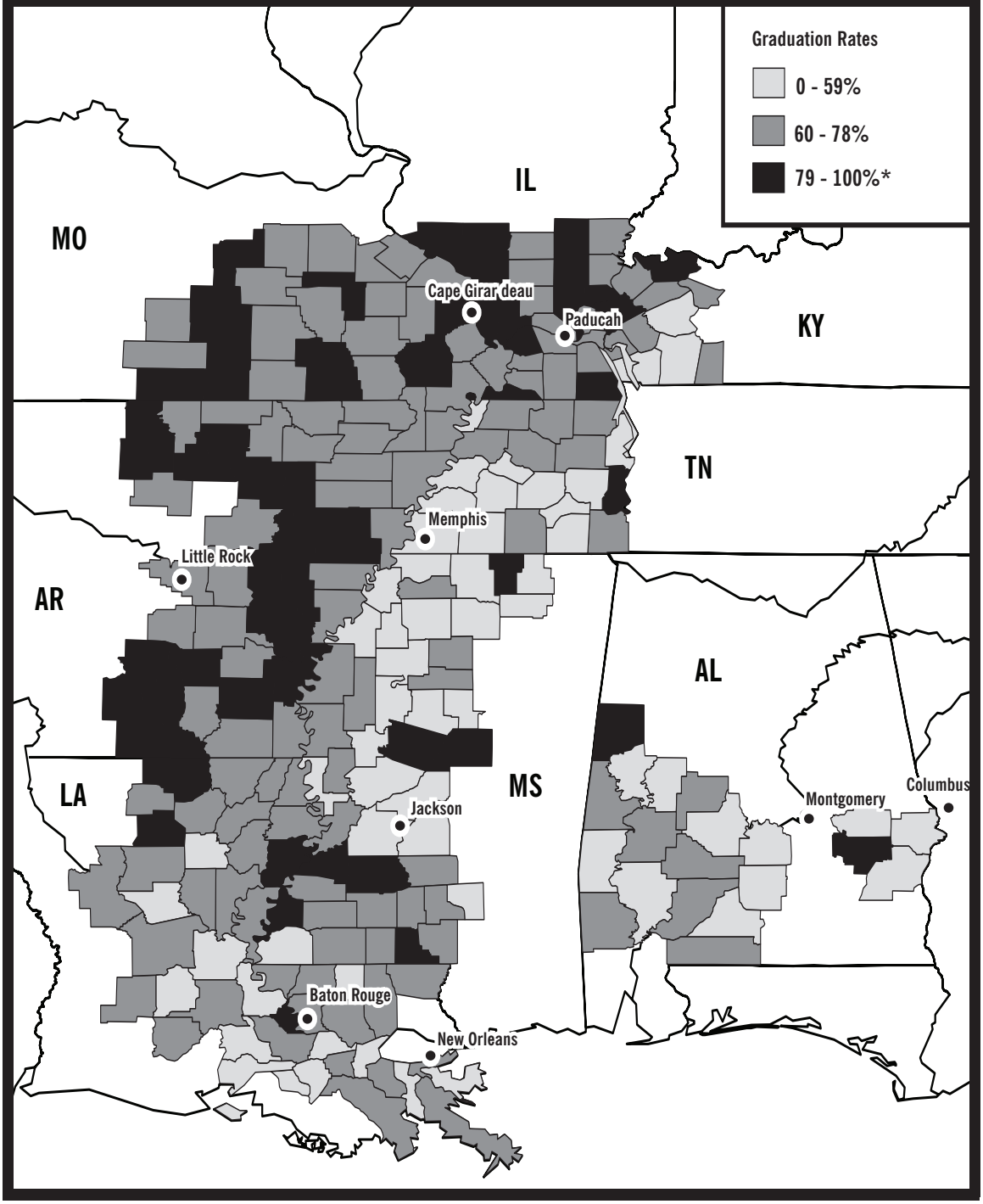
	DRA	NON-DRA	STATE
ALABAMA	56.3%	58.9%	58.6%
ARKANSAS	73.2	72.9	73.0
ILLINOIS	91.3	67.8	68.4
KENTUCKY	68.9	62.3	63.0
LOUISIANA	61.7	61.8	61.7
MISSISSIPPI	59.3	63.1	61.1
MISSOURI	75.2	71.2	71.7
TENNESSEE	55.0	54.8	54.8
DRA	**64**	**64.8**	–
UNITED STATES	–	–	**61.8%**

Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data

DRA URBAN = 58.8 PERCENT GRADUATION RATE

DRA RURAL = 66.2 PERCENT GRADUATION RATE

MAP 10. FOUR-YEAR HIGH SCHOOL GRADUATION RATES, 2002



Source: U.S Department of Education, National Center for Education Statistics, Common Core of Data
* Due to methodology, some numbers were above 100 percent, Please see Appendix

Students Leaving High School

Nationally and in DRA's rural areas, five percent of students left high school during the 2001 school year, compared to DRA's seven percent urban dropout rate (Table 11 and Map 11). DRA's urban high school dropout rates are 6.7 percent compared to 4.5 percent in rural DRA areas. This disparity in education attainment, graduation and dropout rates between DRA's rural and urban areas may point to struggling urban education systems and rural brain drain.

TABLE 11. PERCENT OF STUDENTS LEAVING HIGH SCHOOL, 2001

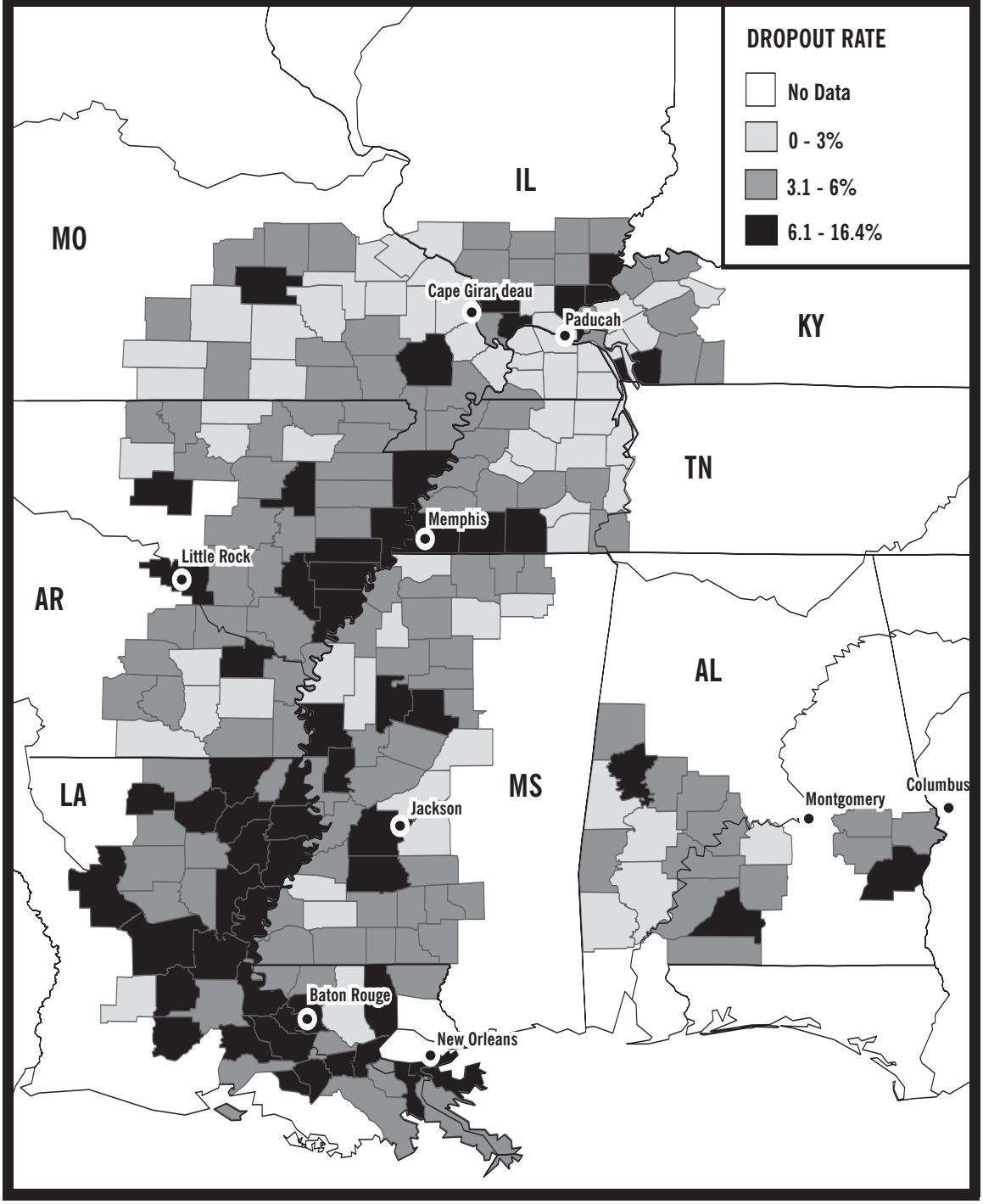
	DRA	NON-DRA	STATE
ALABAMA	4.0%	3.6%	3.7%
ARKANSAS	5.8	4.7	5.3
ILLINOIS	4.4	6.3	6.2
KENTUCKY	3.4	4.1	4.0
LOUISIANA	7.5	6.2	7.0
MISSISSIPPI	4.2	3.9	4.0
MISSOURI	3.7	3.7	3.7
TENNESSEE	5.4	3.3	3.9
DRA	**5.5**	**4.8**	–
UNITED STATES	–	–	**4.5%**

Source: U.S. Department of Education, National Center of Education Statistics, Common Core of Data

DRA URBAN = 6.7 PERCENT DROP-OUT RATE

DRA RURAL = 4.5 PERCENT DROP-OUT RATE

MAP 11. PERCENT OF STUDENTS LEAVING HIGH SCHOOL, 2001



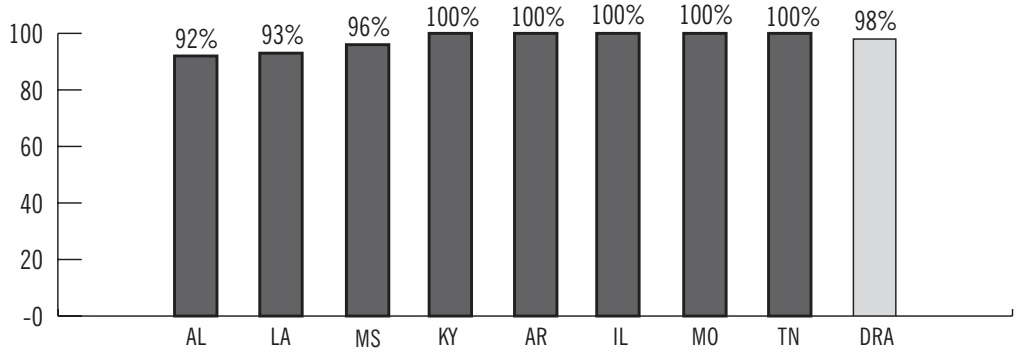
Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data

Computer and Internet Training Classes

The focus groups and surveys uncovered concerns about education, but also noted several opportunities for advancement. During the phone surveys, county and parish representatives were asked, "What, if anything, is the biggest barrier to technology use in the county?" The officials cited education related barriers most frequently, representing 37 percent of the responses. "Low literacy rates" and "discomfort with technology" were among the challenges mentioned.

Although education was a frequently cited barrier, most DRA communities are within close proximity to a community college or other postsecondary center that offers computer and technical training, as shown in Chart D. When asked, "Are there any computer or Internet training classes available at a community college or workforce center in your county or in a neighboring county?" 98 percent of the county administrators responded, "Yes."

CHART D: PERCENT OF COUNTIES WITH COMPUTER & INTERNET TRAINING CLASSES AVAILABLE



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

PUBLIC SECTOR UTILIZATION

State and local government must be at the forefront of any plan to increase broadband utilization and awareness among Mississippi Delta residents and businesses. The 2005 General Services Administration Report to Congress emphasized the importance of e-government in its statement:

> *The Government is the largest single producer, collector, consumer and disseminator of information in the United States. Government information is a valuable resource providing the public with knowledge of the government, society and economy. The free flow of information between the government and the public is essential to a democratic society. e-government services make it easier for citizens to access government information and services…The Internet is an incredibly efficient and effective way to make information available to citizens and businesses. Just as public schools and libraries provide information for citizens and benefits to society, the Internet is a resource to provide answers to questions about everyday issues. Everyone benefits from increased Internet usage and a more informed society lives a better quality of life."*[137]

Percent of Population Participating in the Presidential Elections

DRA's voter turnout rates serve as a long-term indicator of the use of e-government applications. Social capital is indirectly related to the region's capacity to use and increase awareness on the benefits of information technology. Voter turnout rates were among the Harvard University's National Social Capital Community Benchmark Survey, a survey involving 30,000 Americans in 40 communities across the U.S.

During the 2004 Presidential elections, DRA voter participation rates almost mirrored the national and non-DRA averages. As shown in Table 12 and Map 12, 57 percent of DRA residents voted in the 2004 elections compared to 59 percent of non-DRA and 56 percent of all U.S. residents. Missouri exhibited the largest voter participation differential, with an 8.5 percentage point gap between DRA and non-DRA counties. Social capital, the networks that enable collective action, is positively associated with Internet use at the community and individual level.[138]

TABLE 12. PERCENT OF VOTING AGE POPULATION PARTICIPATING IN THE PRESIDENTIAL ELECTIONS, 2004

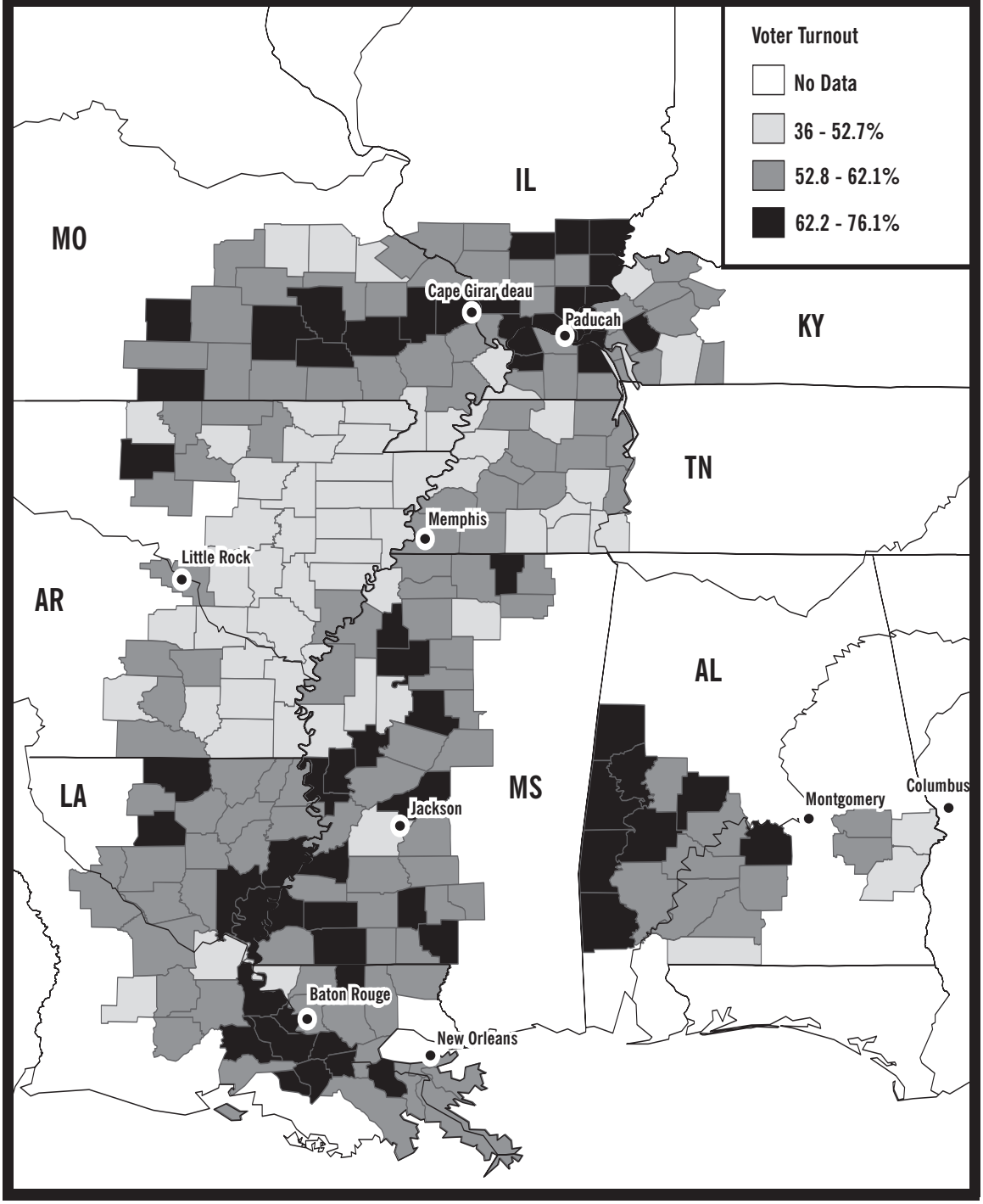
	DRA	NON-DRA	STATE
ALABAMA	53.5%	49.5%	49.9%
ARKANSAS	51.5	52.8	52.1
ILLINOIS	61.9	63.2	63.2
KENTUCKY	56.2	58.7	58.4
LOUISIANA	59.3	59.1	59.2
MISSISSIPPI	56.1	53.7	54.9
MISSOURI	57.4	65.9	64.9
TENNESSEE	56.6	55.2	55.6
DRA	**56.7**	**58.9**	**58.4**
UNITED STATES	–	–	**55.8%**

Source: U.S. Election Assistance Commission, final report of 2004 Election Day Survey

DRA URBAN = 55.8 PERCENT OF THE POPULATION PARTICIPATING IN THE ELECTIONS

DRA RURAL = 57.6 PERCENT OF POPULATION PARTICIPATING IN THE ELECTIONS

MAP 12. PERCENT OF VOTING AGE POPULATION PARTICIPATING IN THE PRESIDENTIAL ELECTIONS, 2004



Source: U.S Election Assistance Commision, final report of 2004 Election Day Survey

Percent of Local Governments with a Website

Research suggests that the percent of local governments (municipal and county) in a county with a website is a good indicator of government connectivity. A Florida Public Service Commission Report on the availability of and demand for broadband services maintains that government websites and e-government can improve the value of the Internet to businesses, residents and visitors by providing information on government services and allowing for online government transactions.[139]

U.S. Census Bureau, Census of Governments data, along with surveys, were used to assess DRA's government connectivity. Every five years, the U.S. Census Bureau surveys more than 80,000 state, county and local governments in the U.S.[140] The survey asks every county, municipal and town government if they have "official information about the central activities of your government presented on an Internet web site where the content is maintained or controlled by your government?" The percentages in Table 13 and Map 13 reflect the percent of local governments responding "yes" to the e-government question.

The use of e-government in the DRA region is below national and non-DRA averages – fewer local governments in DRA counties maintain a website than local governments in non-DRA counties. This is true across the board; in all eight DRA states, local governments within DRA counties are less likely to have a website than local governments in non-DRA counties. In, Alabama, Illinois and Tennessee, the difference between the percentage of local governments who maintain their own website in a DRA as opposed to a non-DRA county is dramatic, with a 10 to 20 percentage point difference.

TABLE 13. PERCENT OF LOCAL GOVERNMENTS WITH A WEBSITE, 2002

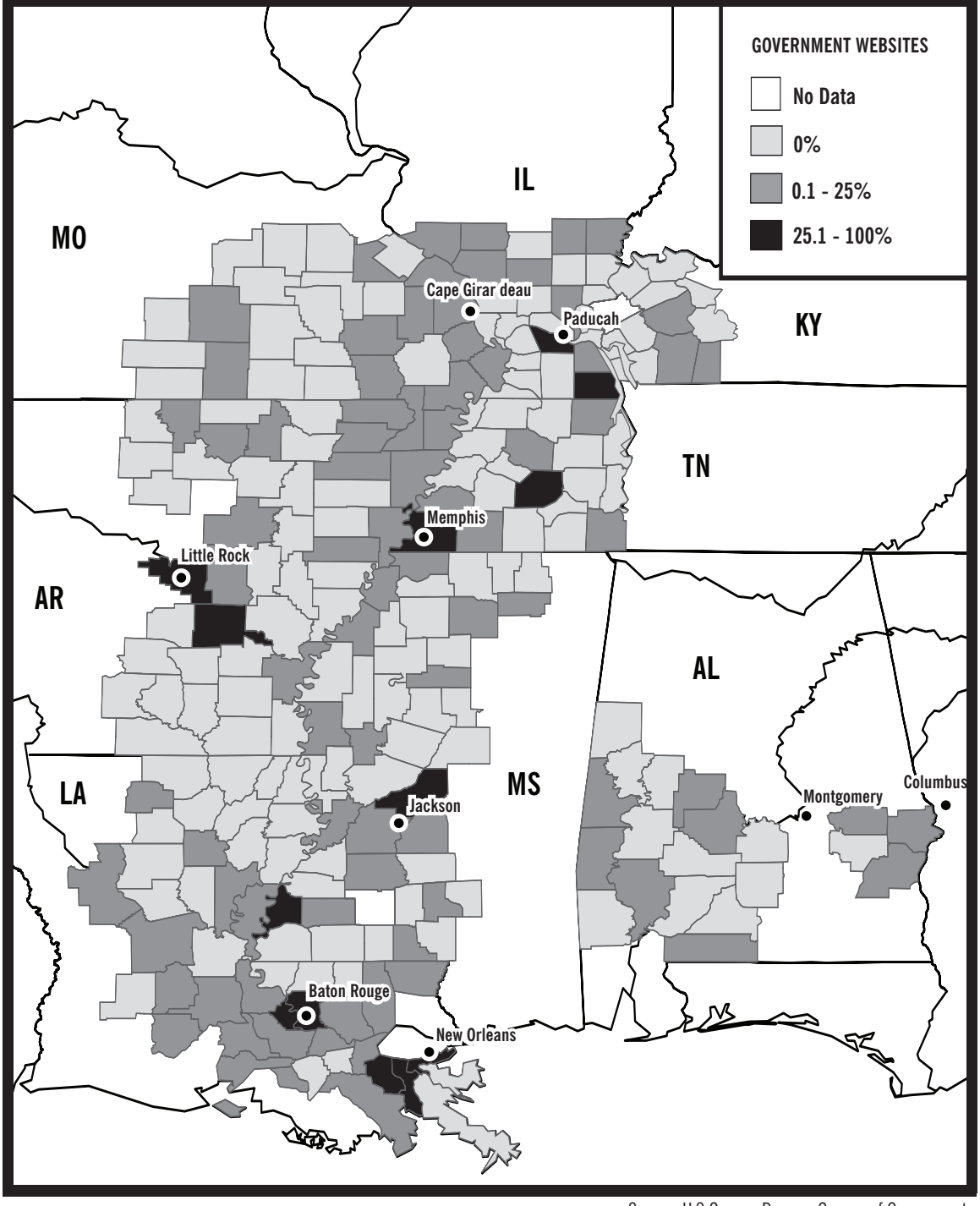
	DRA	NON-DRA	STATE
ALABAMA	13.2%	30.2%	26.9%
ARKANSAS	12.3	15.4	13.7
ILLINOIS	8.7	20.6	19.8
KENTUCKY	13.8	20.3	19.2
LOUISIANA	23.8	24.1	23.8
MISSISSIPPI	17.5	18.8	18.1
MISSOURI	13.5	19.5	18.6
TENNESSEE	16.2	35.7	29.8
DRA	**15.0**	**21.8**	–
UNITED STATES	–	–	**24.1%**

Source: U.S. Census Bureau, Census of Governments.

DRA URBAN = 39.9 PERCENT HAVE A WEBSITE

DRA RURAL = 10.7 PERCENT HAVE A WEBSITE

MAP 13. PERCENT OF LOCAL GOVERNMENTS WITH A WEBSITE, 2002



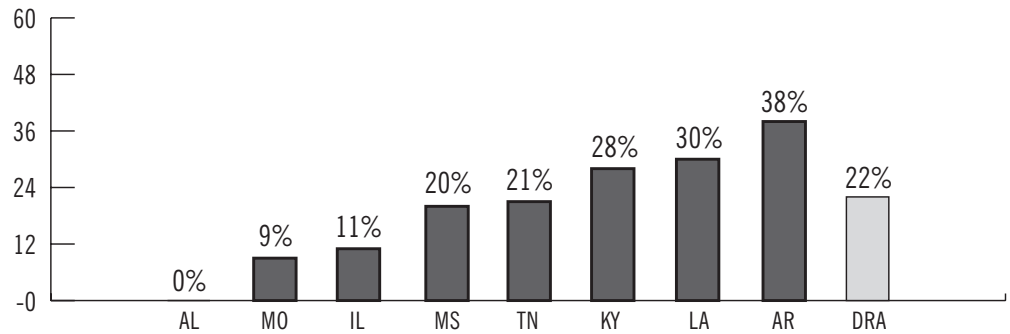
Source: U.S Census Bureau, Census of Governments

Surveys with county officials supplemented the Census of Government data on the percent of DRA governments with a website. County officials were asked, "Does your county offer any government services online?" The example question used was, "Do people in your county have the option to pay their bills or register their cars online?" Chart E reflects the county officials' responses. Slightly less than a quarter of DRA officials reported that their counties and parishes offer government services online. Crittenden, Kentucky and Adams, Mississippi were among the few rural counties enabling residents to conduct government transactions online.

The phone surveys and focus groups uncovered several interesting e-government and information technology themes:

- First, intergovernmental collaboration and regionalism is important – several DRA communities using technology in innovative ways are doing so at the countywide level, involving multiple jurisdictions in the county or on a regional, multi-county basis. For example, Adams County, Mississippi is in partnership with neighboring jurisdictions to build a multi-county GIS system.
- Second, intra-governmental cooperation is also prevalent among jurisdictions utilizing technology – several of the DRA communities using information technology in innovative ways, particularly high-speed Internet and GIS data, were doing so across government organizations, i.e. emergency response, school transportation logistics, environmental management, etc. For example, multiple agencies use St. James Parish, Louisiana's GIS system, including the tax assessor's office, public utility providers, the building permit office and the local school system.

CHART E: PERCENT OF COUNTIES AND PARISHES OFFERIING ONLINE GOVERNMENT SERVICES



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

Infant Mortality

According to the Centers for Disease Control and Prevention, infant mortality is a common health indicator "used to compare access to healthcare and well-being of populations across and within countries."[141] Infant mortality rates can indicate the need for IT applications in healthcare. The U.S. Census Bureau cites infant mortality as a "widely regarded and sensitive measure of the quality of life experienced by a population."[142] Internationally, the U.S. ranks 28th in terms of infant mortality, the low ranking largely due to the wide disparities between whites and people of color. The national infant mortality rate, the rate at which babies less than one year of age die, was 6.9 deaths per 1,000 births in 2000 compared to 14.1 deaths per 1,000 births among African-Americans.

DRA counties in seven of the eight states have infant mortality rates exceeding the national average. DRA counties in Kentucky are the only counties with infant mortality rates below the national average. In the Delta, 9.74 infants die for every 1,000 births, with infant mortality rates ranging from 11.71 deaths per 1,000 births in Tennessee to 6.13 deaths in Kentucky. The infant mortality rates for DRA residents in Kentucky, Illinois and Louisiana are better than their comparable non-DRA communities.

There is very little difference in infant mortality rates between DRA's rural and urban areas, but high county infant death rates raise cause for concern. The highest infant death rate in DRA rural counties is 32.1 deaths per 1,000 births. In DRA urban areas the highest infant mortality rate is 15 deaths per 1,000 births.

Several innovative programs present the opportunity to utilize IT while improving health outcomes. DRA's statewide and multi-state telemedicine initiatives are often federally funded and housed at university-based hospitals. The region's telemedicine programs include the Office of Emerging Health Technologies at the University of South Alabama, The University of Arkansas Antenatal and Neonatal Guidelines, Education and Learning System (ANGELS), the University of Tennessee Health Science Center and the Missouri Telehealth Network. ANGELS is designed to enhance obstetrical care in rural areas. The program uses interactive compressed video for weekly telemedicine conferences, enabling physicians to consult maternal-fetal medicine specialists about individual cases. ANGELS also provides real-time ultra-sound readings by specialists.

TABLE 14. INFANT MORTALITY RATE, INFANT DEATHS PER 1,000 BIRTHS, 2004

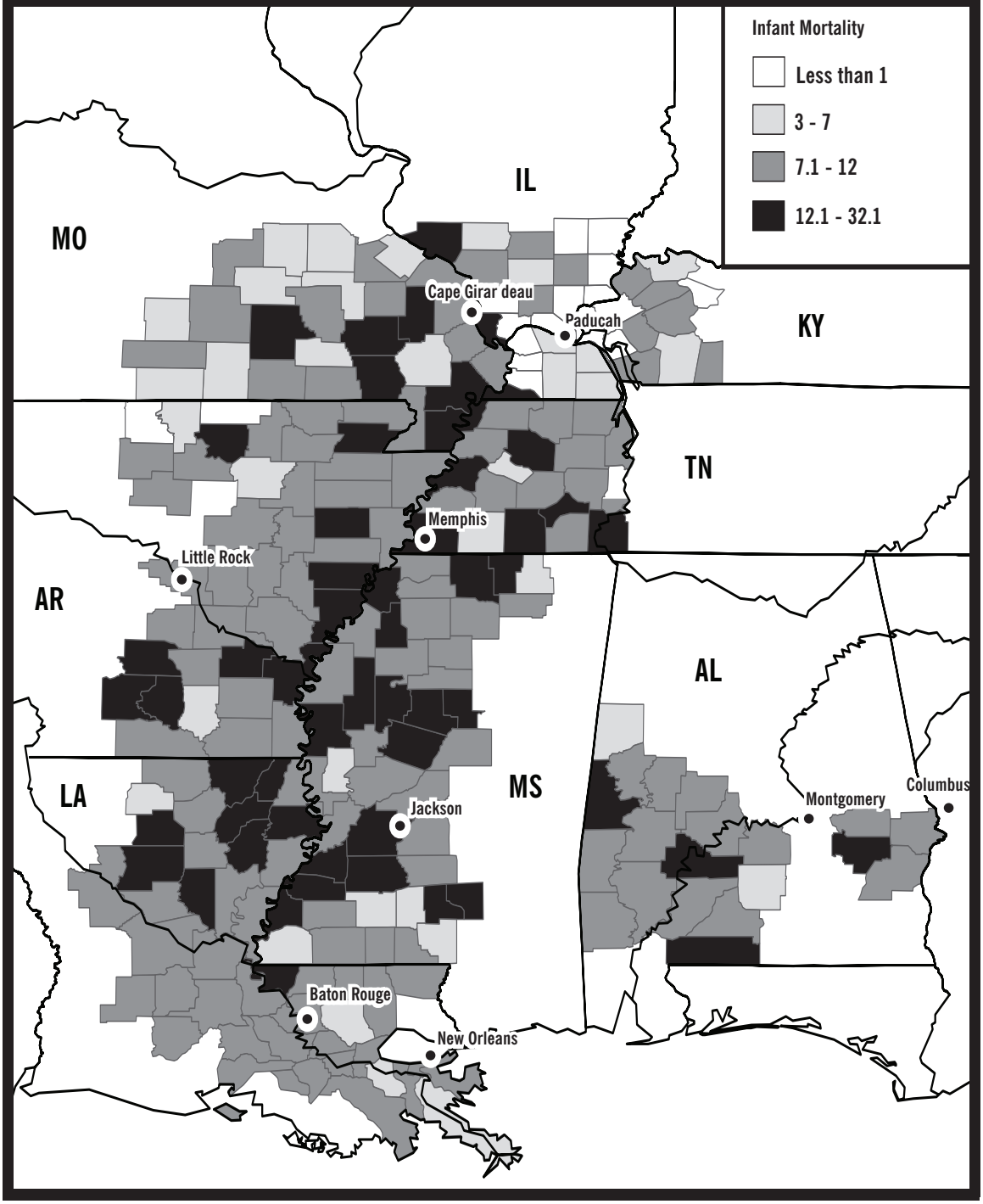
	DRA	NON-DRA	STATE
ALABAMA	10.35	9.51	9.59
ARKANSAS	9.51	6.99	8.29
ILLINOIS	7.24	8.10	8.08
KENTUCKY	6.13	6.92	6.83
LOUISIANA	9.33	9.77	9.47
MISSISSIPPI	10.88	9.51	10.22
MISSOURI	8.57	7.39	7.52
TENNESSEE	11.71	7.10	8.29
DRA	**9.74**	**7.99**	–
UNITED STATES	–	–	**6.80**

Source: March of Dimes, Perinatal Data Center, based on data from the National Center for Health Statistics

DRA URBAN = 9.94 DEATHS PER 1,000 BIRTHS

DRA RURAL = 9.52 DEATHS PER 1,000 BIRTHS

MAP 14. INFANT MORTALITY RATE, INFANT DEATHS PER 1,000 BIRTHS, 2004



Source: The March of Dimes, Perinatal Data Center, based on data from the National Center for Health Statistic

Counties with a Telemedicine Program

Broadband access and access to telemedicine is a particularly critical issue in rural communities and the DRA region. In the words of former U.S. Surgeon General C. Everett Koop, telemedicine puts "the entire world of medical science at the fingertips of even the most isolated family doctor."[143] In a recent article in *The Town Talk* in Alexandria-Pineville, Louisiana, the community developer for Health Systems Development of Central Louisiana talked about the rise of mental health issues following last year's hurricanes. Yet, "it's just not feasible to have a psychiatrist in every community," she acknowledged.[144] She is among many who see telemedicine as a model for providing mental health services in rural communities lacking such access.

Just ten years ago, a national survey of rural hospitals showed that less than a third were using telemedicine. Of those using telemedicine, more than 40 percent of the programs had been in operation one year or less. Of rural hospitals using telemedicine, 96 percent used it only for radiology.[145] The American Telemedicine Association (ATA) estimates that there are approximately 200 telemedicine networks, involving close to 2,000 medical institutions, currently in operation in the United States. According to ATA, only about half of these networks are active in providing patient care, with the other half being used primarily for administrative and educational functions.[146]

As a whole, Delta counties appear to have more access to telemedicine programs than their non-Delta counterparts. According to state and federal telemedicine funding sources, 33 percent of the DRA counties (Table 15 and Map 15) are served through a telemedicine program. In Arkansas, Louisiana and Tennessee, DRA counties and parishes are three times more likely to be served by a telemedicine program than non-DRA communities.

TABLE 15. PERCENT OF COUNTIES WITH A TELEMEDICINE PROGRAM, 2002-2004

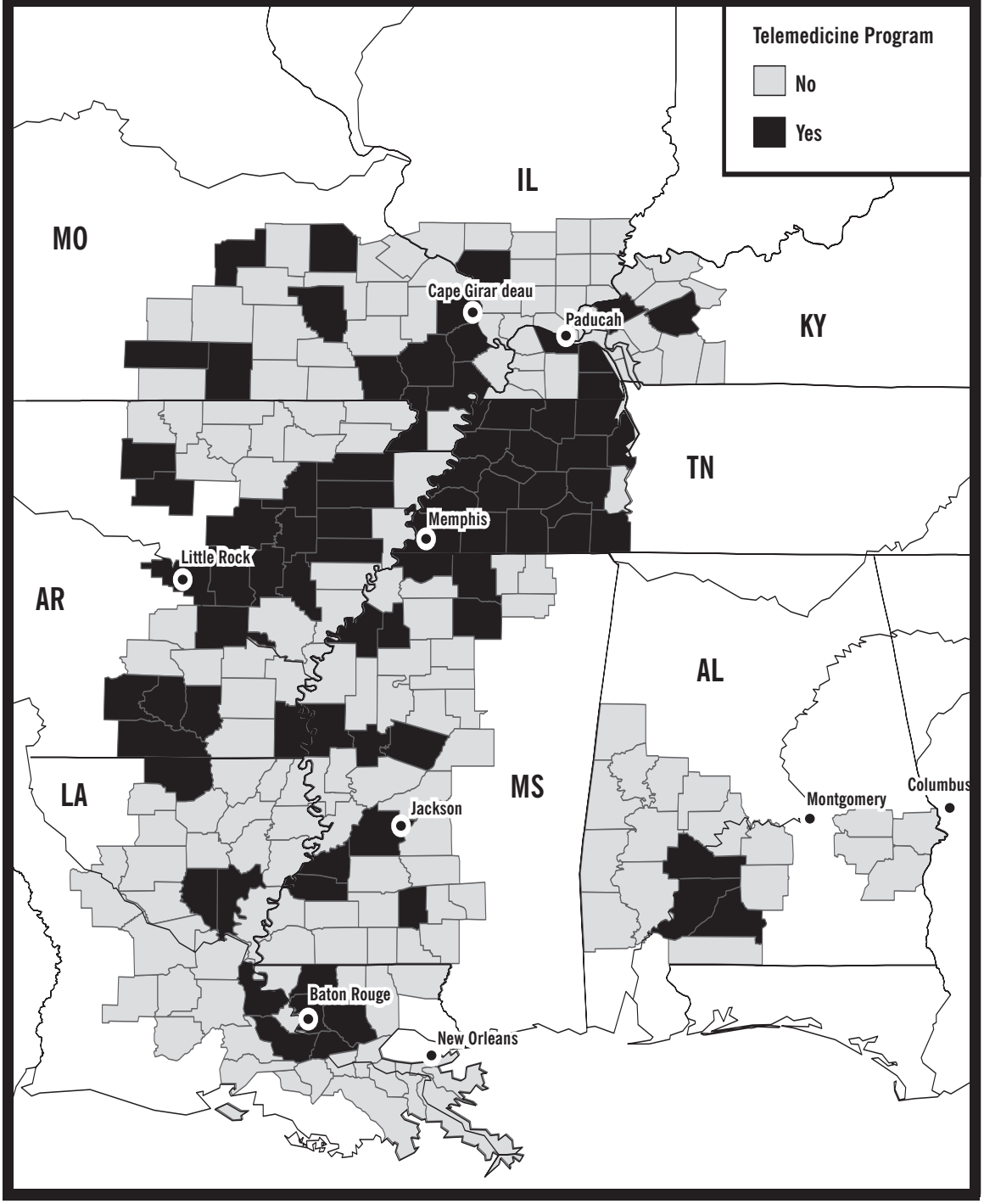
	DRA	NON-DRA	STATE
ALABAMA	15%	6%	9.0%
ARKANSAS	45.2	18.2	33.3
ILLINOIS	6.3	11.6	10.8
KENTUCKY	23.8	45.5	41.7
LOUISIANA	19.6	5.6	15.6
MISSISSIPPI	27.3	13.9	21.3
MISSOURI	37.9	36.0	36.5
TENNESSEE	95.2	25.7	41.1
DRA	**33.3**	**25.0**	–
UNITED STATES	–	–	–

Sources: U.S Department of Agriculture, Rural Development, U.S. Department of Health and Human Services, Office for the Advancement of Telehealth; Telemedicine Information Exchange, Distance Learning and Telemedicine Program; Missouri Telehealth Network; University of Tennessee Health Science Center

DRA URBAN = 40 PERCENT OF COUNTIES HAVE A TELEMEDICINE PROGRAM

DRA RURAL = 32.2 PERCENT OF COUNTIES HAVE A TELEMEDICINE PROGRAM

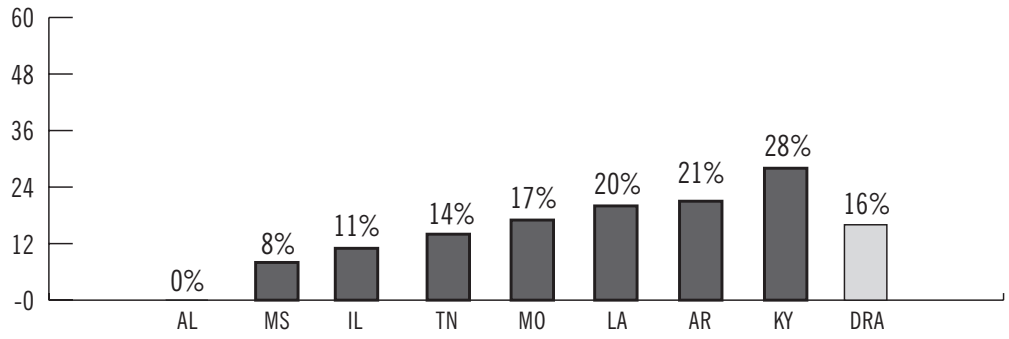
MAP 15. PERCENT OF COUNTIES WITH A TELEMEDICINE PROGRAM, 2002-2004



Sources: U.S. Dept. of Health and Human Services, Office for the Advancement of Telehealth, U.S. Dept. of Agriculture, Rural Development,Distance Learning and Telemedicine Program, Telemedicine Information Exchange, Missouri Telehealth Network, University of Tennessee Health Science Center

Even though telemedicine programs are available, many of the region's county and parish officials are unaware of this telemedicine advantage. County officials were asked, "Is there a telemedicine program in your county?" Chart F presents the percent of officials responding "yes" by state. Although 33 percent of DRA counties have access to a telemedicine program, only 16 percent of county administrators are aware of these programs (Chart F). Telemedicine and broadband Internet access can be used as tool to improve access to healthcare and reduce costs, but residents must be aware of and capitalize on these benefits.

CHART F: PERCENT OF COUNTY OFFICIALS AWARE OF TELEMEDICINE PROGRAM IN THEIR JURISDICTION



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

PRIVATE SECTOR UTILIZATION

According to researchers at the Federal Reserve Bank of Atlanta, "The pace of technological progress in high tech industries…will be a key driver of productivity growth going forward."[147] Information technology plays an important role in the production of new products and services. The utilization of information technology leads to more innovation, greater productivity, improvement in products and services and other aspects of business profitability.[148]

Two types of companies – companies producing IT goods and services and companies using or consuming IT goods and services – drive the digital economy and play a large role in shaping the economic development landscape.[149] From 1996-2001, U.S. labor productivity grew by two percent, with investments in and the use of IT accounting for a third of this growth.[150] Technology-related investment by non-IT producing companies doubled from $243 billion in 1995 to $510 billion in 1999.

Entrepreneurship

Technology and broadband access serve as the cornerstones of productivity, innovation and entrepreneurship. According to the U.S. Small Business Administration, "both entrepreneurship (new firms and growing firms) and innovation (patents, R&D and hi-tech industries) are drivers in the growth of regional economies…Innovative regions need entrepreneurship to more fully develop local economies. Most importantly, entrepreneurial regions are likely to be associated with higher levels of technology."[151] A Kentucky County Judge described his view of rural entrepreneurship and technology when he said, "Traditional economic development as we know it is now dead. What I mean is – basic manufacturing is dead. The future lies in technology and access to the worldwide market. To be successful we've got to have entrepreneurs and grow our economy from the inside out…"

Information technology, computers and broadband access provide small- and medium-sized companies with access to new markets, increased productivity and other tools for competitiveness. According to the U.S. Department of Commerce report, *Main Street in the Digital Age: How Small and Medium-Sized Businesses Are Using the Tools of the New Economy*, small- and medium-sized firms invest a quarter of their budgets, the same proportion as large firms, into information technology. The report also notes that "broadband access, such as that provided by fiber optics, digital subscriber lines and certain wireless technologies, make it possible for a business to conduct a greater variety of online activities," but cites the high cost of infrastructure as a potential barrier to increased utilization for small- and medium-sized companies.[152] Computer ownership is closely linked to the likelihood of becoming an entrepreneur. According to the U.S. Small Business Administration report, *Technology and Entrepreneurship: A Cross-Industry Analysis of Access to Computers and Self-Employment*, "the evidence suggests that having access to a home computer is associated with the probability of becoming an entrepreneur."[153]

The DRA's overall proprietorship rates mirror the nation, but entrepreneurship, as measured by self-employment, is more important in DRA's rural areas. Proprietorship as a percent of total employment acts as a proxy for entrepreneurship by measuring the percent of workers that rely on self-employment as a source of income. Table 16 and Map 16 highlights entrepreneurship rates for the nation and in DRA and non-DRA counties. Eighteen percent of American and DRA workers are self-employed, but the data suggests that self-employment is more important in DRA's more rural areas. DRA counties in four states – Alabama, Illinois, Mississippi and Missouri – exhibit proprietorship rates, or above non-DRA counties. Entrepreneurship rates are highest in Missouri's DRA counties, where 26 percent of all workers rely on self-employment. The DRA counties in Missouri, Illinois and Alabama are all or mostly rural, with proprietorship rates above state and national averages.

The Black Belt Treasures program marries technology and entrepreneurship by selling the products of Alabama's DRA artisans online. This initiative, a partnership between the regional planning district, regional resource conservation and development organization and the University of Alabama, boosts rural entrepreneurship and tourism in the heart of Alabama's DRA region. In its first year of operation in 2005, Black Belt Treasures earned more than $150,000 for local artisans, a substantial amount of revenue for a region with fewer than 26 people per square mile and a per capita income $6,000 below the state average.

TABLE 16. PROPRIETORSHIP AS A PERCENT OF EMPLOYMENT, 2003

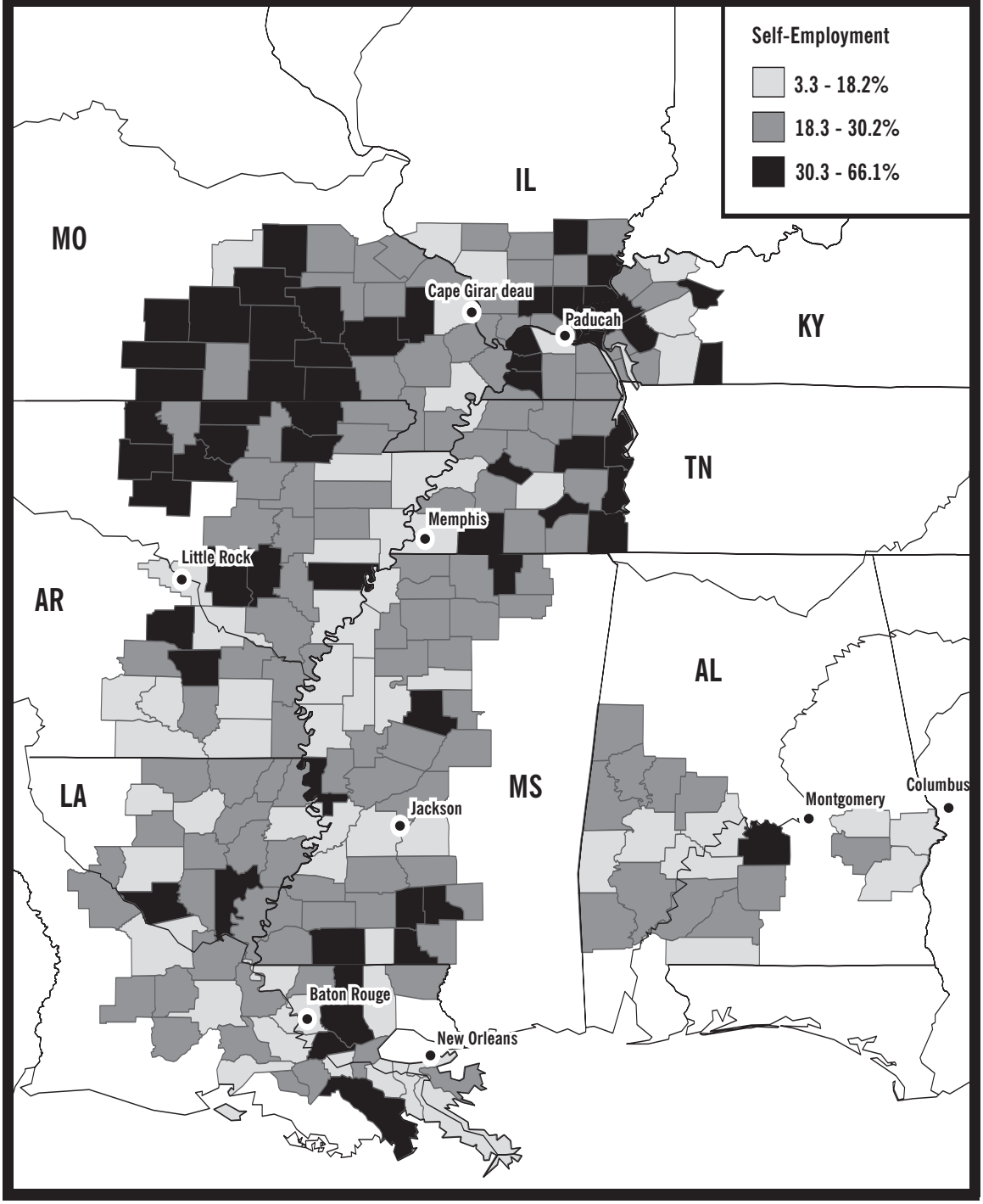
	DRA	NON-DRA	STATE
ALABAMA	19.3%	16.8%	17.0%
ARKANSAS	18.1	20.7	19.3
ILLINOIS	23.1	16.2	16.3
KENTUCKY	18.2	18.3	18.3
LOUISIANA	16.5	16.7	16.6
MISSISSIPPI	18.3	17.4	17.9
MISSOURI	25.6	18.2	18.9
TENNESSEE	16.6	21.1	19.9
DRA	**18.0**	**17.7**	–
NATIONAL	–	–	**17.9%**

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts

DRA RURAL = 22.4% OF WORKERS ARE SELF-EMPLOYED

DRA URBAN = 14.9% OF WORKERS ARE SELF-EMPLOYED

MAP 16. PROPRIETORSHIP AS A PERCENT OF EMPLOYMENT, 2003



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts

High Tech Companies and E-commerce

The availability and awareness of broadband plays a significant role in the types of companies that are created, business growth and survival rates and wage growth. According to the report, *Measuring Broadband's Economic Impact*, broadband access "does enhance economic growth and performance."[154] The analysis of broadband access between 1998 and 2002 found a positive and statistically significant relationship between high-speed Internet utilization and employment growth and the number of companies in IT intensive industries. Underscoring the importance of rural broadband access, Craig Mundie, Microsoft Chief Technology testified before Congress about the potential of broadband access to overcome geographic and economic isolation allowing rural entrepreneurs to build high growth companies.[155] Despite the benefits of information technology, rural companies do not utilize information technology and high-speed Internet access at the rate of their urban contemporaries.

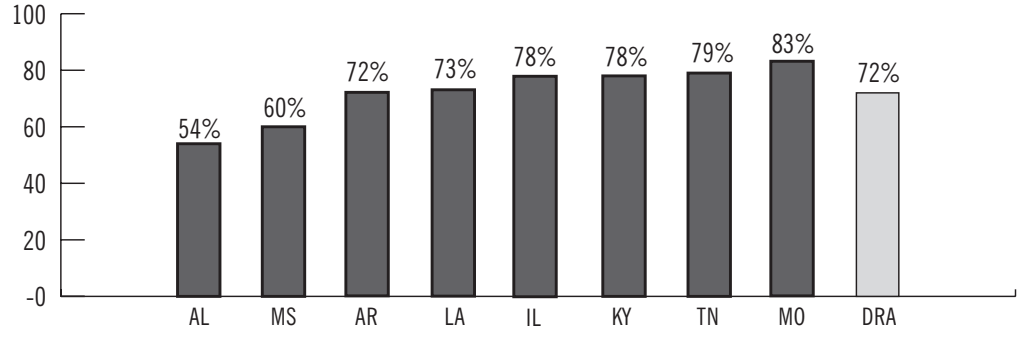
Many of DRA's entrepreneurs do not capitalize on the available technology. According to the Progressive Policy Institute's *New Economy Index*, six of the eight DRA states ranked below the national average in terms of the number of farmers with Internet access and using computers.

The New Economy Index also benchmarks the education level of the manufacturing workforce as a proxy for high tech manufacturing. Kentucky and Illinois ranked among the states with the highest proportion of technologically advanced manufacturing firms. While not specifically geared toward manufacturing, Southern Growth's survey revealed similar results. When asked, "Are there any high technology companies in your county?" 78 percent of Kentucky county managers responded, "yes," the highest percentage in the DRA region.

Southern Growth also interviewed county administrators regarding the presence of local companies engaging in e-commerce. The e-commerce data (see Chart G) combined with the presence of high technology firms (see Chart H) paints a picture of possible opportunity in the DRA region. The majority of DRA communities have local companies that engage in e-commerce – 72 percent of the county and parish managers identified one or more local businesses engaging in e-commerce. High technology firms in emerging industries also sprinkle the Delta landscape, particularly in auto, composites and biofuels manufacturing.

Tallahatiche, Mississippi, a rural Delta community, serves as home to two locally based manufacturers – Kirkland Boats and Charleston Industries – that use technology both during the manufacturing process and in marketing their goods. Kirkland Boats designs and manufactures high end, customized fiberglass boats and yachts. Charleston Industries specializes in industrial signs for hospitals, businesses and other

CHART G: PERCENT OF COUNTIES WITH COMPANIES THAT SELL THEIR PRODUCTS OVER THE INTERNET

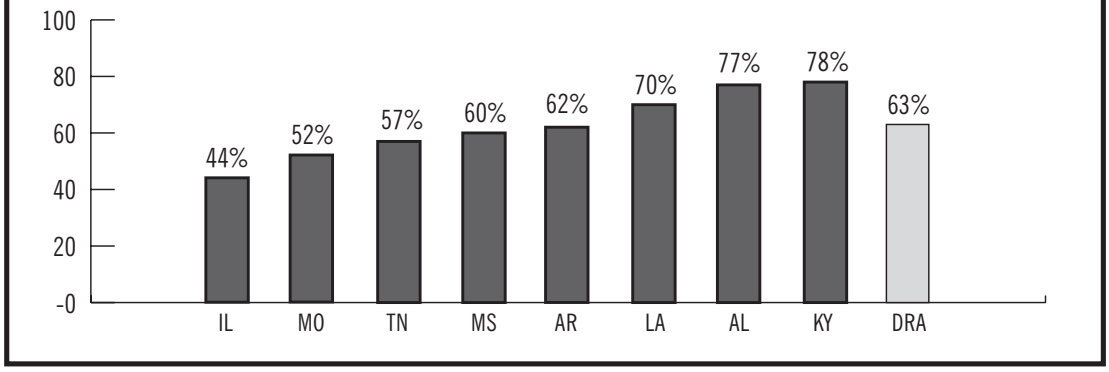


Source: Information Technology for Economic Development Phone Surveys, Spring 2006

commercial facilities. Both companies, located in the heart of the Mississippi Delta, use broadband and other information technologies to produce, market and sell their goods to national and international customers.

West Carroll Parish, Louisiana is just one of the communities increasing IT utilization through a partnership with their university extension office. Largely a rural parish, West Carroll farmers collaborate with extension agents and scientists to promote agricultural innovations. Local sweet potato and rice farmers are currently exploring opportunities to use their crops in bio-fuel manufacturing. Once the largest employer in Grant Parish, Louisiana, the Farmland ammonia plant in Grant was retrofitted by a co-operative of timber producers to create a new company, Vanguard SynFuels, LLC. According to the Louisiana Farm Bureau, Vanguard, an alternative fuel manufacturer, "is poised to be one of the largest producers of bio-diesel in the Gulf States"[156]

CHART H: PERCENT OF COUNTIES WITH HIGH TECHNOLOGY COMPANIES



Source: Information Technology for Economic Development Phone Surveys, Spring 2006

AFFORDABILITY

Even when high-speed Internet services are available, the lack of affordable broadband service prohibits DRA residents' access to and awareness of IT. Survey and focus group participants routinely identified the high cost of broadband as a barrier to IT utilization. The lack of affordable broadband services stems from two root causes:

(1) **ECONOMIC BARRIERS:** The average per capita incomes of DRA counties are below national per capita income levels.

(2) **THE ABSENCE OF COMPETITION**: A third of DRA communities have only one phone service provider. This lack of competition tends to increase the cost of services.

Economic Barriers

Numerous reports by the National Telecommunications and Information Administration document lower computer and Internet utilization rates among the poor. With per capita income levels $5,000 below the national average, the cost of broadband may prohibit many DRA residents from capitalizing on available technology. The economic gap between DRA and non-DRA communities is widest in Alabama, Illinois and Missouri, states whose DRA regions are largely rural. Despite these economic gaps, public-private partnerships like the Louisiana Rural Internet Connection and ConnectKentucky are addressing this digital divide.

Inspired by the 1998 publication, *Falling Through the Net II*, which pointed out that rural low-income African-Americans are the least connected group in America, Grambling University created the Louisiana Rural Internet Connection (LaRINC). LaRINC, funded through the former U.S. Department of Commerce Technology Opportunities Program, served five Louisiana DRA Parishes and partnered with African-American churches to identify and place personal computers in the homes of 50 rural families. LaRINC provided thousands of low-income rural African-Americans with Internet education and job training at community centers and churches.[157] Having computers and Internet access in the home for two years significantly improved the quality of life and academic achievement of the students. More parents and caretakers used the Internet to find out health information and education opportunities for their children. In fact, from the beginning to the end of the LaRINC program, the number of students on the honor roll increased by 78 percent.

ConnectKentucky, through its No Child Left Offline program, places refurbished computers in the homes of Kentucky's low-income families to address the state's connectivity issues. Recent data indicates that Kentucky ranks 40th nationally in household computer ownership and 42 percent of Kentuckians claim that the lack of computer hardware is the primary barrier to broadband adoption. No Child Left Offline aggregates usable computers from every agency in Kentucky state government and private sponsors like Microsoft Corporation, CA, Inc. and Lexmark International support the initiative by donating software and printers. Working closely with local school systems to target low-income students, the No Child Left Offline pilot program has distributed more than 2,000 computers and printers to eighth grade students in the Appalachian region.

TABLE 17. PER CAPITA INCOME, 2003

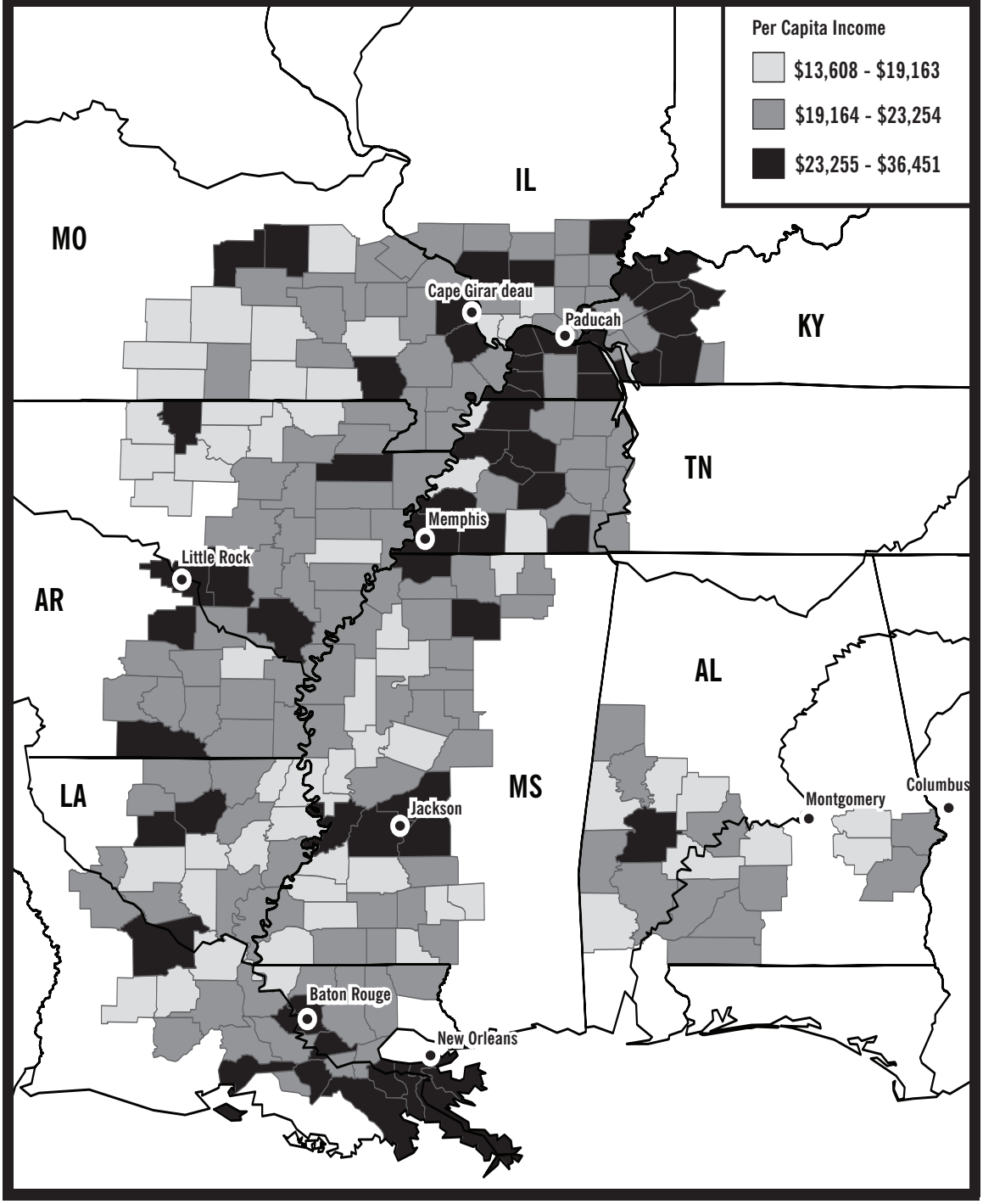
	DRA	NON-DRA	STATE
ALABAMA	$20,484	$27,154	$26,505
ARKANSAS	$24,961	$23,774	$24,384
ILLINOIS	$22,030	$33,270	$32,965
KENTUCKY	$24,783	$26,819	$26,575
LOUISIANA	$26,138	$26,693	$26,312
MISSISSIPPI	$23,770	$23,135	$23,466
MISSOURI	$22,066	$30,428	$29,464
TENNESSEE	$29,915	$28,195	$28,641
DRA	**$25,426**	**$29,675**	–
UNITED STATES	–	–	**$31,472**

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts

DRA URBAN = $29,141 PER CAPITA PERSONAL INCOME

DRA RURAL = $21,546 PER CAPITA PERSONAL INCOME

MAP 17. PER CAPITA INCOME, 2003



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts

The Absence of Competition

Companies have been slow to deploy broadband in rural areas due to cost, lack of demand and low revenue opportunities. Nearly all small or privately owned telephone companies offer dial up.[158] Price, often a $25 or more premium when comparing broadband to dial up, hinders the adoption of new technologies even when the service is available.[159] According to the National Rural Telecommunications Cooperative (NRTC), "Competition from other broadband providers is playing a role in rural telcos' broadband investment decisions, with 85 percent saying they face competition from cable and satellite TV companies as well as national Internet service providers."[160] Ninety-nine percent of rural telco's provide broadband Internet access and 71 percent of companies plan to offer new technologies like voice over Internet Protocol (VoIP), a technology that allows individuals to make telephone calls using a broadband Internet connection, due to competition.

DRA communities in only four states have more phone competition than the national average – Kentucky, Louisiana, Mississippi and Tennessee. As shown in Table 18 and Map 18, thirty-four percent of DRA counties and parish zip codes lack a competitive local exchange carrier compared to the national average of 28 percent. Similar to the percent of zip codes without a high-speed Internet service provider (Table 1) results, Kentucky is the only state to have more phone competition in the DRA region than in non-DRA counties. Twenty-three percent of zip codes in Kentucky's DRA counties lack phone competition compared to 31 percent of counties outside the DRA region. Despite lower per-capita income levels, Kentucky's DRA counties are more connected than their non-DRA counterparts.

In addition to their No Child Left Offline Initiative, ConnectKentucky reduces the cost of Internet services by aggregating broadband Internet demand and providing incentives for infrastructure investment and deployment. ConnectKentucky develops and recommends legislation to create incentives for private sector investments for deployment of broadband in underserved areas.[161]

TABLE 18. PERCENT OF ZIP CODES WITHOUT A COMPETITIVE LOCAL EXCHANGE CARRIER, 2005

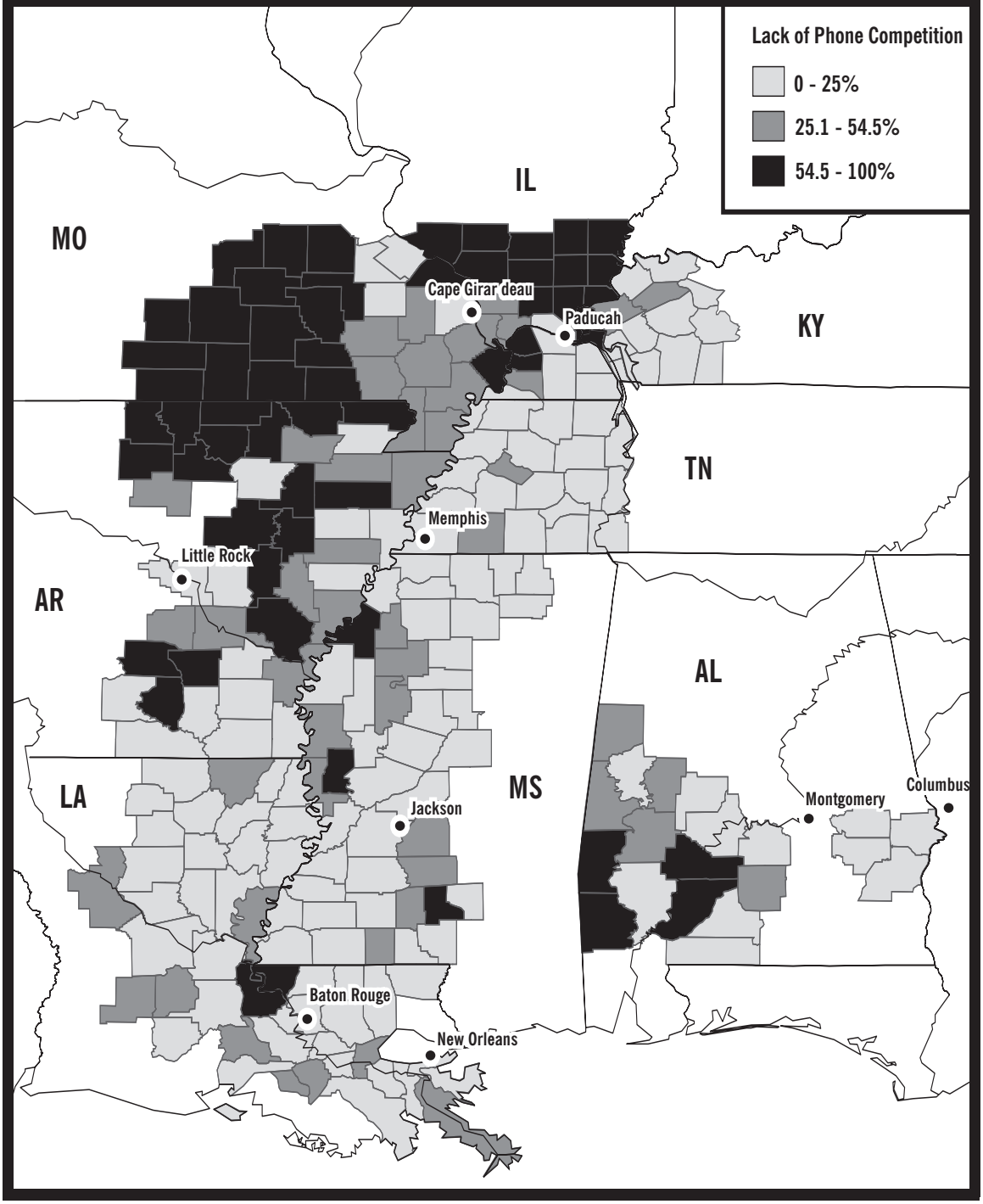
	DRA	NON-DRA	STATE
ALABAMA	42%	19%	24%
ARKANSAS	49	52	50
ILLINOIS	64	34	37
KENTUCKY	23	31	30
LOUISIANA	18	16	17
MISSISSIPPI	19	15	17
MISSOURI	63	46	50
TENNESSEE	5	2	3
DRA	**34**	**30**	–
UNITED STATES	–	–	**28%**

Source: Federal Communications Commission (FCC); Local Telephone Competition and Broadband Deployment, Form 477, 12/31/04
* The Southern Growth data set includes more zip codes than used in the FCC analysis (see appendix for details).

DRA URBAN = 12.9 PERCENT OF ZIP CODES WITHOUT A CLEC

DRA RURAL = 40.1 PERCENT OF ZIP CODES WITHOUT A CLEC

MAP 18. PERCENT OF ZIP CODES WITHOUT A COMPETITIVE LOCAL EXCHANGE CARRIER, 2005



Source: Federal Communications Commission and ZIP-Codes.com (Proprietary ZIP Codes database)

ENDNOTES

1 U.S. Department of Commerce, National Telecommunications and Information Administration. *A Nation Online: Entering the Broadband Age.* http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.pdf.

2 U.S. Department of Commerce, National Telecommunications and Information Administration. *Falling Tthrough the Net: Toward Digital Inclusion*. January 2000. http://search.ntia.doc.gov/pdf/fttn00.pdf.

3 Oden, M. and Strover, Sharon, et al. *Links to the Future: The Role of Information and Telecommunications Technology in Appalachian Economic Development* (Washington, D.C.: Appalachian Regional Commission, June 2002). http://www.arc.gov/index.do?nodeId=1007.

4 The Delta Regional Authority. *Programs to Advance the Delta.* http://www.dra.gov/programs/information-technology/.

5 Economics and Statistics Administration, U.S. Department of Commerce. *Digital Economy 2003*. December 2003. http://www.esa.doc.gov/2003.cfm.

6 DeBacker, J., Hotchkiss, J., et al. *It's Who You Are and What You Do: Explaining the IT Industry Wage Premium*. The Federal Reserve Bank of Atlanta *Economic Review*. Third Quarter 2005. pg 39. http://www.frbatlanta.org/filelegacydocs/erq305_robertson.pdf.

7 Oden and Strover. pg. 27.

8 President Bush on Homeownership, Expo New Mexico, Albuquerque, New Mexico, March 26, 2004, available at http://www.whitehouse.gov/news/releases/2004/03/20040326-9.html.

9 National Conference of State Legislatures. Bill Gates Urges Legislatures to Strengthen K-12 Education. August 2005. http://www.ncsl.org/programs/press/2005/pr050818gates.htm.

10 *The President's Small Business Agenda.* http://www.whitehouse.gov/infocus/smallbusiness/agenda.html.

11 Henderson, Jason. *Building the Rural Economy with High Growth Entrepreneurs*. Federal Reserve Bank of Kansas City. (2002). http://www.kc.frb.org/PUBLICAT/ECONREV/PDF/3Q02hend.pdf.

12 Pociask, Stephen. *Broadband Use by Rural Small Businesses.* U.S. Small Business Administration. http://www.sba.gov/advo/research/rs269tot.pdf.

13 Davis, Karen. et. al. *Health and Productivity among U.S. Workers. Commonwealth Fund Issue Brief,* August 2005. http://www.cmwf.org/usr-doc/856_davis_hlt_productivity-usworkers.pdf.

14 From the third Presidential debate, as quoted by the Information Technology Association of America in a letter to the U.S. Secretary of Health and Human Services. December 2004. http://www.itaa.org/eweb/upload/newHHSSecretary.pdf#search=%22Mike%20Leavitt%20health%20and%20productivity%22.

15 All of the county and parish administrator contact information came from the National Association of Counties website at http://www.naco.org.

16 See profile at http://www.netday.org/comm_msdelta.htm.

17 Vander Veen, Chad. "Technology and the Three R's," *Government Technology*, June 1, 2006 (Folsom, CA: e-Republic, Inc., 2006). Available at http://www.govtech.net/magazine/story.print.php?id=99705.

18 Ibid.

19 U.S. Bureau of the Census, 2003 Current Population Survey, Table 7 at http://www.census.gov/population/socdemo/computer/2003/tab07.xls.

20 See U.S. Department of Labor, Bureau of Labor Statistics, *Fastest Growing Occupations*, 2004-14 at http://www.bls.gov/emp/emptab21.htm.

21 Griffin, Dianne. *Technology Use in Rural High Schools Improves Opportunities for Student Achievement* (Atlanta, GA: Southern Regional Education Board, March 2005). Available at http://www.sreb.org/programs/EdTech/pubs/PDF/05T01-TechnologyUseinRuralHS.pdf.

22 Good, Dixie Griffin. *Investing in K-12 Technology Equipment: Strategies for State Policymakers* (Denver, CO: Education Commission of the States, 2001). Available at http://www.ecs.org/clearinghouse/23/39/2339.htm.

23 Hammond, Kristen and Judy Salpeter. "Cutting the Cord: Wireless Computing Comes of Age," *2006 CoSN Compendium* (Washington, D.C.: Consortium for School Networking, 2006). Available at http://www.cosn.org/resources/compendium/3.pdf.

24 *Our Voices, Our Future* (Irvine, CA: Netday, April 2006). Available at http://www.netday.org/SPEAKUP/pdfs/SpeakUpReport_05.pdf.

25 See http://www.pewinternet.org/pipcomments.asp?m=7&y=2005.

26 U.S. Department of Education, National Center for Education Statistics, "Internet Access in U.S. Public Schools, Fall 2003," Fast Response Survey System 86, Tables 1 and 2. Available at http://nces.ed.gov/surveys/frss/publications/2005015/.

27 Ibid. Table 3.

28 *Technology Counts 2006*, Vol. 25, Issue 35 (Bethesda, MD: Education Week/Editorial Projects in Education, Inc., May 2006). Available at http://www.edweek.org/ew/toc/2006/05/04/index.html.

29 U.S. Department of Education, National Center for Education Statistics, "Internet Access in U.S. Public Schools, Fall 2003," Fast Response Survey System 86, Table 5. Available at http://nces.ed.gov/surveys/frss/publications/2005015/.

30 *Wireless Technology in Education: Moving from Pilots to Mainstream* (Los Altos, CA: Peak Group, 2002). Available at http://www.peakgroup.net/wte.html#anchor1.

[31] U.S. Department of Education, National Center for Education Statistics, "Internet Access in U.S. Public Schools, Fall 2003," Fast Response Survey System 86, Table 12. Available at http://nces.ed.gov/surveys/frss/publications/2005015/.

[32] Watson, John and Jennifer Ryan. *Keeping Pace With K-12 Online Learning: A Review of State-Level Policy and Practice* (Vienna, VA: North American Council for Online Learning, November 2006). Available at http://www.nacol.org/resources.

[33] Allen, I. Elaine and Jeff Seaman. *Growing by Degrees: Online Education in the United States, 2005* (Needham, MA: The Sloan Consortium, November 2005). Available at http://www.sloan-c.org/publications/survey/pdf/growing_by_degrees.pdf.

[34] Available at http://www.electronic-school.com/2001/09/0901fl.html.

[35] Setzer, Carl and Laurie Lewis. *Distance Education Courses for Public Elementary and Secondary School Students: 2002-03*, NCES 2005-010 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2005). Available at http://nces.ed.gov/pubs2005/2005010.pdf.

[36] Cavanaugh, Cathy, Kathy Jo Gillan, Jeff Kromrey, Melinda Hess and Robert Blomeyer. *The Effects of Distance Education on K-12 Student Outcomes: A Meta-Analysis* (Naperville, IL: Learning Point Associates, October 2004). Available at http://www.ncrel.org/tech/distance/K12distance.pdf. Smith, Rosina, Tom Clark and Robert Blomeyer. *A Synthesis of New Research on K-12 Online Learning* (Naperville, IL: Learning Point Associates, November 2005). Available at http://www.ncrel.org/tech/synthesis/synthesis.pdf.

[37] Gauthier, Dianne and Leinda Peterman. *A Study of the Effectiveness of the Louisiana Algebra I Online Program* (Newton, MA: Center for Online Professional Education, nd). Available at http://www.nacol.org/resources/presentations/NACOL%20-%20LA%20AlgI%20Peterman.pdf.

[38] *Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students are Revolutionizing Expectations* (Washington, D.C.: U.S. Department of Education, January 2005). Available at http://www.NationalEdTechPlan.org.

[39] *Technology Counts* 2006, Vol. 25, Issue 35 (Bethesda, MD: Education Week/Editorial Projects in Education, Inc., May 2006). Available at http://www.edweek.org/ew/toc/2006/05/04/index.html.

[40] Web-Based Education Commission. *The Power of the Internet for Learning: Moving from Promise to Practice* (Washington, D.C.: U.S. Department of Education, December 2000). Available at http://www.ed.gov/offices/AC/WBEC/FinalReport/index.html.

[41] Griffin, Dianne. *Technology Use in Rural High Schools Improves Opportunities for Student Achievement* (Atlanta, GA: Southern Regional Education Board, March 2005). Available at http://www.sreb.org/programs/EdTech/pubs/PDF/05T01-TechnologyUseinRuralHS.pdf.

[42] Association of Telehealth Service Providers - http://www.atsp.org/telemedicine/glossary.asp?ContentID=416 – Telemedicine Glossary.

[43] *Innovation, Demand and Investment in Telehealth* (Washington, D.C.: U.S. Department of Commerce, Office of Technology Policy, February 2004), p. 26. Available at http://www.technology.gov/reports/techpolicy/telehealth/2004report.pdf.

[44] U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, *National Health Expenditure Data*, at http://www.cms.hhs.gov/NationalHealthExpendData/.

[45] U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, *National Health Expenditure Data*, at http://www.cms.hhs.gov/NationalHealthExpendData/downloads/nhestatesummary2004.pdf.

[46] *Innovation, Demand and Investment in Telehealth* (Washington, D.C.: U.S. Department of Commerce, Office of Technology Policy, February 2004), p. 22.

[47] Hillestad, Richard and James Higelow. "Health Information Technology: Can HIT Lower Costs and Improve Quality?" *Research Brief* (Santa Monica, CA: Rand Corporation, 2004). Available at http://www.rand.org/pubs/research_briefs/RB9136/.

[48] Litan, Robert. *Great Expectations: Potential Economic Benefits to the Nation From Accelerated Broadband Deployment to Older Americans and Americans With Disabilities* (New Millennium Research Council, December 2005). Available at http://www.newmillenniumresearch.org/archive/Litan_FINAL_120805.pdf.

[49] See the CDC's *Chronic Disease Overview* at http://www.cdc.gov/nccdphp/overview.htm.

[50] See http://www.statehealthfacts.org.

[51] Committee on the Future of Rural Health Care. "Rural Health Care in the Digital Age," in *Quality Through Collaboration: The Future of Rural Health Care* (Washington, D.C.: The National Academies Press, 2005). Available at http://www.nap.edu/books/0309094399/html/R1.html.

[52] *Innovation, Demand and Investment in Telehealth* (Washington, D.C.: U.S. Department of Commerce, Office of Technology Policy, February 2004), p. 64.

[53] Conte, Chris. *Networking for Better Care: Health Care in the Information Age* (Washington, D.C.: Benton Foundation, 1999). Available at http://www.benton.org/publibrary/health/home.html.

[54] Fox, Suzanne. *Health Information Online* (Washington, D.C.: Pew Internet and American Life Project, May 2005). Available at http://207.21.232.103/pdfs/PIP_Healthtopics_May05.pdf.

[55] Southern Governors' Task Force on Medical Technology. *From Promise to Practice: Improving Life in the South Through Telemedicine* (Washington, D.C.: Southern Governors' Association, September 1999), p. 6. Available at http://www.southerngovernors.org/publications/pdf/tfmtreport.pdf.

[56] Scorsone, Eric. *The Economic Impact of the Health Care Sector within the Western Kentucky Rural Healthcare Network: The Economic Impact on Caldwell, Crittenden, Livingston, Marshall, Trigg & Union Counties* (Lexington, KY: Kentucky Rural Health Works, August 2004). Available at http://www.ca.uky.edu/krhw/pubs/04aug-wkrhn-impact.pdf.

[57] Wenske, Paul. "Wireless Broadband Would Boost Telemedicine," *Government Technology* (Folsom, CA: e.Republic, Inc., Jan. 19, 2006). Available at http://www.govtech.net/digitalcommunities/story.print.php?id=97967.

[58] Alliance for Public Technology. *Advanced Services, Enhanced Lives: An Examination of Broadband Application Case Studies and Policy Recommendations to Accelerate Deployment*. Available at http://www.apt.org/publications/reports-studies/casestudy.pdf.

[59] Litan, Robert. *Great Expectations: Potential Economic Benefits to the Nation From Accelerated Broadband Deployment to Older Americans and Americans With Disabilities* (New Millennium Research Council, December 2005). Available at http://www.newmillenniumresearch.org/archive/Litan_FINAL_120805.pdf.

[60] See OECD Broadband Statistics, December 2005, at http://www.oecd.org/document/39/0,2340,en_2649_34225_36459431_1_1_1_1,00.html.

[61] *E-Government Strategic Planning: A White Paper* (Washington, D.C.: National Electronic Commerce Coordinating Committee, December 2000). Available at http://www.ec3.org/Downloads/2000/Planning_Document.pdf.

[62] West, Darrell. *State and Federal E-Government in the United States, 2006* (Providence, RI: Taubman Center for Public Policy, Brown University, August 2006). Available at http://www.insidepolitics.org/egovt06us.pdf.

[63] *Digital Cities Survey, 2005* (Folsom, CA: e-Republic, Inc., 2006). Available at http://www.nlc.org/content/Files/CDG06REPORTDigCities.pdf.

[64] U.S. Census Bureau, *2002 Census of Governments*.

[65] See http://www.whitehouse.gov/omb/egov/g-4-act.html for more information on the E-Government Act of 2002 and the federal E-GOV initiative.

[66] *Cities on the Internet 2001: E-Government Applied* (Santa Monica, CA: Civic Resource Group, August 2001). Available at http://www.digitalgovernment.org/library/library/pdf/egov_executive_brief.pdf.

[67] Ibid.

[68] See http://kycares.ky.gov.

[69] Siefert, Jeffrey and Harold Relyea. "Considering E-Government from the U.S. Federal Perspective: An Evolving Concept, A Developing Practice," *Journal of E-Government*, Vol. 1, No. 1 (Haworth Press, 2004). Available at http://www.haworthpress.com/store/SampleText/J399.pdf.

[70] *Government in the Digital Age: Myths, Realities and Promises* (Lexington, KY: National Electronic Commerce Coordinating Council, 2004). Available at http://www.ec3.org/Downloads/2004/Govt_Digital_Age.pdf.

[71] Moon, M. Jae. *From E-Government to M-Government? Emerging Practices in the Use of Mobile Technology by State Governments* (Washington, D.C.: IBM Center for the Business of Government, November 2004). Available at http://www.businessofgovernment.org/pdfs/MoonReport2.pdf.

[72] Townsend, Anthony. *Mobile and Wireless Technologies: Emerging Opportunities for Digital Government* (New York, NY: Taub Urban Research Center, New York University, 2002). Available at http://www.digitalgovernment.org/library/library/pef/town.pdf.

[73] Dawes, Sharon, Peter Bloniarz, Kristine Kelly and Patricia Fletcher. *Some Assembly Required: Building a Digital Government for the 21st Century* (Albany, NY: Center for Technology in Government, 1999). Available at http://www.nsf.gov/od/lpa/news/press/images/diggov.pdf.

[74] Bonnett, Tom. *Leveraging E-Government Toward E-Competitiveness* (Lexington, KY: National Electronic Commerce Coordinating Council, October 2002). Available at http://www.ec3.org/Downloads/2002/ecomp_white_paper.pdf. Also *Economic Development and the New Economy: Using e-Government Capabilities to Competitive Advantage* (Lexington, KY: National Electronic Commerce Coordinating Council, December 2001). Available at http://www.ec3.org/Downloads/2001/Econ_Develop_ED.pdf.

[75] Brown, Mary-Maureen. *Digital Government Innovation* (Chapel Hill, NC: School of Government, University of North Carolina at Chapel Hill, July 2003). Available at http://ncinfo.unc.edu/pubs/electronicversions/pdfs/dgib0301.pdf.

[76] *E-Government: The Next American Revolution* (Washington, D.C.: Council for Excellence in Government, 2001). Available at http://www.digitalgovernment.org/library/library/pdf/wingo-egov.pdf.

[77] *The New e-Government Equation: Ease, Engagement, Privacy and Protection* (Washington, D.C.: Council for Excellence in Government, April 2003). Available at http://www2.excelgov.org/index.php?keyword=a432c0db469bdf.

[78] Dawes, Sharon, Peter Bloniarz, Kristine Kelly and Patricia Fletcher. *Some Assembly Required: Building a Digital Government for the 21st Century* (Albany, NY: Center for Technology in Government, 1999). Available at http://www.nsf.gov/od/lpa/news/press/images/diggov.pdf.

[79] Rainie, Lee, John Horrigan and Michael Cornfield. *The Internet and Campaign 2004* (Washington, D.C.: Pew Internet & American Life Project, May 2004). Available at http://www.pewinternet.org/pdfs/PIP_2004_Campaign.pdf.

[80] Horrigan, John. *How Americans Get in Touch With Government* (Washington, D.C.: Pew Internet & American Life Project, May 2004). Available at http://www.pewinternet.org/pdfs/PIP_E-Gov_Report_0504.pdf.

[81] LaVigne, Mark. "Electronic Government: A Vision of the Future that is Already Here," *Syracuse Law Review*, Vol. 52, No. 4 (Syracuse, NY: University of Syracuse, 2002). Available at http://ww.ctg.albany.edu/publications/journals/electronic_government/electronic_government.pdf.

[82] Young, Phillip. "Local Government and the Internet: Key Issues and Best Practices for Nontechnical Officials," *Popular Government*, Winter 2005 (Chapel Hill, NC: School of Government, University of North Carolina at Chapel Hill, 2005). Available at http://ncinfo.iog.unc.edu/pubs/electronicversions/pg/pgwin05/article3.pdf.

[83] West, Darrell. *State and Federal E-Government in the United States, 2006* (Providence, RI: Taubman Center for Public Policy, Brown University, August 2006). Available at http://www.insidepolitics.org/egovt06us.pdf.

[84] See http://www.centerdigitalgov.com/surveys.php?survey=cdg_bow.

[85] See http://results.gpponline.org.

[86] Advisory Commission on Electronic Commerce. *A Report to Congress.* April 2000. Available at http://www.ecommercecommission.org/report.htm.

[87] U.S. Census Bureau. *E-Stats: E-Commerce 2004.* http://www.census.gov/estats.

[88] Ibid.

[89] Ibid.

[90] Poon, Simpson and Paula Swatman. *The Internet for Small Business = an enabling infrastructure for competitiveness* (last updated April 1995). http://www.isoc.org/HMP/PAPER/126/html/paper.html#Internet_Connectivity.

[91] Oden, M. and Strover, Sharon, et al. *Links to the Future: The Role of Information and Telecommunications Technology in Appalachian Economic Development* (Washington, D.C.: Appalachian Regional Commission, June 2002). June 2002. http://www.arc.gov/index.do?nodeId=1007.

[92] Tobin, Michael, *Debunking Five Myths to Global Expansion*, Allbusinss.Com, http://www.allbusiness.com/government/loans-small-business-association-sba/3471953-3.html.

[93] Small Business Exporters Association, *Small & Medium Sized Exporting Companies: A Statistical Handbook*, http://www.nsba.biz/docs/smestat-hbk2005edn.pdf

[94] Pociask, Stephen. *Broadband Use by Rural Small Business.* U.S. Small Business Administration, December 2005. Available at http://www.sba.gov/advo/research/rs269tot.pdf.

[95] Crandall, Robert and Charles Jackson. *The $500 Billion Opportunity: The potential economic benefit of widespread diffusion of broadband internet access.* (Washington, D.C.: Criterion Economics, July 2001). Available at http://www.sbc.com/public=affairs/broadband-policy/brookingsstudy.pdf.

[96] Progressive Policy Institute. *The Best States for E-commerce.* March 2002. Available at http://www.ppionline.org/documents/states_ecommerce.pdf.

[97] Ibid.

[98] Southern Rural Development Center. "The Rural E-Commerce Extension Initiative: A National Demonstration Project." http://srdc.msstate.edu/ecommerce/project/objs.htm.

[99] *Community Connections: Preserving Local Values in the Information Age* (Washington, D.C.: U.S. Department of Commerce, National Telecommunications and Information Administration, September 2000). Available at http://www.ntia.doc.gov/otiahome/top/publicationmedia/comm_conn/community_connections_illus.html.

[100] Nordin, Kendra. "Knit-wits," *The Christian Science Monitor*, Oct. 7, 2005. Available at http://www.csmonitor.com/2005/1007/p11s03-lihc.html.

[101] Horrigan, John. *Online Communities: Networks that Nurture Long-Distance Relationships and Local Ties* (Washington, D.C.: Pew Internet & American Life Project, Oct. 2001). Available at http://www.pewinternet.org/pdfs/PIP_Communities_Report.pdf.

[102] Ibid.

[103] Cohill, Andrew. *The Digital Continuum.* Available at http://www.designnine.com/library/docs/dig_cont.pdf.

[104] Schuler, Doug. *New Community Networks: Wired for Change* (Boston, MA: Addison-Wesley Publishing Co., 1996). Available at http://www.scn.org/ncn/.

[105] Cohill, Andrew. "The Third Age of Community Networking," *Community Technology Review*, Winter-Spring 2004. Available at http://comtechreview/winterspring-2004/000165.html.

[106] *Promising Practices in Community Engagement at CTCs: Serving, Renewing and Building* (Newton, MA: Education Development Center, 2003). Available at http://www.americaconnects.net/research/community.pdf.

[107] Davies, Stephen, Randal Pinkett, Lisa Servon and Andrew Wiley-Schwartz. *Community Technology Centers as Catalysts for Community Change* (Newark, NJ: BCT Partners, January 2003). Available at http://www.bctpartners.com/resources/CTCs_as_Catalysts.pdf.

[108] See evaluation reports at http://www.gatesfoundation.org/UnitedStates/USLibraryProgram/Evaluation/default.htm.

[109] Davies, Stephen, Randal Pinkett, Lisa Servon and Andrew Wiley-Schwartz. *Community Technology Centers as Catalysts for Community Change* (Newark, NJ: BCT Partners, January 2003). Available at http://www.bctpartners.com/resources/CTCs_as_Catalysts.pdf.

[110] *The Evolving Role of Information Technology in Community Development Organizations* (New York, NY: Seedco, March 2002). Available at http://www.seedco.org/publications/publications/evolving_role_of_IT.pdf.

[111] For confidentiality reasons the name and county of the interviewer will remain private.

[112] Phone interview with Franklin Smith, Haywood County Mayor, February 2006.

[113] Missouri Highlands Healthcare. *Locations*. http://www.mohigh.org/locations.htm.

[114] Using FCC information Southern Growth found that there are no Iron County, MO zip codes without a high-speed Internet service provider.

[115] Interviews with Kathy Darden, Secretary Treasurer and Emitt Adams, President. Tensas Parish. March 2006.

[116] Pociask, Stephen. Presentation February 17, 2006. *Broadband Use by Rural Small Businesses*. http://www.usda.gov/oce/forum/2006%20Speeches/PDF%20speech%20docs/Pociask2706.pdf.

[117] Horrigan and Murray. Pew Internet and American Life Project. *Rural Broadband Internet Use*. February 2006. http://www.pewinternet.org/pdfs/PIP_Rural_Broadband.pdf.

[118] Nicholas Negroponte, *Being Digital*. (New York: Vintage Books, 1995), p 6.

[119] U.S. Census. *Home Computers and Internet Use in the United States: 2000*. http://www.census.gov/prod/2001pubs/p23-207.pdf#search=%22U.S.%20Department%20of%20Commerce%202000%20Internet%20use%20by%20age%22.

[120] NTIA & ESA. "*A Nation Online: Entering the Broadband Age*." U.S. Department of Commerce. September, 2004.

[121] Hoffman, Donna and T.P. Novak (1998), "Bridging the Racial Divide on the Internet," *Science*, 280 (April 17), pgs. 390-391.

[122] Fairlie, Robert W. *Are We Really a Nation Online?: Ethnic and Racial Disparities in Access to Technology and Their Consequences*. September 2005. http://www.freepress.net/docs/lccrdigitaldivide.pdf.

[123] The Tomas Rivera Policy Institute. *Latinos and Information Technology: The Promise and the Challenge*. www.ibm.com/ibm/ibmgives/downloads/Latinos_and_IT.pdf.

[124] U.S. Census. *Fertility of American Women: June 2002*. October 2003. http://www.census.gov/prod/2003pubs/p20-548.pdf#search=%22American%20birth%20rate%20by%20ethnicity%20and%20income%22.

[125] Suro, R., R. Fry and J. Passel. *Hispanics and the 2004 Election: Population, Electorate and Voters*. Pew Hispanic Center. http://pewhispanic.org/files/reports/48.pdf.

[126] Ibid.

[127] Harwood, Paul. "Use of the Internet in Places Other than Home or Work: A PIP Data Memo." *Reports: Technology and Media Use*. Pew Internet & American Life Project, 2004. Accessed October, 2005. http://207.21.232.103/pdfs/PIP_Other_Places.pdf.

[128] National Center for Education Statistics. *Computer and Internet Use by Students, 2003*. September 2006. http://nces.ed.gov/pubs2006/2006065.pdf.

[129] According to the Illinois State Department of Education, data on students per computer was not collected at the school district or county level. Data for students per computer was not available to the general public through the Kentucky Department of Education.

[130] Phone interview with Talmadge "Tee" Golding, Montgomery County, MS, County Administrator. March 2006.

[131] Bolivar County website. http://www.co.bolivar.ms.us/literacycouncil.htm.

[132] Luger, Michael, Leslie Stewart and Johannes Troxler. *Identifying Technology Needs in America's Distressed Communities*. http://www.osec.doc.gov/eda/pdf/UNC-Luger_Complete.pdf.

[133] National Center for Education Statistics. *Computer and Internet Use by Students in 2003*. Table 2.

[134] Madden, Mary. Internet Penetration and Impact (April 2006). Pew Internet and American Life Project. http://www.pewinternet.org/pdfs/PIP_Internet_Impact.pdf.

[135] U.S. Department of Commerce. *A Nation Online*. http://www.ntia.doc.gov/ntiahome/dn/html/Chapter2.htm.

[136] Ibid.

[137] General Services Administration. *Improving Access to the Internet: A Report to the Congress* as required by the E-Government Act of 2002 Section 215. http://www.estrategy.gov/documents/eGovAccess%20Report%20Final%20%2020040207.doc. January 2005.

[138] Pierce, John C. "Internet Technology Transfer and Social Capital: Aggregate and Individual Relationships in American Cities." *Comparative Technology Transfer and Society*, Volume 1, Number 1, April 2003, pp. 49-71.

[139] Florida Public Service Commission. *Broadband Service in America: An Analysis of Availability and Demand*. October, 2002. http://bear.cba.ufl.edu/centers/purc/conferences/presents/takerate.pdf.

[140] U.S. Census Bureau, 2002 Census of Governments. Governmental Units in 2002. http://ftp2.census.gov/govs/cog/2002COGprelim_report.pdf. July 2002.

[141] Centers for Disease Control and Prevention, Office of Minority Health, *Eliminate Disparities in Infant Mortality*. http://www.cdc.gov/omh/AMH/factsheets/infant.htm.

[142] Kincade, W. and C. Sawyer. *Infant Mortality in Eastern Europe and the Former Soviet Union Before and After the Breakup*. http://www.iussp.org/Brazil2001/s40/S44_02_kingkade.pdf#search=%22east%20european%20infant%20mortality%22.

[143] As quoted in *Innovation, Demand and Investment in Telehealth* (Washington, D.C.: U.S. Department of Commerce, Office of Technology Policy, February 2004).

[144] Sumrall, Bill, "Telemedicine May Resolve Rural Health Access Woes," *The Town Talk*, July 19, 2006.

[145] "HRSA Survey Shows Promise and Challenge of Rural Telemedicine," HRSA Press Release, Feb. 21, 1997. Available at http://hhs.gov/news/press/1997pres/970221a.html.

[146] See http://www.atmeda.org/news/definition.html.

[147] Oliner, S. and Sichel, D. *Information Technology and Productivity: Where are We now and Where are We Going*. Federal Reserve Bank of Atlanta. *Economic Review*. Third Quarter (2002). http://www.frbatlanta.org/filelegacydocs/oliner_sichel_q302.pdf.

[148] Oden and Strover. pg 6.

[149] Oden and Strover. pg 2.

[150] Camp, Michael S. *The Innovation Entrepreneurship Nexus: A National Assessment of Entrepreneurship and Regional Economic Growth and Development*. http://www.sba.gov/advo/research/rs256tot.pdf.

[151] Luger, Michael, Leslie Stewart and Johannes Troxler. *Identifying Technology Needs in America's Distressed Communities*. http://www.osec.doc.gov/eda/pdf/UNC-Luger_Complete.pdf.

[152] Buckley, Patricia. and S. Montes. U.S. Department of Commerce, Economics and Statistics Administration. *Main Street in the Digital Age: How Small and Medium-Sized Businesses Are Using the Tools of the New Economy.* February 2002. Available at: https://www.esa.doc.gov/reports/DigitalAgePub.R1.pdf.

[153] Fairlie, Robert. U.S. Small Business Administration. *Technology and Entrepreneurship: A Cross-Industry Analysis of Access to Computers and Self-Employment*. http://www.sba.gov/advo/research/rs259.pdf.

[154] Lehr, W., C. Osorio, S. Gillett and M. Sirbu. *Measuring Broadband's Economic Impact*. As presented at the 33rd Research Conference on Communication, Information, and Internet Policy. January 2006. Available at http://cfp.mit.edu/groups/broadband/docs/2005/MeasuringBB_EconImpact.pdf.

[155] *Speech Transcript: Craig Mundie, Testimony before the U.S. Senate Committee on Commerce, Science and Transportation*. October 1, 2002. Available at: http://www.microsoft.com/presspass/exec/craig/10-01telecom.mspx.

[156] Sabine, Allison. *Planting Season*. Louisiana Farm Bureau Online. http://www.lfbf.org/news/stories/2006/3-28/index.html.

[157] The Southern Growth Idea Bank. *Louisiana Rural Internet Connection*. http://www.southernideabank.org/items.php?id=2530.

[158] Oden and Strover. pg 23.

[159] Florida Public Service Commission.

[160] *Competition Driving Rural Telco's Broadband Decisions.* http://www.nrtc.coop/us/main/nrtc_update_rss/Sept05/NRSS091905.html

[161] ConnectKentucky. *A Kentucky Tradition. 2006 Progress Report*. http://www.connectkentucky.org/NR/rdonlyres/F6FF10B6-3ACB-42F3-AE0A-F11E4777507C/0/2006ConnectKentuckyProgressReport.pdf.

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Appendix

= connectivity

= education

= healthcare

Sample Federal Information Technology Programs

Federal Programs: Connectivity

U.S. Department of Agriculture

COMMUNITY CONNECT GRANT PROGRAM

Purpose: The program seeks to improve the economic development, education, health and safety of rural and lower income communities by providing these communities with broadband transmission services.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Projects must serve rural areas where a broadband transmission service does not currently exist. Eligible entities include incorporated organizations, Indian tribes or tribal organizations, state or local units of government, cooperatives, private organizations and limited liability companies, either for profit or not for profit.

Min/Max Grant Amounts: For FY 2006, $8.9 million was available and the minimum grant amount was $50,000. There was no maximum amount.

Deadline: For FY 2006, applications were due May 15, 2006.

For more information:
Kenneth Kuchno, Director, Broadband Division,
Telecommunications Program, USDA-RUS
STOP 1599
1400 Independence Ave., SW, Rm 2844
Washington, D.C. 20250-1599
Phone: (202) 690–4673
Fax: (202) 690–4389
Email: kenneth.kuchno@usda.gov
Website: http://www.usda.gov/rus/telecom/commconnect.htm

RURAL DEVELOPMENT BROADBAND LOAN AND LOAN GUARANTEE PROGRAM

Purpose: This program provides loans and loan guarantees to fund the cost of construction, improvement, or acquisition of facilities and equipment for the provision of broadband service in eligible rural communities.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: The program is limited to rural communities with populations of no more than 20,000. Priority is given to communities with no existing broadband service. Eligible applicants include: cooperatives, municipalities, nonprofit, limited dividend or mutual associations, limited liability companies, Indian tribes and tribal organizations as defined in 25 U.S.C. 450(b) and (c) and commercial organizations. Individuals or partnerships of individuals are not eligible entities. Applicants cannot be serving more than two percent of the telephone subscriber lines installed in the U.S.

Min/Max Grant Amounts: For FY 2006, the minimum loan amount was $100,000.

Deadline: Applications are accepted on an ongoing basis.

For more information:
Kenneth Kuchno, Director, Broadband Division,
Telecommunications Program, USDA-RUS
STOP 1599
1400 Independence Ave., SW, Rm 2844
Washington, D.C. 20250-1599
Phone: (202) 690–4673
Fax: (202) 690–4389
Email: kenneth.kuchno@usda.gov
Website: http://www.usda.gov/rus/telecom/broadband.htm

U.S. Department of Commerce Economic Development Administration

PUBLIC WORKS AND ECONOMIC DEVELOPMENT PROGRAM

Purpose: The Public Works and Economic Development Program provides grants for public infrastructure improvements aimed at enhancing economic development in distressed communities. In addition to traditional facilities such as water and sewer systems and industrial parks, investments can also be made in distance learning facilities and telecommunications infrastructure improvements needed for business retention and expansion.

Geographic Eligibility: Nationwide. Projects must be located within an economically distressed region, as measured by the unemployment rate, per capita income and/or other special needs.

Other Eligibility Criteria: Eligible applicants include: states, cities, counties and other political subdivisions, including partnerships of such applicants; economic development districts; and higher education institutions and consortia. Nonprofit organizations working in partnership with a political subdivision are also eligible.

Min/Max Grant Amounts: For FY 2005, awards ranged from $69,000 to $158 million. The average investment was $1.3 million. In most cases, EDA investments cannot exceed 50 percent of project costs.

Deadline: Applications are accepted on a continuous basis after the announcement of funding availability. Pre-application consultation with an EDA Regional Office representative is required. Potential applicants are then notified about EDA's decision to invite a formal application. Applicants are typically given 30 days after notification to submit a formal application.

For more information:
David McIlwain
Director, Public Works Division
Economic Development Administration
U.S. Department of Commerce
Herbert C. Hoover Building
Room H7326, 7th Floor
Washington, D.C. 20230
Telephone: (202) 482-5265
Fax: (202) 482-0995
Email: dmcilwai@doc.gov
Website: http://www.eda.gov/AboutEDA/Programs.xml
For Regional Office contacts, go to:
http://www.eda.gov/AboutEDA/Regions.xml.

Federal Programs: Education

Federal Communications Commission

UNIVERSAL SERVICE FUND, SCHOOLS & LIBRARIES PROGRAM

Purpose: The program provides discounted telecommunications services and Internet access to schools and libraries.

Geographic Eligibility: Nationwide

Other Eligibility Criteria:

SCHOOLS: In general, a school is eligible for support if it meets the following eligibility requirements:

- Schools must provide elementary or secondary education as determined under state law (pre-K, juvenile justice and adult education facilities may be eligible depending on state definitions of elementary/secondary education).
- Schools may be public or private institutional day or residential schools, or public charter schools.
- Schools must operate as non-profit businesses.
- Schools cannot have an endowment exceeding $50 million.

LIBRARIES: Libraries must meet the statutory definition of library or library consortium found in the 1996 Library Services and Technology Act (Pub. L. 104-208) (LSTA).

- Libraries must be eligible for assistance from a state library administrative agency under that Act.
- Libraries must have budgets completely separate from any schools (including, but not limited to, elementary and secondary schools, colleges and universities).
- Libraries cannot operate as for-profit businesses.
- Min/Max Grant Amounts: The program discounts between 20 and 90 percent of the costs of eligible services.

Deadline: Applications may be filed between October and January preceding the funding year (July 1 to June 30).

For more information:
Universal Service Administrative Company
Schools and Libraries Program
P.O. Box 7026
Lawrence, KS 66044-7026
Toll-Free: (888) 203-8100
Fax Toll-Free: (888) 276-8736
Website: http://www.universalservice.org/sl/

National Science Foundation

ADVANCED LEARNING TECHNOLOGIES

Program Description: This program supports research on innovative computer and information technologies that could result in "radical improvements in learning."

Min/Max Grant Amounts: NSF expects the average grant size to be $100,000 to $200,000 per year over a three year period.

Deadline: The deadline for full proposals in 2006 was May 4, 2006.

For more information:

- John C. Cherniavsky, Senior EHR Advisor for Research, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5136, fax: (703) 292-9046, email: jchernia@nsf.gov
- N. Hari Narayanan, Program Director, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5182, fax: (703) 292-9046, email: nnarayan@nsf.gov
- Elizabeth VanderPutten, Program Director, Directorate for Education & Human Resources, 855 S, telephone: (703) 292-5147, fax: (703) 292-9046, email: evanderp@nsf.gov
- Kenneth Whang, Program Director, Directorate for Computer & Information Science & Engineering, Division of Information and Intelligent Systems, 1125 S, telephone: (703) 292-5149, fax: (703) 292-9073, email: kwhang@nsf.gov

Website:
http://www.nsf.gov/pubs/2006/nsf06535/nsf06535.htm

ADVANCING HUMAN-CENTERED COMPUTING, INFORMATION INTEGRATION AND INFORMATICS AND ROBUST INTELLIGENCE

Purpose: Human Centered Computing (HCC) grants from the National Science Foundation fund research investigating the interaction between technology and society. This research could include topics such as the use of information technology to improve education or the impact of online interaction in groups like young children, seniors, or people with disabilities. Other research subjects include community-oriented applications of technology, such as Internet voting or different electronic forms of citizenship.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Non-profit, non-academic organizations, or U.S. universities or colleges may apply. Proposals are split into three different groups based on budget size: Small Projects (up to $450,000 total budget), Medium Projects ($450,001 to $900,000 total budget) and Large Projects ($900,001 to $1,800,000 total budget). Projects with a total budget over $1,800,000 will not be considered.

Min/Max Grant Amounts: In FY 2007, the total amount available for grants is expected to be $50,000,000, with a maximum of 150 grants awarded.

Deadline: Full proposal deadlines for FY 2007 are October 19, 2006 for Large Projects, November 2, 2006 for Medium Projects and December 6, 2006 for Small Projects.

For more information:
William Bainbridge, Program Director
Human-Centered Computing (HCC)
National Science Foundation
4201 Wilson Blvd., Room 1125S
Arlington, VA 22230
Phone: (703) 292-8930
Fax: (703) 292-9073
Email: wbainbri@nsf.gov
Website:
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13707

U.S. Department of Education

ENHANCING EDUCATION THROUGH TECHNOLOGY (ED-TECH) STATE PROGRAM

Purpose: The Ed-Tech program seeks to improve student achievement by increasing students' access to technology in schools. The U.S. Department of Education provides grants to state education agencies, which then use the grants to fund local educational agencies and other local entities.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: : Only state education agencies are eligible for direct grants from the U.S. Department of Education. States may retain up to five percent of their allocations for state-level activities. Half of the remainder must be distributed by formula to eligible local educational agencies and the other half competitively to eligible local entities.

Min/Max Grant Amounts: Grant amounts to states are determined by formula. 2006 grants to state education agencies ranged from $123,663 to $35,076,910.

For more information:
Website: http://www.ed.gov/programs/edtech/index.html
Contact information by state can be found at: http://www.ed.gov/programs/edtech/contacts.html

IMPROVING LITERACY THROUGH SCHOOL LIBRARIES

Purpose: The program supports local education agencies in an effort to increase reading achievement through improvement of school libraries. Grants can be used to purchase up-to-date library materials and technology and to integrate technology into the curriculum.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Eligibility is limited to local education agencies in which at least 20 percent of the students served are from families with incomes below the poverty line.

Min/Max Grant Amounts: For FY 2006, the estimated range of awards was $30,000 – $300,000

Deadline: The FY 2006 deadline was April 11, 2006.

For more information:
Irene B. Harwarth
U.S. Department of Education, OESE
Academic Improvement and Teacher Quality Programs
400 Maryland Ave. S.W., Rm. 3W227, FB-6
Washington, D.C. 20202-6100
Telephone: (202) 401-3751
Toll-Free Telephone: (800) 872-5327 or (800) USA-LEARN
Fax: (202) 260-8969
Email: irene.harwarth@ed.gov
Website: http://www.ed.gov/programs/lsl/index.html

READY TO TEACH

Purpose: The Ready to Teach program provides two types of grants: one to fund national telecommunications programs working to improve teaching in core curriculum areas, the other to promote the development, production and distribution of educational video programming in the areas of reading or math.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Non-profit telecommunications organizations

Min/Max Grant Amounts: For FY 2005, the estimated award range was $1,500,000-$5,000,000

Deadline: For FY 2005, the deadline for submitting a notice of intent to apply was March 24, 2005 and applications were due April 20, 2005. Only continuation awards were made in 2006.

For more information:
Sharon Harris-Morgan
U.S. Department of Education, OII
Technology in Education Programs
400 Maryland Ave., SW
FB-6, Room 4W250
Washington, D.C. 20202
Phone: (202) 205-5880
Fax: (202) 205-5720
Email: sharon.morgan@ed.gov
Website: http://www.ed.gov/programs/readyteach/index.html

STAR SCHOOLS PROGRAM

Purpose: Star Schools grants go to telecommunications partnerships to support distance education projects that improve instruction in math, science, foreign languages and other subjects and/or serve disadvantaged, disabled, non-reading and limited English proficient populations.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Eligible applicants include any one of the following institutions that is organized on a statewide or multi-state basis:

(1) A public agency or corporation established for the purpose of developing and operating telecommunications networks to enhance educational opportunities provided by educational institutions, teacher training centers and other entities, except that any such agency or corporation shall represent the interests of elementary schools and secondary schools that are eligible to participate in the program under part A of title I of the Elementary and Secondary Education Act of 1965, as amended by Pub. L. 103-352 (ESEA).

(2) A partnership that will provide telecommunications services and that includes three or more of the following entities, at least one of which must be an agency described in paragraph (A) or (B) below:

(A) A local educational agency that serves a significant number of elementary and secondary schools that are eligible for assistance under part A of title I of the ESEA, or elementary and secondary schools operated or funded for Indian children by the Department of the Interior eligible under section 1121(d)(1)(A) of the ESEA.

(B) A State educational agency.

(C) An adult and family education program.

(D) An institution of higher education or a State higher education agency.

(E) A teacher-training center or academy that provides teacher preservice and in-service training and receives Federal financial assistance or has been approved by a State agency.

(F) A public or private entity with experience and expertise in the planning and operation of a telecommunications network, including entities involved in telecommunications through satellite, cable, telephone, or computer; or a public broadcasting entity with such experience.

(G) A public or private elementary or secondary school.

Min/Max Grant Amounts: For FY 2005, the estimated range of awards was $1,500,000-$3,000,000.

Deadline: For FY 2005, the deadline for notice of intent to apply was April 7, 2005 and applications were due May 9, 2005. Only continuation awards were made in 2006.

For more information:
Brian Lekander
U.S. Department of Education, OII
Office of Innovation and Improvement
Technology in Education Programs
FB-6, Room 4W226
Washington, D.C. 20202
Phone: (202) 205-5633
Fax: (202) 205-5720
Email: brian.lekander@ed.gov
Website: http://www.ed.gov/programs/starschools/index.html

Federal Programs: Healthcare

Federal Communications Commission

UNIVERSAL SERVICE FUND, RURAL HEALTHCARE PROGRAM

Purpose: The Rural Health Care Program provides discounted telecommunications services and Internet access to rural healthcare providers so that they pay no more for these services than their urban counterparts.

A new, two-year pilot program under the Rural Health Care Program was announced in September 2006. It is designed to help public and non-profit healthcare providers build broadband statewide and/or regional networks dedicated to the provision of healthcare services and to connect these networks.

Geographic Eligibility: Nationwide

Other Eligibility Criteria:

HEALTHCARE PROVIDERS: Applicants to the program must be rural and public or non-profit healthcare providers of the types listed below.

- Post-secondary educational institutions offering health care instruction, teaching hospitals, or medical schools
- Community health centers or health centers providing healthcare to migrants
- Local health departments or agencies including dedicated emergency departments of rural for-profit hospitals
- Community mental health centers
- Not-for-profit hospitals
- Rural health clinics including mobile clinics
- Consortia of HCPs consisting of one or more of the above entities
- Part-time eligible entities located in otherwise ineligible facilities

SERVICE PROVIDERS: All eligible telecommunications providers including interexchange carriers, local exchange carriers (LECs), competitive LECs and all other common carriers, may receive support for providing discounted telecommunications service to eligible rural healthcare providers. In addition, all service providers with a Service Provider Identification Number issued by USAC may receive support for providing discounted Internet access to eligible rural healthcare providers.

Min/Max Grant Amounts: The pilot program will fund up to 85 percent of the costs of state or regional broadband networks dedicated to healthcare as well as 85 percent of the costs of connecting the network to Internet2.

Deadline: For FY 2006 (July 1, 2006 to June 30, 2007) the application deadline to ensure a full year of support under the Rural Health Care Program was June 2, 2006.

A funding deadline for the pilot program has not yet been announced.

For more information on the Rural Health Care Program:
Universal Service Administrative Company
Rural Health Care Program
100 S. Jefferson Rd.
Whippany, NJ, 07981
Phone: (800) 229-5476
E-mail: rhc-admin@universalservice.org
Website: http://www.universalservice.org/rhc

For more information on the Pilot Program:
Thomas Buckley
Phone: (202) 418-0725
Email: Thomas.buckley@fcc.gov

Claudia Fox
Phone: (202) 418-1527
Email: Claudia.fox@fcc.gov
Website: http://www.fcc.gov/cgb/rural/rhcp.html

U.S. Department of Health and Human Services
Health Resources and Services Administration

TELEHEALTH NETWORK GRANT PROGRAM

Purpose: The Telehealth Network Grant Program (TNGP) provides grants to enable communities to acquire technology and other resources needed to develop telehealth networks. The program aims to expand the access to and quality of healthcare in rural communities and other medically underserved areas.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Non-profit or public entities that provide services through a telehealth network.

Min/Max Grant Amounts: For FY 2006, the maximum award was $250,000.

Deadline: For FY 2006, the application deadline was July 21, 2006.

For more information:
Dena Puskin, Sc.D., Director
Office for the Advancement of Telehealth
HRSA
5600 Fishers Lane
Rockville, MD 20857
Telephone: (301) 443-3682
Fax: (301) 443-1330
Email: Dena.puskin@hrsa.hhs.gov
Website: http://www.hrsa.gov/telehealth/grantee.htm

U.S. Department of Agriculture

DISTANCE LEARNING AND TELEMEDICINE PROGRAM

Purpose: The Distance Learning and Telemedicine Program aims to advance telemedicine and distance learning services in rural America. The grants and loans are designed to enable rural areas to use advanced technologies, such as telecommunications and computer networks, to provide access to education, training and health information for their residents.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: : Only the following are eligible:
(1) An incorporated organization or partnership
(2) An Indian tribe or tribal organization
(3) A State or local unit of government
(4) A consortium
(5) Other legal entity, including private corporations, either for-profit or not-for profit

Individuals are not eligible. Electric and telecommunications borrowers under the Rural Electrification Act of 1936 are not eligible for grants; they may only receive loans.

Min/Max Grant Amounts: For FY 2006, the maximum grant amount was $500,000 and the minimum was $50,000.

Deadline: For FY 2006, the application deadline was June 12, 2006.

For more information:
Orren E. Cameron, III
Director, Advanced Services Division,
Telecommunications Program, USDA-RUS
STOP 1550
1400 Independence Ave., SW, Rm 2845
Washington, D.C. 20250-1550
Telephone: (202) 720-0413
Fax: (202) 720-1051
Email: ed.cameron@usda.gov
Website: http://www.usda.gov/rus/telecom/dlt/dlt.htm

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

Purpose: This program is designed to allow small businesses to develop new technologies or find innovative uses for existing technologies to address problems facing the people and institutions of rural America. The program is not specifically geared towards telehealth, but grants have been awarded to telemedicine projects in the past.

Geographic Eligibility: Nationwide

Other Eligibility Criteria: Small businesses involved in research and development.

Min/Max Grant Amounts: Phase I grants are worth $80,000 and Phase II grants are worth $350,000.

Deadline: For FY 2007, the deadline for Phase I proposals was September 1, 2006.

For more information:
Siva Sureshwaran
Phone: (202) 720-7536
Fax: (202) 401-6070
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Website:
http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1126

States Data Pages and Sample Information Technology Programs

ALABAMA
ARKANSAS
ILLINOIS
KENTUCKY
LOUISIANA
MISSISSIPPI
MISSOURI
TENNESSEE

ALABAMA

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
BARBOUR	RURAL	0.0%	32.6	12.7%	47.8%	5.7%	827	5.5	50%
BULLOCK	RURAL	0.0%	18.1	12.6%	73.0%	10.2%	5,857	4.3	0%
BUTLER	RURAL	0.0%	26.7	16.4%	41.9%	1.5%	1,259	5.1	100%
CHOCTAW	RURAL	33.3%	16.8	15.6%	44.6%	1.5%	3,184	6.9	0%
CLARKE	RURAL	45.5%	22.2	14.1%	43.9%	1.3%	1,032	5.2	100%
CONECUH	RURAL	0.0%	16.0	15.4%	44.3%	1.6%	1,174	10.4	0%
DALLAS	RURAL	0.0%	46.0	13.8%	66.6%	1.1%	1,288	4.0	0%
ESCAMBIA	RURAL	0.0%	40.5	14.0%	34.9%	1.8%	799	3.7	100%
GREENE	RURAL	0.0%	15.3	13.8%	80.7%	1.2%	1,662	5.1	0%
HALE	RURAL	0.0%	28.5	12.5%	59.7%	1.9%	4,325	–	100%
LOWNDES	RURAL	0.0%	18.7	13.0%	73.0%	1.4%	3,368	4.8	0%
MACON	RURAL	0.0%	38.5	14.5%	84.5%	1.6%	778	4.2	–
MARENGO	RURAL	11.1%	22.7	14.4%	52.6%	2.8%	1,878	4.1	50%
MONROE	RURAL	25.0%	23.2	13.9%	42.4%	1.5%	2,432	–	100%
PERRY	RURAL	0.0%	16.2	14.3%	69.4%	2.3%	468	2.6	–
PICKENS	RURAL	16.7%	23.3	16.2%	43.5%	1.6%	515	3.6	100%
RUSSELL	URBAN	0.0%	76.4	13.6%	43.4%	4.2%	3,383	4.2	100%
SUMTER	RURAL	25.0%	15.7	14.1%	75.2%	2.2%	769	6.9	–
WASHINGTON	RURAL	50.0%	16.6	13.2%	33.8%	1.7%	1,206	4.5	0%
WILCOX	RURAL	33.3%	14.7	13.2%	72.4%	1.6%	1,648	5.7	0%
DRA		**18.5%**	**25.8**	**14.0%**	**53.3%**	**2.5%**	**1,323**	**4.5**	**54.5%**
NON-DRA		**8.8%**	**120.3**	**13.1%**	**25.4%**	**4.6%**	**1,535**	**4.6**	**61.3%**
STATE		**10.4%**	**88.8**	**13.2%**	**28.1%**	**4.4%**	**1,513**	**4.6**	**59.8%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
10.9%	53.5%	6.1%	50.6%	20.0%	7.3	NO	15.9%	$20,889	25%
7.7%	88.8%	4.3%	57.1%	0.0%	17	NO	20.4%	$17,993	0%
10.4%	52.3%	5.8%	55.3%	0.0%	5.9	NO	21.7%	$22,993	50%
9.6%	52.3%	4.0%	65.4%	33.3%	8.1	NO	18.0%	$21,269	100%
12.1%	57.5%	1.5%	57.4%	16.7%	8.5	NO	19.2%	$21,867	25%
9.2%	36.1%	6.4%	60.1%	0.0%	12	YES	22.9%	$20,544	20%
13.9%	51.5%	4.9%	58.3%	–	9	NO	15.1%	$21,469	25%
10.6%	69.2%	3.6%	43.1%	25.0%	13.9	NO	17.7%	$19,758	0%
10.5%	56.5%	11.0%	67.8%	0.0%	9.8	NO	27.1%	$20,029	25%
8.1%	57.7%	3.2%	59.3%	0.0%	9.3	NO	28.1%	$18,368	40%
11.0%	56.0%	1.5%	63.7%	0.0%	11.5	NO	32.5%	$18,870	0%
18.8%	50.4%	3.5%	54.1%	25.0%	11.9	NO	17.9%	$17,319	17%
12.1%	73.1%	1.8%	64.3%	0.0%	11.4	NO	15.5%	$24,188	33%
11.8%	62.8%	3.1%	0.0%	0.0%	7.6	YES	18.9%	$21,110	88%
10.0%	66.0%	3.3%	67.3%	50.0%	8.7	NO	23.1%	$18,389	0%
9.8%	81.9%	4.5%	63.5%	0.0%	6.8	NO	28.9%	$20,679	50%
9.7%	31.3%	5.6%	47.1%	–	11.9	NO	16.0%	$21,586	0%
12.4%	62.2%	0.9%	63.8%	50.0%	16.9	NO	21.9%	$18,319	50%
8.6%	68.5%	1.0%	63.1%	0.0%	9.5	NO	25.1%	$19,157	64%
10.1%	61.6%	4.7%	62.0%	0.0%	14	NO	14.7%	$17,441	67%
11.2%	**56.3%**	**4.0%**	**53.5%**	**13.2%**	**10.35**	**15%**	**19.3%**	**$20,484**	**42%**
19.9%	**58.9%**	**3.6%**	**49.5%**	**30.2%**	**9.51**	**6%**	**16.8%**	**$27,154**	**19%**
19.0%	**58.6%**	**3.7%**	**49.9%**	**26.9%**	**9.59**	**9%**	**17.0%**	**$26,505**	**24%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	**–**	**17.9%**	**$31,472**	**28%**

Alabama: Education Programs

Alabama State Department of Education

ALABAMA CONNECTING CLASSROOMS, EDUCATORS AND STUDENTS STATEWIDE (ACCESS) DISTANCE LEARNING

Program Description: ACCESS Distance Learning provides Alabama public high school students with the option of taking AP courses, electives or other courses that might not be available at their school. Courses taught by certified Alabama teachers are offered online or with the use of interactive videoconferencing. Three support centers provide training and assistance to teachers and school administrators.

Service Area: Alabama

Impact/Success: The program began in spring of 2006 with 24 participating pilot schools. Statewide implementation is set to begin in fall of 2006. The program served 1,550 high school students in its first semester of operation and is expected to serve 10,000 of 205,000 students during the 2006-2007 school year.

For more information:
Contact information for different regions can be found on the website http://accessdl.state.al.us/

Alabama State Department of Education

TECHNOLOGY IN MOTION

Program Description: The Technology in Motion Program (TiM) provides free services, materials and training to K-12 teachers and administrators to provide them with the skills and knowledge needed to bring technology into the classroom. The program provides many opportunities, including basic technology education, introductions to education-related web services and guidance in including technology in the curriculum. TiM offers both face-to-face and online courses.

Service Area: Alabama

Impact/Success: Technology in Motion was awarded an Intel Foundation grant in 2006.

For more information:
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Contact information for Technology in Motion specialists for each region can be found on the website.
Website:
http://www.technologyinmotion.state.al.us/index.htm

ALABAMA ONLINE HIGH SCHOOL

Purpose: Alabama Online High School was created to increase course offerings in rural schools and prevent the possible closure of these schools due to teacher scarcity. The program began offering web-based courses in January 2000. It was incorporated into the College of Continuing Studies at the University of Alabama in the fall of 2004, and became part of the access program in 2006.

Service Area: Alabama

Impact/Success: The program has served over 2,300 Alabama high school students from 88 schools since it began.

For more information:
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Alabama: Healthcare Programs

University of South Alabama, Center for Strategic Health Innovation

BIO-TRAC PROGRAM

Program Description: The University's telemedicine program was launched in 1998, using video-conferencing to connect rural healthcare providers with urban specialists. In 2001, a new focus emerged, involving deploying low cost technology directly into the homes of chronically ill patients. The biomonitoring effort, called "Bio-Trac," permits ongoing management of a patient's health status. Abnormal results trigger direct patient contact and initiation of treatment steps.

Service Area: The Bio-Trac program serves patients at the Pine Apple Clinic in Wilcox County.

Impact/Success: Bio-Trac has dropped patients' annual healthcare expenses by as much as $10,000 a year. The program received an Innovator Award from the Southern Growth Policies Board in 2005. It also received a 2005 Innovations Award from the Council of State Governments.

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ARKANSAS

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
ARKANSAS	RURAL	11.1%	20.4	15.7%	24.7%	2.1%	2,075	3.2	50.0%
ASHLEY	RURAL	0.0%	25.8	14.1%	28.6%	7.7%	712	4.0	66.7%
BAXTER	RURAL	10.0%	70.6	26.2%	1.2%	2.0%	4,798	12.3	100.0%
BRADLEY	RURAL	0.0%	19.1	16.9%	29.2%	20.1%	–	4.7	0.0%
CALHOUN	RURAL	33.3%	8.9	15.8%	23.5%	3.9%	1,436	2.1	100.0%
CHICOT	RURAL	0.0%	20.9	15.7%	54.7%	7.6%	–	1.4	0.0%
CLAY	RURAL	9.1%	26.5	18.9%	1.2%	1.9%	–	8.4	50.0%
CLEVELAND	RURAL	0.0%	14.6	14.2%	14.0%	3.6%	–	3.8	0.0%
CRAIGHEAD	URBAN	8.3%	119.2	11.8%	10.7%	5.8%	2,346	4.1	42.9%
CRITTENDEN	URBAN	25.0%	83.9	9.5%	50.3%	3.5%	5,533	4.1	50.0%
CROSS	RURAL	20.0%	31.1	13.2%	24.4%	2.1%	1,229	3.2	50.0%
DALLAS	RURAL	0.0%	13.1	16.4%	42.4%	4.7%	–	4.7	0.0%
DESHA	RURAL	14.3%	19.2	14.0%	47.6%	7.2%	–	2.4	66.7%
DREW	RURAL	25.0%	22.4	12.9%	28.2%	5.1%	1,792	5.0	50.0%
FULTON	RURAL	22.2%	18.9	21.3%	1.2%	1.3%	–	4.4	33.3%
GRANT	RURAL	0.0%	26.8	12.3%	3.7%	3.3%	–	31.6	50.0%
GREENE,	RURAL	0.0%	66.6	13.8%	1.1%	3.1%	3,483	3.9	50.0%
INDEPENDENCE	RURAL	14.3%	45.1	14.3%	3.8%	4.3%	4,472	6.0	80.0%
IZARD	RURAL	35.7%	23.0	21.1%	2.5%	2.1%	–	3.6	50.0%
JACKSON	RURAL	66.7%	27.6	15.2%	18.7%	2.9%	4,605	2.5	33.3%
JEFFERSON	URBAN	16.7%	93.8	12.9%	53.2%	2.3%	1,720	11.5	25.0%
LAWRENCE	RURAL	30.8%	29.8	17.6%	1.3%	1.6%	2,539	4.5	60.0%
LEE	RURAL	20.0%	19.8	13.7%	57.7%	4.9%	–	2.2	100.0%
LINCOLN	RURAL	0.0%	25.8	12.0%	34.2%	3.5%	–	3.9	33.3%
LONOKE	URBAN	0.0%	74.1	10.6%	8.0%	4.2%	3,669	12.9	0.0%
MARION	RURAL	42.9%	27.1	20.5%	1.3%	2.0%	4,067	3.8	0.0%
MISSISSIPPI	RURAL	26.7%	54.5	12.4%	35.1%	5.1%	2,425	3.4	33.3%
MONROE	RURAL	20.0%	15.9	17.9%	39.5%	3.2%	–	3.1	0.0%
OUACHITA	RURAL	0.0%	37.8	16.4%	40.9%	1.8%	3,599	3.4	25.0%
PHILLIPS	RURAL	25.0%	35.5	13.9%	62.4%	3.1%	4,928	5.8	0.0%
POINSETT	RURAL	22.2%	33.5	14.6%	7.8%	3.7%	2,296	4.8	100.0%
PRAIRIE	RURAL	0.0%	14.4	17.4%	15.4%	1.9%	–	3.6	0.0%
PULASKI	URBAN	11.5%	473.4	11.7%	36.4%	6.1%	1,721	3.4	66.7%
RANDOLPH	RURAL	14.3%	27.9	16.9%	1.9%	2.3%	–	5.5	75.0%
SEARCY	RURAL	16.7%	12.0	19.9%	1.1%	2.2%	–	3.3	33.3%
SHARP	RURAL	33.3%	28.9	23.0%	1.8%	2.6%	–	6.2	75.0%
ST. FRANCIS	RURAL	30.0%	45.0	11.3%	51.3%	10.3%	2,462	6.1	66.7%
STONE	RURAL	28.6%	19.1	20.4%	1.1%	2.2%	–	3.5	66.7%
UNION	RURAL	25.0%	43.2	15.5%	34.1%	3.3%	6,518	4.7	33.3%
VAN BUREN	RURAL	0.0%	23.1	23.3%	1.8%	2.7%	–	2.5	25.0%
WHITE	RURAL	11.8%	67.3	13.7%	5.2%	4.8%	2,920	4.0	50.0%
WOODRUFF	RURAL	40.0%	14.2	16.6%	29.8%	1.8%	–	13.3	0.0%
DRA		**18.4%**	**47.9**	**14.0%**	**26.2%**	**4.6%**	**2,280**	**4.2**	**43.3%**
NON-DRA		**9.7%**	**58.1**	**13.7%**	**9.2%**	**13.3%**	**2,585**	**4.3**	**58.1%**
STATE		**14.6%**	**52.4**	**13.8%**	**17.9%**	**8.9%**	**2,415**	**4.2**	**50.4%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
12.2%	96.2%	4.9%	46.76%	0.0%	7.4	YES	19.9%	$26,489	78%
10.1%	70.1%	5.1%	49.75%	0.0%	7.2	NO	17.9%	$22,884	14%
12.8%	73.3%	5.6%	57.46%	22.2%	4.6	NO	26.8%	$24,535	80%
11.9%	72.9%	2.8%	46.06%	0.0%	6.5	NO	20.1%	$20,503	25%
7.3%	79.3%	6.0%	53.32%	0.0%	32.1	YES	11.2%	$20,574	67%
11.7%	76.1%	4.8%	49.23%	0.0%	8.5	YES	21.2%	$19,526	0%
7.4%	75.9%	5.2%	47.25%	14.3%	8.8	YES	25.5%	$20,953	82%
10.0%	84.7%	1.4%	52.79%	0.0%	0	NO	39.5%	$22,725	67%
20.9%	72.7%	3.6%	46.57%	22.2%	8.1	NO	17.5%	$24,434	33%
12.8%	62.2%	6.6%	43.51%	14.3%	11.2	YES	17.4%	$22,266	13%
9.9%	86.7%	4.4%	50.76%	0.0%	14.1	NO	27.4%	$20,624	20%
9.6%	81.4%	4.2%	53.27%	0.0%	17.7	YES	22.1%	$21,547	100%
11.1%	80.9%	4.7%	44.82%	33.3%	15	NO	18.4%	$21,078	29%
17.3%	92.1%	2.7%	45.31%	0.0%	8	YES	17.8%	$21,737	25%
10.5%	76.8%	1.4%	52.76%	0.0%	0	NO	56.6%	$18,485	100%
11.0%	76.1%	4.3%	52.08%	0.0%	9.1	NO	34.6%	$24,637	40%
10.9%	61.1%	4.6%	47.95%	25.0%	12.5	NO	19.5%	$21,106	20%
13.7%	81.5%	4.0%	49.39%	0.0%	5.3	NO	19.6%	$22,212	7%
11.7%	87.7%	2.4%	52.21%	33.3%	18.9	NO	38.8%	$18,926	100%
10.3%	93.5%	7.8%	46.82%	0.0%	9.4	NO	25.4%	$22,150	56%
15.7%	77.6%	5.8%	50.02%	66.7%	10.1	YES	11.5%	$22,451	42%
8.5%	70.0%	2.1%	49.49%	0.0%	9.1	NO	34.5%	$19,608	36%
7.3%	76.6%	9.3%	47.66%	0.0%	18.7	NO	31.3%	$19,594	0%
7.6%	77.8%	6.6%	36.20%	0.0%	13.1	YES	21.8%	$16,977	0%
14.6%	69.9%	5.1%	51.55%	12.5%	7.2	NO	33.2%	$24,358	25%
10.4%	83.3%	5.0%	52.62%	0.0%	0	YES	37.1%	$18,579	86%
11.3%	70.6%	8.2%	42.71%	20.0%	9.7	NO	15.2%	$21,738	38%
8.4%	85.0%	6.4%	52.30%	0.0%	11.4	NO	26.8%	$20,713	40%
12.7%	93.4%	5.5%	51.34%	0.0%	12.6	NO	17.2%	$21,059	0%
12.4%	69.7%	9.3%	54.14%	0.0%	12.4	YES	17.6%	$19,845	50%
6.3%	71.9%	5.5%	41.17%	0.0%	9.7	NO	25.6%	$20,682	67%
9.0%	84.0%	5.6%	51.20%	0.0%	9	NO	37.8%	$21,205	100%
28.1%	63.2%	8.4%	57.49%	100.0%	10	NO	11.7%	$33,620	12%
10.6%	68.3%	4.2%	48.35%	0.0%	10.1	YES	30.7%	$18,599	100%
8.4%	86.8%	2.3%	64.79%	0.0%	11.6	YES	50.1%	$16,793	100%
10.3%	75.6%	3.6%	53.85%	14.3%	7.6	NO	26.9%	$17,247	67%
9.6%	79.2%	6.8%	47.22%	20.0%	7.5	YES	13.9%	$18,546	40%
9.8%	92.9%	4.4%	60.07%	0.0%	8.1	YES	43.0%	$18,597	86%
14.9%	92.7%	2.6%	53.89%	0.0%	9.2	YES	18.0%	$28,354	25%
11.5%	61.3%	6.7%	56.63%	0.0%	9.7	NO	33.9%	$18,714	50%
15.5%	73.9%	4.3%	49.46%	10.0%	10.2	YES	23.5%	$21,128	67%
8.0%	78.6%	3.7%	50.71%	0.0%	0	YES	24.9%	$21,064	80%
16.7%	**73.2%**	**5.8%**	**51.5%**	**12.3%**	**9.5**	**45.2%**	**18.1%**	**$24,961**	**49%**
16.7%	**72.9%**	**4.7%**	**52.8%**	**15.4%**	**7.0**	**18.2%**	**20.7%**	**$23,774**	**52%**
16.7%	**73.0%**	**5.3%**	**52.1%**	**13.7%**	**8.3**	**33.3%**	**19.3%**	**$24,384**	**50%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	**–**	**17.9%**	**$31,472**	**28%**

Arkansas: Education Programs

Arkansas Educational Television Network & Arkansas Department of Education

ARKANSAS IDEAS (INTERNET DELIVERED EDUCATION FOR ARKANSAS SCHOOLS)

Program Description: : IDEAS, a partnership between the Arkansas Educational Television Network and the Arkansas Department of Education, was launched in September 2006 to provide online professional development to educators in the state. In addition to courses on core curriculum subjects, training in digital literacy and integrating technology in the classroom will also be offered.

Service Area: Arkansas

Impact/Success: The program was just launched in September 2006.

For more information:
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Phone: (501) 450-1727
Website: http://ideas.aetn.org

ARKANSAS VIRTUAL HIGH SCHOOL

Program Description: The Arkansas Virtual High School began in 2000 to provide Arkansas high school students with an alternate way to take courses that would not normally be available to them due to scheduling problems or other conflicts.

Service Area: Arkansas

Impact/Success: In 2004-2005, 1,200 students were enrolled in the Arkansas Virtual High School.

For more information:
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EAST (ENVIRONMENTAL AND SPATIAL TECHNOLOGY) INITIATIVE

Purpose: EAST provides students with up to date technologies that allow them to explore animation, computer aided design, engineering design, visualization, database design, webpage design, programming, office automation, digital filmmaking, virtual reality, global positioning systems and geographic information systems. The students work in teams to use these technologies and complete a sophisticated, service-oriented project.

Service Area: Schools in Arkansas, California, Hawaii, Illinois, Louisiana and Mississippi are participating in the EAST program.

Impact/Success: The program began with one classroom in Arkansas and has since expanded to over 230 schools in six states.

For more information:
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Arkansas: Healthcare Programs

University of Arkansas for Medical Sciences & Arkansas Medical Society

ANGELS (ANTENATAL & NEONATAL GUIDELINES, EDUCATION AND LEARNING SYSTEM)

Program Description: ANGELS was created as a collaboration between the University of Arkansas for Medical Science (UAMS), a state Medicaid program and the Arkansas Medical Society to improve obstetrical care in rural areas. The program uses interactive compressed video to host weekly telemedicine conferences, allowing physicians to consult maternal-fetal medicine specialists about individual cases. ANGELS also uses this technology to allow ultrasounds taken in rural areas to be read in real-time by specialists. In addition, ANGELS runs a call center providing physicians with 24-hour access to maternal-fetal medicine and neonatal specialists.

Service Area: Telemedicine clinics are provided in Arkansas hospitals in the Delta communities of Newport, Lake Village, Batesville, Crossett, Searcy and Stuttgart.

Impact/Success: The ANGELS program was named a national winner in the 2004 Innovations Awards Program of the Council of State Governments (CSG). The program performed 437 telemedicine consults and the call center received 13,917 calls in 2005.

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University of Arkansas for Medical Sciences

RURAL HOSPITAL PROGRAM, TELEMEDICINE PROGRAM

Program Description: The Arkansas Rural Hospital Program began a telemedicine network in 1994, using compressed video technologies to link rural hospitals. Today, the network connects 17 rural hospitals in the state. The program includes telemedicine clinical consults and teleconferencing as well as distance learning. UAMS created a Center for Distance Health in July 2006 to coordinate educational, clinical, research and outreach opportunities and provide telehealth technical assistance.

Service Area: The UAMS Telehealth Network includes hospitals and clinics in over 15 Arkansas Delta counties.

Impact/Success: The UAMS Telehealth Network now includes six Area Health Education Centers, 17 rural hospitals, eight universities, three Community Health Centers, four independent sites and five UAMS campus sites.

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ILLINOIS

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
ALEXANDER	RURAL	28.6%	39.3	16.6%	36.4%	3.2%	1,076	–	50.0%
FRANKLIN	RURAL	21.4%	95.2	18.0%	0.7%	1.6%	727	–	90.9%
GALLATIN	RURAL	0.0%	19.2	18.5%	0.8%	1.6%	705	–	0.0%
HAMILTON	RURAL	0.0%	19.2	19.0%	1.1%	1.6%	576	–	100.0%
HARDIN	RURAL	66.7%	26.5	18.4%	2.9%	2.1%	606	–	0.0%
JACKSON	RURAL	6.7%	98.9	11.3%	17.6%	5.6%	1,339	–	87.5%
JOHNSON	RURAL	0.0%	37.7	13.5%	13.0%	5.9%	617	–	33.3%
MASSAC	RURAL	33.3%	63.4	17.3%	6.5%	2.0%	926	–	0.0%
PERRY	RURAL	20.0%	51.6	15.6%	9.4%	3.8%	1,383	–	80.0%
POPE	RURAL	0.0%	11.7	19.9%	5.8%	2.1%	242	–	0.0%
PULASKI	RURAL	0.0%	35.1	16.2%	33.0%	3.1%	351	–	0.0%
RANDOLPH	RURAL	7.1%	57.6	15.1%	9.7%	3.3%	756	–	50.0%
SALINE	RURAL	33.3%	68.2	18.4%	5.2%	2.1%	727	–	40.0%
UNION	RURAL	0.0%	43.8	17.4%	1.8%	6.8%	2,606	–	71.4%
WHITE	RURAL	11.1%	30.6	20.5%	0.9%	1.5%	776	–	33.3%
WILLIAMSON	RURAL	30.0%	147.5	16.3%	4.2%	3.0%	1,096	–	40.0%
DRA		**14.2%**	**56.6**	**16.0%**	**8.5%**	**3.4%**	**937**	**–**	**57.6%**
NON-DRA		**10.3%**	**248.5**	**11.8%**	**20.3%**	**28.7%**	**1,673**	**–**	**71.5%**
STATE		**10.6%**	**227.6**	**12.0%**	**20.0%**	**28.0%**	**1,648**	**3.8**	**70.4%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
6.9%	81.5%	4.3%	62.1%	0.0%	13.4	NO	27.7%	$17,525	29%
11.3%	77.4%	3.2%	64.0%	0.0%	9.3	NO	29.4%	$21,599	71%
7.7%	74.4%	7.5%	68.3%	0.0%	0	YES	38.1%	$20,478	83%
10.5%	89.3%	4.8%	71.7%	9.1%	0	YES	43.7%	$21,162	60%
9.6%	229.1%	9.0%	70.2%	0.0%	0	YES	43.8%	$20,717	67%
32.0%	91.3%	3.9%	57.9%	26.7%	10.1	YES	16.4%	$23,620	77%
11.7%	77.6%	1.7%	55.5%	0.0%	10.2	NO	46.6%	$18,323	89%
10.7%	70.5%	2.9%	63.6%	0.0%	0	NO	24.0%	$23,174	0%
10.1%	78.7%	4.3%	59.2%	33.3%	6.3	NO	27.5%	$19,334	60%
10.5%	79.8%	6.3%	73.3%	50.0%	0	NO	36.9%	$19,325	100%
7.1%	88.4%	16.4%	65.5%	0.0%	0	NO	28.7%	$18,882	38%
8.6%	91.6%	1.6%	59.8%	9.1%	12.7	YES	16.1%	$21,169	57%
12.1%	79.1%	5.9%	59.9%	0.0%	11	NO	22.6%	$22,123	67%
15.8%	234.9%	8.2%	65.8%	0.0%	0	NO	26.6%	$21,295	43%
10.4%	75.0%	4.8%	70.3%	8.3%	0	NO	28.5%	$24,575	78%
17.2%	71.3%	3.3%	61.5%	16.7%	6.8	NO	18.6%	$23,898	60%
14.9%	**91.3%**	**4.4%**	**61.9%**	**8.7%**	**7.2**	**6.3%**	**23.1%**	**$22,030**	**64%**
26.4%	**67.8%**	**6.3%**	**63.2%**	**20.6%**	**8.1**	**11.6%**	**16.2%**	**$33,270**	**34%**
26.1%	**68.4%**	**6.2%**	**63.2%**	**19.8%**	**8.1**	**10.8%**	**16.3%**	**$32,965**	**37%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	–	**17.9%**	**$31,472**	**28%**

Illinois: Connectivity Programs

Illinois Department of Commerce and Economic Opportunity

THE DIGITAL DIVIDE GRANT PROGRAM

Program Description: : The goal of this grant program is to increase access to computers and telecommunications technology and provide related training to people living in low-income communities.

Geographic Eligibility: Illinois

Other Eligibility Criteria: The program targets low-income communities in which at least 30 percent of students are eligible for a free lunch or 40 percent of students are eligible for a free or reduced price lunch under the national school lunch program. Eligible applicants include state and local educational agencies, colleges and universities, educational organizations, public hospitals, libraries, park districts and other entities that have received a Community Technology Center grant.

Min/Max Grant Amounts: Grants are limited to a maximum of $75,000 per fiscal year.

Deadline: The application deadline for FY 2007 was September 12, 2006.

For more information:
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Bureau of Technology and Industrial Competitiveness
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Website:
http://www.commerce.state.il.us/dceo/Bureaus/Technology/Technology+Grants+Programs/1-Eliminate+the+Digital+Divide.htm

Southern Illinois University

CONNECT SI

Program Description: Connect SI is a collaborative effort to transform a 20-county region of Southern Illinois through broadband access. The goals of the effort include promoting investment in broadband infrastructure, expanding information technology applications in areas such as healthcare, education and government and educating the community about the need for and benefits of broadband.

Service Area: 20 counties in Southern Illinois, including the Delta counties of Alexander, Franklin, Gallatin, Hamilton, Hardin, Jackson, Perry, Pulaski, Johnson, Massac, Pope, Randolph, Saline, Union, White and Williamson.

Impact/Success: The Initiative is in its first year of operation. It received a $400,000 Opportunity Returns grant from the Illinois Department of Commerce and Economic Opportunity in October 2006.

For more information:
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Website: http://www.sicbcc.org/local/components/scrapbook/default.php?sectiondetailid=17&sc_id=1127162923

Illinois: Education Programs

Illinois State Board of Education
Illinois Mathematics and Science Academy

ILLINOIS VIRTUAL HIGH SCHOOL

Program Description: The Illinois State Board of Education and The Illinois Mathematics and Science Academy founded the Illinois Virtual High School to provide online high school courses to Illinois students.

Service Area: Illinois

Impact/Success: 1,917 students were enrolled in courses from Summer 2005 to Spring 2006.

For more information:
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Website: http://www.ivhs.org

Illinois State Board of Education

TECHNOLOGY IMMERSION PILOT PROJECT

Program Description: The program supplies participating schools with wireless laptop computers for 6-8th grade students and their teachers and administrators. The program also provides technical assistance for school-based networks and professional development opportunities for teachers.

Geographic Eligibility: Illinois. In the first implementation of the project, grants are to be awarded to at least seven districts, at least three schools within the City of Chicago School District 299, at least one school in each of three districts located in the portion of Cook County outside of the city of Chicago and DuPage, Kane, Lake and Will counties and at least one school in each of three districts located in the remainder of the state.

Other Eligibility Criteria: The project is open to schools or school districts that serve students in grades 6-8, have state approved technology plans and have one or more schools in Academic Early Warning or Academic Watch status, or serve a significant percentage of students whose identified needs would make the use of technology devices more necessary or effective in their education than is the case for the student population as a whole. A full list of eligible schools and districts is available on the program's website.

Min/Max Grant Amounts: Successful applicants receive wireless laptops for each student, teacher and administrator participating in the project in addition to up to $15,000 worth of networking hardware, supplies or software.

Deadline: For the 2006-2007 school year, applications were due August 24, 2006. Funding is planned for subsequent years, but will depend on appropriations for the program.

For more information:
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Curriculum and Instruction Division
Illinois State Board of Education
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Website:
http://www.isbe.net/curriculum/elearning/html/tip_project.htm

Illinois: Healthcare Programs

Southern Illinois University

TELEHEALTH NETWORKS AND PROGRAMS

Program Description: The Southern Illinois University (SIU) Telehealth Networks and Programs were created to improve local healthcare provision by using technologies such as video conferencing to develop institution-community relationships. The SIU Telehealth Network now connects rural hospitals and clinics throughout the state of Illinois.

Service Area: The SIU Telehealth Network includes sites in the Illinois Delta counties of Franklin, Hamilton, Hardin, Jackson, Massac, Perry, Randolph, Saline, White and Williamson as well as many other counties in the rest of the state.

Impact/Success: The Illinois Critical Access Hospital Network presented an award to SIU Telehealth in January 2006 in appreciation of SIU's efforts to connect rural Illinois hospitals.

For more information:
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KENTUCKY

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
BALLARD	RURAL	40.0%	32.9	16.4%	3.8%	1.5%	7,777	–	0%
CALDWELL	RURAL	0.0%	37.2	17.3%	5.3%	1.1%	2,583	–	0%
CALLOWAY	RURAL	0.0%	89.4	14.7%	6.0%	3.1%	4,299	–	100%
CARLISLE	RURAL	0.0%	27.7	17.8%	1.7%	2.4%	–	–	0%
CHRISTIAN	URBAN	12.5%	98.6	10.1%	26.4%	9.0%	7,127	–	100%
CRITTENDEN	RURAL	50.0%	25.2	16.8%	1.0%	1.2%	1,153	–	100%
FULTON	RURAL	0.0%	35.7	17.5%	24.2%	1.5%	1,510	–	100%
GRAVES	RURAL	18.2%	67.3	15.5%	5.4%	7.8%	2,190	–	100%
HENDERSON	URBAN	16.7%	102.8	13.1%	8.0%	2.7%	1,250	–	100%
HICKMAN	RURAL	50.0%	21.2	18.5%	10.5%	2.1%	1,733	–	0%
HOPKINS	RURAL	10.0%	85.0	14.9%	7.3%	2.3%	2,740	–	50%
LIVINGSTON	RURAL	0.0%	30.9	15.5%	0.7%	1.6%	–	–	0%
LYON	RURAL	0.0%	37.7	18.4%	8.1%	1.5%	2,721	–	0%
MARSHALL	RURAL	0.0%	100.4	17.9%	0.6%	1.7%	2,522	–	100%
MCCRACKEN	RURAL	0.0%	257.9	15.7%	12.0%	2.5%	1,613	–	100%
MCLEAN	RURAL	0.0%	39.0	14.4%	0.6%	2.4%	–	–	100%
MUHLENBERG	RURAL	15.4%	66.9	15.4%	5.1%	1.7%	2,113	–	100%
TODD	RURAL	0.0%	31.6	13.5%	9.1%	3.8%	5,994	–	–
TRIGG	RURAL	0.0%	29.1	16.9%	10.1%	2.4%	1,812	–	0%
UNION	RURAL	0.0%	45.4	12.6%	14.5%	3.2%	1,945	–	100%
WEBSTER	RURAL	37.5%	42.1	14.9%	4.9%	7.6%	2,347	–	50%
DRA		**12.6%**	**65.0**	**14.6%**	**10.0%**	**3.9%**	**2,349**	**–**	**63%**
NON-DRA		**17.4%**	**112.8**	**12.2%**	**8.9%**	**3.8%**	**1,925**	**–**	**80%**
STATE		**16.6%**	**103.7**	**12.5%**	**9.0%**	**3.8%**	**1,967**	**4.1**	**78%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.04**	**62%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
10.6%	87.6%	2.3%	66.8%	0.0%	0	NO	33.2%	$27,433	80.0%
10.0%	73.2%	2.5%	64.0%	0.0%	8.1	NO	31.1%	$22,960	0.0%
24.0%	98.4%	1.6%	54.7%	100.0%	4.5	NO	20.6%	$23,729	16.7%
10.6%	64.6%	2.0%	69.0%	0.0%	0	NO	52.4%	$23,255	66.7%
12.5%	52.2%	4.5%	45.3%	16.7%	6.3	NO	9.8%	$24,464	12.5%
7.3%	81.9%	1.8%	59.8%	–	0	NO	42.1%	$20,523	50.0%
11.5%	178.0%	3.4%	52.7%	0.0%	12.1	NO	20.0%	$23,468	0.0%
12.6%	64.5%	2.4%	58.7%	0.0%	5.7	NO	28.2%	$21,944	18.2%
13.8%	80.9%	4.8%	54.6%	0.0%	6.8	YES	8.1%	$26,232	16.7%
8.8%	64.2%	2.8%	59.6%	0.0%	0	NO	35.5%	$33,423	50.0%
10.6%	56.2%	4.3%	53.2%	42.9%	7.5	YES	16.4%	$23,368	10.0%
8.4%	70.2%	5.9%	62.9%	0.0%	0	NO	31.0%	$23,607	57.1%
10.1%	60.0%	0.7%	59.3%	0.0%	0	NO	29.3%	$20,825	0.0%
13.7%	70.6%	2.5%	63.5%	33.3%	5.1	YES	25.3%	$24,971	0.0%
18.1%	71.8%	3.0%	60.3%	66.7%	7	NO	13.1%	$30,316	0.0%
8.7%	64.7%	2.3%	60.9%	0.0%	0	NO	40.7%	$25,374	0.0%
8.1%	64.1%	3.6%	55.8%	0.0%	6.2	NO	19.8%	$20,658	23.1%
9.2%	66.9%	4.1%	55.4%	33.3%	10.4	NO	32.7%	$20,870	0.0%
12.0%	57.2%	7.7%	61.7%	0.0%	9.4	YES	29.2%	$26,473	0.0%
10.9%	69.5%	3.6%	50.6%	0.0%	9.1	NO	21.1%	$23,839	25.0%
7.1%	74.4%	2.0%	53.9%	0.0%	11.1	NO	24.9%	$26,485	37.5%
12.9%	**68.9%**	**3.4%**	**56.2%**	**13.8%**	**6.1**	**23.8%**	**18.2%**	**$24,783**	**23.0%**
17.7%	**62.3%**	**4.1%**	**58.7%**	**20.3%**	**6.9**	**45.5%**	**18.3%**	**$26,819**	**31.0%**
17.1%	**63.0%**	**4.0%**	**58.4%**	**19.2%**	**6.8**	**41.7%**	**18.3%**	**$26,575**	**30.0%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	**–**	**17.9%**	**$31,472**	**28.0%**

Kentucky: Connectivity Programs

CONNECTKENTUCKY

Program Description: ConnectKentucky brings together private businesses, government and universities in an effort to increase the availability and usage of technology in the Commonwealth. One of the main goals of the program is to achieve full broadband deployment in Kentucky by the end of 2007. ConnectKentucky also provides technology research and consulting, information on public policy and government affairs and recruiting of high-tech companies.

Service Area: Kentucky

Impact/Success: Since the beginning of the program, broadband availability has increased by 33 percent and home computer ownership has increased by 17 percent. Broadband availability is expected to reach 90 percent by the end of 2006, with full coverage planned by the end of 2007. ConnectKentucky was named the winner of the United States Economic Development Administration's 2006 Excellence in Innovation Award. One of ConnectKentucky's programs, No Child Left Offline, was a winner of the 2006 Southern Growth Policies Board Innovator Award.

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Kentucky: Education Programs

KENTUCKY VIRTUAL HIGH SCHOOL

Program Description: The Kentucky Virtual High School (KVHS) began in 2000 and offers high school courses and exam review courses to high school and middle school students across the state. KVHS also offers online professional development courses to educators.

Service Area: Kentucky

Impact/Success: 2,220 students were enrolled during the 2004-2005 school year.

For more information:
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Kentucky Virtual High School
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E-mail: lpitteng@kde.state.ky.us
Website: http://www.kvhs.org

Kentucky: Healthcare Programs

KENTUCKY TELECARE AND TELEHEALTH NETWORK

Program Description: The Kentucky TeleCare Network, based at the University of Kentucky, was launched in 1994. It, in turn helped to launch the legislatively mandated Kentucky TeleHealth Network in 2000, which it co-manages with the University of Louisville. In addition to providing clinical services, continuing education for medical professionals and patient and community education, the network has also initiated a home health monitoring project and built a national model for disaster preparedness response.

Service Area: The network serves 60 sites across the state, including five sites in the Delta counties of Calloway, Crittenden, Hopkins, Marshall and McCracken.

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LOUISIANA

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
ACADIA	URBAN	20.0%	90.4	12.2%	19.0%	2.1%	1,911	2.8	–
ALLEN	RURAL	37.5%	33.2	12.2%	27.0%	8.9%	1,148	2.0	0%
ASCENSION	URBAN	0.0%	289.7	7.5%	20.9%	6.3%	1,068	3.1	100%
ASSUMPTION	RURAL	33.3%	68.6	11.3%	32.7%	3.1%	1,551	2.2	–
AVOYELLES	RURAL	23.1%	50.3	13.3%	32.1%	2.1%	2,458	3.4	100%
CALDWELL	RURAL	25.0%	20.1	13.9%	18.4%	3.0%	2,119	2.5	0%
CATAHOULA	RURAL	20.0%	15.2	14.5%	28.0%	2.1%	589	2.6	100%
CONCORDIA	RURAL	33.3%	28.4	15.1%	38.8%	3.2%	939	2.8	100%
EAST BATON ROUGE	URBAN	4.2%	903.1	10.3%	45.6%	4.4%	1,643	2.9	100%
EAST CARROLL	RURAL	0.0%	21.4	12.8%	68.4%	2.5%	899	2.5	–
EAST FELICIANA	RURAL	0.0%	46.4	11.0%	46.3%	2.0%	1,943	2.9	0%
EVANGELINE	RURAL	50.0%	53.0	12.5%	29.7%	2.3%	1,849	3.4	100%
FRANKLIN	RURAL	0.0%	33.5	15.7%	32.3%	1.6%	1,490	2.3	–
GRANT	RURAL	0.0%	29.2	12.7%	12.8%	3.1%	1,049	3.4	0%
IBERIA	RURAL	20.0%	128.7	11.7%	34.7%	3.2%	2,851	3.1	0%
IBERVILLE	RURAL	0.0%	53.0	11.0%	50.5%	2.3%	937	2.4	100%
JACKSON	RURAL	25.0%	26.8	16.1%	27.4%	1.5%	1,271	2.2	0%
JEFFERSON	URBAN	0.0%	1475.3	12.3%	30.5%	16.0%	4,918	4.0	–
LA SALLE	RURAL	20.0%	22.7	14.6%	13.1%	1.7%	1,090	2.8	100%
LAFOURCHE	URBAN	11.1%	84.3	11.6%	16.7%	3.5%	1,722	2.2	100%
LINCOLN	RURAL	0.0%	89.4	11.6%	41.7%	3.2%	2,494	3.1	–
LIVINGSTON	URBAN	0.0%	157.6	8.5%	5.2%	3.0%	2,915	2.5	–
MADISON	RURAL	0.0%	20.7	11.3%	62.9%	4.8%	1,868	1.7	–
MOREHOUSE	RURAL	0.0%	38.6	14.8%	44.6%	1.6%	2,359	3.1	100%
NATCHITOCHES	RURAL	30.8%	30.8	12.0%	41.8%	2.9%	2,600	2.5	0%
ORLEANS	URBAN	5.3%	2591.6	11.6%	71.1%	6.5%	2,931	4.4	100%
OUACHITA	URBAN	0.0%	242.1	11.9%	35.9%	2.8%	2,026	2.9	0%
PLAQUEMINES	URBAN	33.3%	33.1	9.8%	28.7%	4.9%	1,556	2.9	100%
POINTE COUPEE	RURAL	7.1%	40.4	14.2%	38.2%	2.5%	705	2.4	0%
RAPIDES	URBAN	5.3%	96.3	13.1%	33.1%	3.5%	2,123	2.8	100%
RICHLAND	RURAL	25.0%	36.9	14.3%	38.1%	2.7%	3,437	1.9	100%
ST. BERNARD	URBAN	0.0%	141.6	13.4%	12.2%	10.9%	4,132	0.0	100%
ST. CHARLES	URBAN	0.0%	174.1	9.1%	27.6%	6.7%	1,762	2.5	–
ST. HELENA	RURAL	0.0%	25.3	12.2%	54.4%	2.7%	–	2.4	100%
ST. JAMES	URBAN	14.3%	86.1	11.9%	49.8%	1.4%	2,639	4.5	0%
ST. JOHN THE BAPTIST	URBAN	0.0%	205.2	7.7%	48.8%	7.2%	1,093	2.1	100%
ST. LANDRY	URBAN	30.8%	95.9	13.3%	42.9%	1.9%	3,424	3.4	100%
ST. MARTIN	URBAN	33.3%	67.6	10.1%	33.3%	2.1%	2,935	3.3	100%
TANGIPAHOA	RURAL	13.3%	131.1	10.4%	29.9%	3.5%	4,316	2.6	–
TENSAS	RURAL	0.0%	10.4	14.4%	56.3%	3.8%	780	0.9	100%
UNION	RURAL	0.0%	26.1	15.2%	27.7%	5.4%	1,913	2.4	100%
WASHINGTON	RURAL	0.0%	65.7	14.2%	32.2%	2.0%	1,757	1.9	100%
WEST BATON ROUGE	URBAN	0.0%	113.5	9.9%	36.1%	3.5%	2,171	4.9	0%
WEST CARROLL	RURAL	25.0%	33.8	16.0%	19.0%	2.8%	2,447	2.6	0%
WEST FELICIANA	RURAL	50.0%	37.5	7.9%	49.7%	2.1%	–	1.8	100%
WINN	RURAL	20.0%	17.2	14.0%	32.5%	1.9%	1,366	2.3	100%
DRA		**18.2%**	**110.7**	**11.6%**	**38.8%**	**5.9%**	**2,140**	**3.0**	**67%**
NON-DRA		**7.5%**	**89.7**	**11.9%**	**28.2%**	**4.7%**	**1,514**	**2.8**	**93%**
STATE		**10.8%**	**103.2**	**11.7%**	**35.4%**	**5.6%**	**1,893**	**3.0**	**74%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
9.4%	60.2%	7.2%	60.1%	40.0%	7.5	NO	29.4%	$21,683	20%
9.3%	68.5%	2.2%	47.7%	0.0%	7.6	YES	24.2%	$17,932	50%
14.5%	56.8%	4.7%	62.7%	33.3%	9.9	YES	43.1%	$26,441	14%
7.4%	51.7%	7.3%	63.4%	0.0%	11.6	NO	20.8%	$25,903	33%
8.3%	55.2%	6.8%	50.0%	0.0%	9.7	YES	26.0%	$18,810	15%
8.8%	38.6%	4.8%	58.6%	33.3%	9.8	NO	29.3%	$19,104	25%
9.4%	61.8%	6.4%	62.9%	33.3%	8.8	NO	33.0%	$19,922	20%
9.6%	75.4%	6.2%	63.2%	50.0%	8.5	NO	21.3%	$19,698	33%
30.8%	66.5%	9.3%	61.2%	100.0%	10.4	NO	6.3%	$29,786	4%
12.3%	62.1%	7.7%	54.9%	0.0%	8	NO	19.7%	$18,302	0%
11.3%	74.7%	5.4%	58.4%	0.0%	7.7	NO	25.6%	$21,590	0%
9.5%	50.9%	6.6%	57.4%	16.7%	9.9	NO	23.7%	$18,058	50%
9.8%	63.3%	7.3%	60.4%	0.0%	17.2	NO	28.4%	$19,145	0%
9.8%	57.4%	6.0%	57.4%	0.0%	11.7	YES	32.5%	$20,175	17%
11.2%	54.7%	6.0%	61.8%	25.0%	9.7	NO	16.1%	$23,533	20%
9.6%	59.4%	7.5%	62.8%	50.0%	9.4	NO	12.5%	$21,498	25%
12.9%	85.3%	6.0%	66.7%	0.0%	15	NO	26.4%	$24,577	25%
21.5%	51.3%	9.7%	58.4%	71.4%	7.5	YES	16.6%	$31,585	0%
11.2%	70.4%	3.9%	60.6%	0.0%	15.3	YES	24.3%	$19,082	20%
12.4%	76.2%	5.8%	55.5%	33.3%	10.5	NO	31.0%	$26,847	22%
31.8%	71.0%	6.4%	55.2%	33.3%	6.2	NO	14.2%	$22,158	0%
11.4%	59.9%	1.2%	56.9%	50.0%	6.5	NO	33.9%	$22,181	11%
11.0%	69.8%	11.0%	57.7%	0.0%	12.7	YES	15.2%	$18,549	0%
9.7%	61.3%	9.3%	57.1%	0.0%	13.9	NO	20.4%	$21,001	33%
18.4%	71.0%	6.4%	58.9%	33.3%	10.3	YES	18.9%	$21,698	31%
25.8%	61.0%	9.3%	58.9%	100.0%	8.8	YES	12.2%	$30,152	5%
22.7%	59.9%	8.9%	59.7%	0.0%	10.8	YES	13.9%	$26,237	0%
10.8%	63.1%	6.0%	58.9%	0.0%	5.3	YES	15.7%	$23,793	33%
12.8%	57.9%	11.7%	67.2%	25.0%	7.5	NO	25.6%	$22,783	57%
16.5%	64.8%	8.7%	57.4%	20.0%	11	YES	14.0%	$26,934	16%
12.8%	67.4%	7.4%	58.1%	0.0%	13.5	NO	19.8%	$19,725	25%
8.9%	49.8%	6.3%	60.6%	0.0%	8.1	NO	22.2%	$25,046	0%
17.5%	67.7%	3.4%	66.3%	100.0%	4.7	YES	14.2%	$26,470	0%
11.2%	40.9%	2.2%	76.1%	0.0%	9.4	NO	54.8%	$19,985	0%
10.1%	69.5%	7.0%	73.6%	0.0%	11.6	YES	11.9%	$21,487	14%
12.9%	50.8%	8.5%	61.2%	–	7.4	YES	19.1%	$22,592	40%
10.7%	64.5%	5.0%	58.4%	12.5%	10.1	YES	18.2%	$19,517	23%
8.5%	58.1%	6.5%	65.7%	50.0%	9.1	YES	23.0%	$19,252	33%
16.3%	60.4%	8.9%	55.0%	50.0%	8.1	NO	16.9%	$21,789	14%
14.8%	99.1%	6.9%	66.8%	0.0%	11.2	YES	23.9%	$22,516	0%
11.8%	95.7%	4.1%	62.4%	0.0%	7.8	NO	21.3%	$22,276	0%
10.9%	74.6%	4.0%	55.3%	25.0%	11.8	NO	25.9%	$19,809	0%
11.1%	83.7%	6.8%	67.9%	100.0%	8.4	YES	12.4%	$24,586	0%
9.5%	70.6%	5.6%	53.9%	0.0%	14.2	NO	29.5%	$18,231	25%
10.6%	69.0%	3.4%	41.8%	0.0%	26.1	YES	13.4%	$17,183	75%
9.4%	69.2%	5.5%	52.8%	0.0%	13.5	NO	18.2%	$18,243	20%
18.8%	**61.7%**	**7.5%**	**59.3%**	**23.8%**	**9.3**	**19.6%**	**16.5%**	**$26,138**	**18%**
18.6%	**61.8%**	**6.2%**	**59.1%**	**24.1%**	**9.8**	**5.6%**	**16.7%**	**$26,693**	**16%**
18.7%	**61.7%**	**7.0%**	**59.2%**	**23.8%**	**9.5**	**15.6%**	**16.6%**	**$26,312**	**17%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	–	**17.9%**	**$31,472**	**28%**

Louisiana: Education Programs

Louisiana Department of Education, Louisiana Center for Educational Technology

INTECH

Program Description: INTECH is a technology based staff development program for educators in grades K-12. The program trains teachers in basic technology skills as well as in bringing technology into the classroom.

Service Area: Louisiana

For more information:
Quentina Timoll
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E-mail: intech@ladoe.org
Website:
http://www.doe.state.la.us/lde/intech/intech/index.htm
http://www.doe.state.la.us/lde/lcet/322.html

Louisiana Department of Education, Louisiana Center for Educational Technology

LEADTECH

Program Description: LEADTech is a training program for school administrators designed to increase their understanding of instructional technology and how it can be used to improve schools and increase student learning.

Service Area: Louisiana

For more information:
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E-mail: sgauthier@lcet.state.la.us
Website: http://www.doe.state.la.us/lde/lcet/1632.html

Louisiana Department of Education, Louisiana Center for Educational Technology

LOUISIANA TECHNOLOGY LITERACY INITIATIVE

Program Description: The Louisiana Technology Literacy Initiative is a training program designed to assist librarians in integrating technology into school libraries. The program teaches librarians how to help students become information literate.

Service Area: Louisiana

For more information:
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Website: http://www.doe.state.la.us/lde/lcet/415.html

Louisiana Department of Education, Louisiana Center for Educational Technology

TEACHING, LEARNING AND TECHNOLOGY CENTERS

Program Description: Eight regional centers across the state provide technology training services to educators and support the work of the Louisiana Center for Educational Technology.

Service Area: Service areas and contacts for each of the regional centers are listed at http//www.doe.state.la.us/lde/lcet/2040.html.

Impact/Success: During fall 2004, the centers provided professional development to more than 2,300 teachers and 400 administrators.

For more information:
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Email: mmurphy@lcet.state.la.us
Website: http://www.doe.state.la.us/lde/lcet/326.html

Louisiana Department of Education, Louisiana Center for Educational Technology

LOUISIANA VIRTUAL SCHOOL

Program Description: The Louisiana Virtual School (LVS) was created as a partnership between the Louisiana Department of Education and The Louisiana School for Math, Science and the Arts. LVS began offering classes in the 2000-2001 school year.

Service Area: Louisiana

Impact/Success: In the past six years, the Louisiana Virtual School has served more than 9,000 students. LVS recently received a $2.5 million grant from the Bell South Foundation to increase its capacity to accommodate students affected by hurricanes Katrina and Rita.

For more information:
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E-mail: kbradford@lcet.state.la.us
Website: http://www.louisianavirtualschool.net

Louisiana: Healthcare Programs

Louisiana Department of Health and Hospitals

COMMUNITY-BASED AND RURAL HEALTH GRANT PROGRAM

Program Description: The grant program is designed to maintain, enhance or expand access to primary and preventive health services in rural and other underserved areas. This includes telemedicine projects to increase access to healthcare services.

Eligibility: Eligible applicants include public or non-profit healthcare provider organizations located in a rural area of the state, a federally designated Health Professional Shortage Area and/or identified in Act 162 from the 2002 First Extraordinary Session of the Louisiana Legislature.

Min/Max Grant Amounts: For FY 2006, grant applications were limited to a maximum of $75,000. Applicants were required to obtain 30 percent cash and/or in-kind matching funds for every dollar requested.

Deadline: For FY 2006, the deadline for letters of intent was June 30, 2006.

For more information:
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Louisiana Dept. of Health and Hospitals
Office of Primary Care and Rural Health
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Website:
http://www.dhh.state.la.us/offices/page.asp?id=88&detail=3820

Lake Charles Memorial Hospital TeleMedicine

THE COMMUNITY HOSPITAL TELEHEALTH CONSORTIUM

Program Description: Lake Charles Memorial Hospital serves as the lead agency for this network that was established in 1999. In addition to clinical services, the network provides community education programs as well as continuing education for medical professionals.

Service Area: The Consortium serves more than 20 sites in Louisiana and Mississippi, including seven sites in the Louisiana Delta parishes of Acadia, East Baton Rouge, Iberia and St. Landry.

Impact/Success: A program study found that patients seen in the network would have had to travel an average of 412 miles for medical services in the absence of the telemedicine network.

For more information:
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Telemedicine Director
Lake Charles Memorial Hospital TeleMedicine
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Email: mmorris@lcmh.com
Website:
http://www.lcmh.com/telemedicine/default.htm.

MISSISSIPPI

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT AGE 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
ADAMS	RURAL	0.0%	72.2	15.9%	56.0%	1.65%	5475.1	3.7	100.0%
AMITE	RURAL	0.0%	18.6	15.9%	42.4%	2.97%	N/A	4.8	N/A
ATTALA	RURAL	20.0%	26.8	16.8%	41.1%	3.29%	532.6	3.8	0.0%
BENTON	RURAL	0.0%	19.2	15.9%	35.9%	2.43%	1322.5	5.4	N/A
BOLIVAR	RURAL	13.3%	44.9	10.5%	66.7%	2.61%	622.5	3.4	50.0%
CARROLL	RURAL	16.7%	16.8	14.6%	34.9%	1.78%	3542.7	2.8	N/A
CLAIBORNE	RURAL	33.3%	23.5	10.0%	84.7%	1.70%	1466.9	8.6	N/A
COAHOMA	RURAL	70.0%	53.2	11.7%	73.4%	2.26%	3769.8	3.5	0.0%
COPIAH	RURAL	0.0%	37.4	12.9%	51.0%	2.60%	1538.8	3.7	100.0%
COVINGTON	RURAL	0.0%	48.7	13.0%	36.6%	2.23%	N/A	4.8	100.0%
DESOTO	URBAN	0.0%	260.5	9.1%	17.3%	6.52%	1453.6	6.4	N/A
FRANKLIN	RURAL	25.0%	14.8	15.0%	37.1%	1.14%	N/A	6.3	0.0%
GRENADA	RURAL	0.0%	54.0	14.5%	42.2%	1.32%	2291.5	6.2	100.0%
HINDS	URBAN	19.0%	286.4	10.7%	65.5%	1.94%	1965.2	4.3	50.0%
HOLMES	RURAL	0.0%	28.1	11.5%	80.9%	1.79%	N/A	5.8	33.3%
HUMPHREYS	RURAL	20.0%	25.5	11.4%	73.9%	3.90%	1075.0	4.7	0.0%
ISSAQUENA	RURAL	66.7%	5.0	12.7%	63.3%	1.01%	N/A	N/A	N/A
JEFFERSON	RURAL	0.0%	18.3	10.0%	86.5%	1.33%	N/A	3.8	0.0%
JEFFERSON DAVIS	RURAL	0.0%	32.8	13.5%	58.5%	2.04%	N/A	8.2	N/A
LAFAYETTE	RURAL	33.3%	63.6	10.3%	27.0%	2.78%	N/A	4.8	50.0%
LAWRENCE	RURAL	0.0%	31.3	13.6%	32.9%	1.65%	N/A	3.3	N/A
LEFLORE	RURAL	33.3%	61.4	11.4%	70.4%	4.27%	9274.8	6.2	0.0%
LINCOLN	RURAL	0.0%	57.3	13.6%	30.4%	1.47%	3249.7	5.0	100.0%
MADISON	URBAN	0.0%	111.2	10.1%	39.6%	2.49%	2433.5	4.5	100.0%
MARION	RURAL	0.0%	46.6	14.3%	33.1%	1.46%	2987.7	4.2	N/A
MARSHALL	RURAL	14.3%	50.4	11.2%	50.7%	2.68%	2197.7	5.9	50.0%
MONTGOMERY	RURAL	0.0%	29.3	17.1%	46.4%	1.80%	N/A	4.4	50.0%
PANOLA	RURAL	0.0%	51.4	11.7%	48.6%	2.69%	N/A	5.1	50.0%
PIKE	RURAL	33.3%	95.6	14.1%	49.9%	1.45%	1185.6	4.4	25.0%
QUITMAN	RURAL	66.7%	24.0	12.9%	69.9%	1.27%	2451.5	3.7	N/A
RANKIN	URBAN	30.0%	161.2	10.0%	19.6%	3.08%	1743.1	6.3	50.0%
SHARKEY	RURAL	60.0%	14.6	11.8%	70.2%	2.93%	N/A	1.8	0.0%
SIMPSON	RURAL	16.7%	47.0	13.2%	35.3%	2.84%	N/A	4.3	100.0%
SUNFLOWER	RURAL	22.2%	48.5	9.0%	72.5%	3.41%	1168.6	4.0	33.3%
TALLAHATCHIE	RURAL	44.4%	22.4	13.1%	60.9%	1.94%	2401.8	3.4	N/A
TATE	RURAL	0.0%	64.0	11.7%	31.3%	2.48%	N/A	5.5	0.0%
TIPPAH	RURAL	0.0%	45.8	14.2%	17.7%	6.39%	N/A	4.7	0.0%
TUNICA	RURAL	0.0%	21.9	9.9%	73.1%	6.40%	N/A	3.7	N/A
UNION	RURAL	0.0%	62.9	13.7%	15.7%	5.01%	3262.4	5.5	0.0%
WALTHALL	RURAL	0.0%	37.6	14.0%	45.0%	2.53%	N/A	3.0	100.0%
WARREN	RURAL	0.0%	83.5	11.6%	46.5%	2.51%	4944.3	5.3	100.0%
WASHINGTON	RURAL	30.0%	83.2	11.6%	67.7%	2.10%	3227.1	3.2	50.0%
WILKINSON	RURAL	0.0%	15.3	12.5%	69.3%	0.99%	N/A	3.3	N/A
YALOBUSHA	RURAL	0.0%	28.6	15.7%	39.2%	2.20%	1311.6	2.7	0.0%
YAZOO	RURAL	0.0%	30.7	11.9%	55.2%	9.97%	3053.8	5.0	50.0%
DRA		**18.1%**	**58.5**	**11.6%**	**47.0%**	**3.0%**	**1615**	**4.5**	**41.1%**
NON DRA		**7.0%**	**65**	**12.7%**	**28.9%**	**3.9%**	**2276**	**4.1**	**59.2%**
STATE		**13.3%**	**61.5**	**12.2%**	**38.3%**	**3.4%**	**1868**	**4.3**	**51.2%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
17.5%	84.5%	3.8%	63.0%	100.0%	13	YES	20.1%	$22,517.00	0%
9.4%	71.8%	5.1%	69.2%	0.0%	11.7	NO	52.2%	$19,172.00	0%
11.6%	79.2%	0.9%	58.7%	0.0%	7.4	NO	25.6%	$21,054.00	20%
7.8%	79.6%	3.7%	74.7%	0.0%	12.5	NO	39.9%	$17,191.00	0%
18.8%	71.2%	2.1%	54.9%	0.0%	10.9	NO	16.8%	$19,165.00	20%
10.9%	56.9%	6.2%	71.2%	0.0%	13.9	NO	43.1%	$20,699.00	17%
18.9%	85.4%	3.5%	65.2%	0.0%	13.1	NO	14.3%	$17,028.00	0%
16.2%	55.3%	5.5%	54.7%	25.0%	12	YES	14.5%	$22,728.00	70%
11.6%	79.8%	9.4%	59.6%	25.0%	15.6	NO	23.3%	$18,965.00	0%
11.4%	47.4%	4.1%	55.3%	0.0%	12.3	NO	30.1%	$18,596.00	0%
14.3%	44.1%	0.9%	53.1%	33.3%	8.1	YES	24.5%	$28,713.00	0%
10.5%	63.2%	2.2%	70.9%	50.0%	10.2	NO	25.9%	$17,522.00	25%
13.5%	60.2%	3.9%	60.8%	N/A	8.9	NO	15.2%	$22,356.00	0%
27.2%	56.0%	6.4%	51.4%	50.0%	13.2	YES	13.3%	$27,468.00	19%
11.2%	83.0%	3.3%	58.4%	0.0%	14.8	NO	24.5%	$16,468.00	0%
11.6%	49.1%	5.9%	69.0%	50.0%	10.7	NO	20.0%	$19,090.00	20%
7.1%	N/A	N/A	69.5%	N/A	0	NO	53.5%	$15,833.00	33%
10.6%	71.3%	0.4%	59.6%	0.0%	14.7	NO	26.8%	$13,608.00	0%
10.4%	75.3%	4.9%	61.9%	50.0%	13.9	NO	35.7%	$17,781.00	67%
31.1%	55.9%	2.5%	47.3%	50.0%	9.2	NO	18.8%	$23,927.00	17%
12.0%	62.1%	5.6%	62.5%	0.0%	6.7	NO	31.2%	$21,956.00	33%
15.9%	52.7%	7.1%	49.1%	0.0%	12.6	YES	11.5%	$20,642.00	33%
12.4%	77.9%	3.5%	58.0%	N/A	6.3	NO	19.8%	$22,192.00	0%
37.9%	57.3%	2.6%	65.3%	60.0%	10.3	YES	19.1%	$36,451.00	0%
11.5%	66.8%	3.6%	65.1%	0.0%	6.8	NO	19.0%	$19,898.00	0%
9.0%	55.9%	4.0%	55.6%	0.0%	12.8	NO	24.9%	$19,224.00	14%
11.0%	58.5%	5.2%	62.1%	0.0%	28.7	NO	25.4%	$20,377.00	0%
10.8%	48.3%	4.8%	53.0%	0.0%	11.6	NO	21.5%	$19,173.00	0%
12.5%	59.2%	5.0%	58.6%	0.0%	7.1	NO	14.1%	$20,439.00	33%
10.6%	52.5%	2.1%	63.4%	0.0%	12.9	NO	23.4%	$17,933.00	50%
23.8%	56.5%	1.6%	56.8%	33.3%	7.2	YES	18.0%	$27,729.00	30%
12.6%	62.0%	6.3%	74.0%	0.0%	5.7	NO	28.3%	$18,498.00	60%
10.9%	62.0%	5.5%	55.3%	0.0%	12	NO	23.5%	$21,582.00	33%
12.0%	71.0%	2.6%	43.1%	0.0%	14.5	NO	14.3%	$16,375.00	22%
10.9%	55.3%	5.7%	64.8%	0.0%	7.1	NO	28.9%	$18,958.00	44%
12.3%	59.4%	3.8%	57.9%	0.0%	11.7	YES	28.2%	$22,818.00	0%
9.0%	58.2%	3.9%	60.2%	0.0%	5.4	YES	21.9%	$20,356.00	0%
9.1%	40.7%	5.4%	47.0%	50.0%	20.1	NO	3.3%	$19,325.00	0%
13.2%	58.8%	1.6%	55.5%	25.0%	7.9	NO	21.9%	$20,980.00	0%
10.4%	83.4%	5.4%	56.7%	N/A	9.1	YES	32.5%	$17,308.00	0%
20.8%	64.5%	6.0%	55.9%	50.0%	11.7	NO	13.1%	$28,149.00	0%
16.4%	65.6%	6.2%	47.9%	50.0%	12.9	NO	14.5%	$20,183.00	30%
10.0%	54.2%	4.2%	56.4%	0.0%	5.8	YES	21.4%	$16,515.00	0%
9.6%	60.0%	3.9%	59.3%	0.0%	9.4	YES	27.8%	$21,061.00	0%
11.8%	45.0%	5.2%	55.3%	0.0%	11	YES	23.3%	$19,707.00	17%
18.1%	**59.3%**	**4.2%**	**56.1%**	**17.5%**	**10.9**	**27.3%**	**18.3%**	**$23,770**	**19%**
15.6%	**63.1%**	**3.9%**	**53.7%**	**18.8%**	**9.5**	**13.9%**	**17.4%**	**$23,135**	**15%**
16.9%	**61.1%**	**4.0%**	**54.9%**	**18.1%**	**10.2**	**21.3%**	**17.9%**	**$23,466**	**17%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	**N/A**	**17.9%**	**$31,472**	**28%**

Mississippi: Education Programs

MISSISSIPPI VIRTUAL PUBLIC SCHOOL

Program Description: The Mississippi Virtual Public School (MVPS) began in 2002-2003 to offer students and teachers access to a wider variety of courses and flexibility in scheduling. MVPS recently received a $2.5 million grant from the Bell South Foundation to increase its capacity to accommodate students affected by hurricane Katrina.

Service Area: Mississippi

Impact/Success: The Mississippi Virtual School enrolled 234 students during the 2004-2005 school year. Enrollment is expected to increase to approximately 2000 students during the 2006-2007 school year.

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Mississippi: Healthcare Programs

DELTA DIABETES PROJECT

Program Description: The Delta Diabetes Project is a collaboration between the University of Tennessee Health Sciences Center and the University of Mississippi Medical Center. The first clinic was started in 1999 to address Mississippi's high rate of diabetes, especially among poor populations. The program approaches the control of diabetes by giving nurses, diabetes educators, pharmacists and dietitians a larger role in patient care, instead of relying solely on physicians. This makes the program especially well suited to rural areas, where physicians may be scarce and telemedicine technology can be used to assist clinicians in treating diabetes. The first clinic achieved a high level of success and the program is building more clinics in the Delta Region.

Service Area: Mississippi Delta

Impact: The Delta Diabetes Project provided more than 1,000 televisits during its first year of operation. Clinic patients have shown a two-point decrease in their long-term blood sugar levels, which corresponds to a 70 percent reduction in their risk of complications.

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University of Mississippi Medical Center

TELEMERGENCY

Program Description: TelEmergency provides emergency medicine services to rural hospitals where low patient volume makes it cost prohibitive to staff a physician. The program trains nurse practitioners to work in rural emergency departments with the aid of telemedicine. The nurses and patients can communicate to emergency specialists in the University's emergency department through audio and video.

Service Area: TelEmergency serves hospitals in seven Delta counties, including Claiborne, Franklin, Holmes, Humphreys, Jefferson Davis, Lawrence and Quitman.

Impact: The program serves approximately 1,500 patients a month and has served nearly 40,000 patients since it was launched in 2003.

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MISSOURI

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
BOLLINGER	RURAL	25.0%	19.8	15.1%	1.2%	1.0%	1,093	2.7	25.0%
BUTLER	RURAL	14.3%	58.5	16.3%	6.6%	2.3%	1,000	3.7	50.0%
CAPE GIRARDEAU	RURAL	18.2%	120.6	13.8%	7.6%	2.3%	1,656	3.0	66.7%
CARTER	RURAL	25.0%	11.8	16.0%	1.9%	2.6%	5,941	2.9	50.0%
CRAWFORD	URBAN	0.0%	31.6	15.9%	1.0%	2.7%	–	3.8	50.0%
DENT	RURAL	40.0%	19.9	17.1%	1.7%	1.7%	693	3.1	66.7%
DOUGLAS	RURAL	20.0%	16.4	16.8%	1.6%	2.2%	6,542	3.6	0.0%
DUNKLIN	RURAL	18.2%	60.0	16.1%	10.2%	7.0%	1,745	4.0	85.7%
HOWELL	RURAL	11.1%	40.5	17.2%	2.1%	2.5%	321	3.4	83.3%
IRON	RURAL	30.0%	18.7	17.0%	2.0%	1.3%	1,315	2.4	75.0%
MADISON	RURAL	0.0%	23.7	17.3%	0.8%	1.6%	–	4.1	50.0%
MISSISSIPPI	RURAL	40.0%	32.7	15.3%	21.0%	2.4%	706	2.3	50.0%
NEW MADRID	RURAL	30.8%	28.3	15.7%	15.6%	1.6%	2,091	3.5	50.0%
OREGON	RURAL	0.0%	13.1	18.4%	3.4%	2.3%	492	2.5	75.0%
OZARK	RURAL	23.1%	12.8	20.5%	0.8%	2.4%	–	1.8	40.0%
PEMISCOT	RURAL	33.3%	40.0	14.2%	26.4%	3.3%	873	4.4	66.7%
PERRY	RURAL	0.0%	38.4	15.3%	1.3%	1.3%	–	3.8	100.0%
PHELPS	RURAL	37.5%	61.0	13.8%	4.8%	3.1%	1,599	2.6	100.0%
REYNOLDS	RURAL	16.7%	8.1	17.7%	1.8%	2.2%	668	2.2	66.7%
RIPLEY	RURAL	20.0%	21.9	17.0%	1.8%	2.2%	1,501	3.6	50.0%
SCOTT	RURAL	54.5%	96.8	13.7%	12.2%	2.6%	2,094	3.4	100.0%
SHANNON	RURAL	0.0%	8.3	15.0%	2.3%	2.4%	350	2.2	50.0%
ST. FRANCOIS	RURAL	0.0%	129.0	14.1%	4.3%	1.9%	747	2.7	83.3%
STE. GENEVIEVE	RURAL	0.0%	36.2	14.4%	1.3%	1.5%	–	3.6	0.0%
STODDARD	RURAL	20.0%	35.9	17.4%	1.9%	1.7%	615	3.0	42.9%
TEXAS	RURAL	13.3%	20.4	16.9%	4.1%	2.5%	1,095	3.2	66.7%
WASHINGTON	RURAL	12.5%	31.4	11.8%	3.7%	1.9%	2,122	3.5	66.7%
WAYNE	RURAL	27.3%	17.3	20.5%	1.2%	1.0%	284	5.1	0.0%
WRIGHT	RURAL	0.0%	26.7	16.7%	1.4%	2.3%	897	2.5	80.0%
DRA		**20.7%**	**33.8**	**15.5%**	**5.8%**	**2.4%**	**1,111**	**3.1**	**64.5%**
NON-DRA		**11.0%**	**102.5**	**13.0%**	**14.9%**	**5.6%**	**1,652**	**–**	**63.1%**
STATE		**13.0%**	**83**	**13.3%**	**13.9%**	**5.2%**	**1,577**	**–**	**63.4%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE EXCHANGE CARRIER
6.9%	71.4%	2.8%	64.1%	25.0%	12.2	NO	56.2%	$19,190.00	50%
11.6%	72.7%	4.5%	54.5%	33.3%	12.3	YES	19.5%	$24,618.00	29%
24.2%	85.8%	2.0%	64.6%	37.5%	7.7	NO	17.0%	$27,895.00	25%
10.8%	83.4%	4.1%	62.2%	0.0%	6.2	YES	37.6%	$19,864.00	75%
8.4%	64.5%	5.9%	52.5%	0.0%	5.3	YES	38.3%	$23,604.00	57%
10.1%	64.6%	7.9%	57.0%	0.0%	4.5	YES	40.9%	$20,208.00	80%
9.9%	59.9%	1.0%	61.7%	0.0%	9.5	NO	66.1%	$18,187.00	100%
9.1%	69.6%	4.6%	49.5%	9.1%	8.9	NO	21.3%	$22,451.00	36%
10.9%	82.1%	3.5%	58.0%	33.3%	4.2	NO	27.6%	$20,763.00	88%
8.4%	94.0%	2.4%	61.7%	0.0%	6.7	NO	26.5%	$20,417.00	80%
7.8%	64.7%	2.9%	55.9%	0.0%	8.2	YES	29.5%	$19,309.00	0%
9.6%	66.8%	3.0%	47.3%	28.6%	11.9	NO	23.8%	$21,132.00	60%
9.6%	72.2%	3.8%	55.0%	22.2%	12.3	NO	17.0%	$22,680.00	46%
9.1%	75.5%	0.6%	59.1%	0.0%	11	NO	49.0%	$17,523.00	100%
8.3%	80.7%	1.5%	62.6%	0.0%	3	YES	48.8%	$17,797.00	100%
8.4%	65.8%	3.7%	51.0%	14.3%	13	NO	21.4%	$22,228.00	44%
9.9%	71.0%	2.2%	60.7%	33.3%	9.4	NO	23.4%	$22,918.00	67%
21.1%	83.3%	3.7%	59.7%	0.0%	7.4	NO	17.8%	$24,052.00	57%
7.5%	64.9%	1.3%	66.1%	0.0%	8.1	NO	31.0%	$19,337.00	100%
7.8%	83.1%	4.2%	54.0%	0.0%	8.1	NO	39.8%	$18,719.00	100%
10.6%	74.2%	2.8%	58.5%	18.2%	10.2	NO	20.6%	$24,083.00	55%
7.6%	62.7%	0.7%	67.0%	0.0%	13.5	NO	42.6%	$17,191.00	100%
10.2%	77.9%	3.0%	50.2%	40.0%	10.8	NO	19.5%	$21,391.00	0%
8.1%	68.9%	2.6%	61.0%	0.0%	4.8	NO	22.3%	$23,254.00	0%
10.1%	82.5%	9.7%	58.6%	0.0%	3.7	NO	24.8%	$23,206.00	40%
10.8%	78.1%	2.6%	60.0%	10.0%	10.3	NO	33.8%	$17,107.00	100%
7.5%	74.8%	3.7%	51.2%	0.0%	5.4	YES	26.4%	$18,174.00	63%
6.8%	63.8%	5.0%	62.9%	50.0%	16.4	NO	32.1%	$18,649.00	55%
9.8%	73.4%	4.1%	62.6%	0.0%	5.9	NO	33.2%	$17,559.00	86%
11.7%	**75.2%**	**3.7%**	**57.4%**	**13.5%**	**8.6**	**37.9%**	**25.6%**	**$22,066**	**63%**
22.9%	**71.2%**	**3.7%**	**65.9%**	**19.5%**	**7.4**	**36.0%**	**18.2%**	**$30,428**	**46%**
21.6%	**71.7%**	**3.7%**	**64.9%**	**18.6%**	**7.5**	**36.5%**	**18.9%**	**$29,464**	**50%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	**–**	**17.9%**	**$31,472**	**28%**

Missouri: Education Programs

Missouri Department of Elementary and Secondary Education
University of Missouri System
Missouri Department of Higher Education

eMINTS NATIONAL CENTER

Program Description: The eMints (Enhancing Missouri's Instructional Networked Teaching Strategies) National Center, a collaborative program of the Missouri Department of Elementary and Secondary Education and the University of Missouri System and the Missouri Department of Higher Education, offers professional development programs to help preK-16 educators learn how to use technology to improve student performance. Two Missouri universities are currently incorporating eMINTS into their teacher education programs.

Service Area: The program started as a pilot in 1997, then went statewide in 1999. The eMINTS National Center was established in 2004. Ten states, including Arkansas, Illinois and Missouri, now have eMints programs.

Impact/Success: The program reports that data show statistically significant differences for 3rd and 4th grade students in eMINTS classrooms when compared to students not enrolled in eMINTS classrooms on the Missouri statewide assessments of reading and mathematics. Enrollment in an eMINTS classroom was shown to reduce the deficit for low-income students by about 45%.

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Missouri: Healthcare Programs

MISSOURI TELEHEALTH NETWORK

Program Description: The Missouri Telehealth Network (MTN) was created to bring quality healthcare to underserved rural residents, provide educational opportunities to healthcare workers, increase disaster preparedness and allow researchers the opportunity to study telemedicine. MTN provides services in many areas, the most common being radiology, mental health, dermatology and cardiology.

Service Area: Missouri Telehealth Network has sites in 40 Missouri counties, including 11 Delta counties. A full list of sites and services can be found at: http://telehealth.muhealth.org/geninfo/siteinfo/sitesbycounty.html.

Impact/Success: Since MTN's start in 1994, more than 11,000 interactive video encounters and 57,500 teleradiology exams have been conducted. In the average month, MTN provides 200 interactive video encounters and 1,000 teleradiology exams.

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TENNESSEE

COUNTY	RURAL/ URBAN	PERCENT OF ZIP CODES WITHOUT HIGH-SPEED INTERNET	POPULATION PER SQUARE MILE	PERCENT 65 AND OLDER	PERCENT MINORITIES	PERCENT HISPANICS	POPULATION PER INTERNET-CONNECTED LIBRARY TERMINAL	STUDENTS PER INTERNET-CONNECTED COMPUTER	PERCENT OF SCHOOL DISTRICTS WITH WEBSITE
BENTON	RURAL	0.0%	42.0	18.7%	2.8%	2.5%	1,661	3.3	100.0%
CARROLL	RURAL	16.7%	49.2	17.1%	11.5%	3.0%	2,467	3.6	80.0%
CHESTER	URBAN	0.0%	53.9	13.8%	10.1%	2.6%	3,956	6.3	0.0%
CROCKETT	RURAL	33.3%	54.7	15.1%	14.2%	14.3%	3,636	4.0	66.7%
DECATUR	RURAL	0.0%	34.9	18.4%	4.0%	5.0%	1,299	2.8	0.0%
DYER	RURAL	20.0%	73.2	13.5%	14.8%	3.5%	2,910	4.4	100.0%
FAYETTE	URBAN	28.6%	45.9	12.2%	31.1%	3.4%	5,089	5.8	0.0%
GIBSON	RURAL	0.0%	79.6	17.1%	20.3%	2.7%	2,287	4.3	20.0%
HARDEMAN	RURAL	0.0%	42.2	12.4%	41.8%	2.5%	3,395	4.3	0.0%
HARDIN	RURAL	0.0%	44.9	16.7%	4.3%	2.5%	2,869	4.3	0.0%
HAYWOOD	RURAL	0.0%	36.8	13.2%	51.3%	7.0%	2,470	5.5	0.0%
HENDERSON	RURAL	0.0%	50.0	14.0%	8.5%	2.2%	3,216	5.4	100.0%
HENRY	RURAL	0.0%	55.8	18.2%	9.7%	2.1%	2,391	3.6	100.0%
LAKE	RURAL	0.0%	48.2	13.2%	34.1%	2.5%	1,552	5.8	0.0%
LAUDERDALE	RURAL	0.0%	57.6	11.8%	35.7%	2.5%	3,002	3.2	100.0%
MADISON	URBAN	11.1%	168.6	12.1%	35.0%	4.3%	7,780	6.6	0.0%
MCNAIRY	RURAL	0.0%	44.5	16.3%	7.1%	2.2%	3,080	3.3	100.0%
OBION	RURAL	0.0%	59.3	15.6%	10.6%	6.5%	5,391	2.6	100.0%
SHELBY	URBAN	2.6%	1199.8	9.8%	53.6%	6.6%	2,206	4.5	50.0%
TIPTON	URBAN	0.0%	117.9	10.2%	20.6%	2.9%	5,884	6.1	100.0%
WEAKLEY	RURAL	0.0%	58.8	14.6%	9.0%	2.6%	1,306	3.5	100.0%
DRA		**5.5%**	**142.4**	**11.6%**	**40.3%**	**5.4%**	**2,474**	**4.5**	**59.5%**
NON-DRA		**4.6%**	**141.6**	**12.8%**	**11.2%**	**5.8%**	**2,087**	**4.3**	**70.8%**
STATE		**4.9%**	**141.8**	**12.5%**	**18.7%**	**5.7%**	**2,176**	**4.4**	**67.0%**
U.S.		**11.8%**	**82.2**	**12.0%**	**18.8%**	**14.1%**	**1,810**	**4.0**	**62.2%**

ADULTS WITH BACHELOR'S DEGREE	FOUR YEAR HIGH SCHOOL GRADUATION RATE	HIGH SCHOOL DROPOUT RATE	PERCENT OF VOTING AGE POPULATION PARTICIPATING '04 ELECTION	PERCENT OF LOCAL GOVERNMENTS WITH WEBSITE	INFANT MORTALITY RATE PER 1,000 BIRTHS	TELEMEDICINE PROGRAM	PROPRIETORSHIP AS PERCENT OF TOTAL EMPLOYMENT	PER CAPITA PERSONAL INCOME	PERCENT OF ZIP CODES WITHOUT COMPETITIVE LOCAL CARRIER
6.3%	46.4%	1.2%	55.8%	0.0%	8.8	NO	35.8%	$20,612.00	0%
11.1%	68.4%	1.7%	53.7%	0.0%	11.6	NO	31.8%	$22,821.00	8%
11.2%	54.5%	2.8%	52.4%	0.0%	15	YES	41.0%	$21,681.00	0%
9.1%	57.9%	1.7%	55.3%	0.0%	6.7	YES	35.8%	$23,887.00	33%
7.3%	80.6%	1.6%	54.9%	0.0%	0	YES	37.6%	$22,491.00	0%
12.0%	67.1%	3.5%	50.1%	0.0%	8.8	NO	20.8%	$25,047.00	20%
12.8%	54.8%	9.8%	58.5%	33.3%	5.6	YES	62.7%	$28,355.00	29%
10.1%	65.4%	1.8%	55.0%	11.1%	13	NO	26.5%	$24,629.00	0%
7.8%	59.6%	6.7%	48.5%	0.0%	13.5	NO	25.9%	$18,884.00	0%
9.8%	72.7%	3.6%	50.0%	33.3%	12.3	YES	33.7%	$22,421.00	0%
11.1%	49.6%	4.2%	53.7%	0.0%	9.5	YES	20.8%	$21,792.00	0%
9.3%	14.6%	3.3%	51.9%	0.0%	9.4	YES	23.3%	$23,081.00	0%
12.1%	60.8%	2.8%	55.0%	25.0%	7.9	NO	26.2%	$22,962.00	0%
5.4%	32.2%	3.6%	37.1%	0.0%	14.3	NO	15.4%	$14,930.00	0%
7.7%	50.8%	4.0%	44.0%	0.0%	12.7	NO	17.5%	$18,985.00	0%
21.5%	56.4%	4.8%	56.7%	75.0%	10.7	YES	13.3%	$27,414.00	11%
8.8%	57.3%	1.5%	52.5%	0.0%	9	YES	23.9%	$23,607.00	0%
10.3%	62.8%	3.6%	55.0%	0.0%	8.3	NO	19.5%	$24,889.00	0%
25.3%	53.5%	6.7%	59.0%	87.5%	12.9	YES	12.2%	$34,087.00	3%
10.8%	56.4%	3.6%	54.9%	14.3%	9.4	YES	22.5%	$23,787.00	0%
15.3%	60.7%	1.0%	51.6%	0.0%	8.3	NO	25.6%	$22,154.00	0%
19.8%	**55.0%**	**5.4%**	**56.6%**	**16.2%**	**11.7**	**95.2%**	**16.6%**	**$29,915**	**5%**
19.5%	**54.8%**	**3.3%**	**55.2%**	**35.7%**	**7.1**	**25.7%**	**21.1%**	**$28,195**	**2%**
19.6%	**54.8%**	**3.9%**	**55.6%**	**29.8%**	**8.3**	**41.1%**	**19.9%**	**$28,641**	**3%**
23.4%	**61.8%**	**4.5%**	**55.8%**	**24.1%**	**6.8**	–	**17.9%**	**$31,472**	**28%**

Tennessee: Education Programs

Tennessee Department of Education
Hamilton County School System

E4TN

Program Description: Using grant funding from the National Governors' Association and the U.S. Department of Education's Enhancing Education Through Technology program, Tennessee awarded a $2.7 million grant to the Hamilton County School System in December 2005 to develop online courses for grades K-12 that are aligned to Tennessee and national standards. The aim is to develop rigorous courses that can be used to boost student achievement throughout the state, particularly in rural and high poverty urban school districts. Seven school districts received grants of $100,000 each to pilot-test the courses.

Service Area: Tennessee

Impact/Success: The three-year project is currently in its first year.

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Tennessee: Healthcare Programs

University of Tennessee Health Science Center

TELEHEALTH NETWORK

Program Description: The University of Tennessee Health Science Center's Telehealth Network is designed to bring medical resources to underserved areas of Arkansas, Mississippi and Tennessee. The program provides rural residents with access to quality healthcare and medical specialists that are not available in isolated communities and gives rural clinicians the opportunity to participate in continuing medical education. The network currently operates 16 ongoing telehealth projects.

Service Area: The network serves over 100 sites in Arkansas, Mississippi and Tennessee. A detailed map of the network can be found at http://www.utmem.edu/telemedicine/locations.html.

Impact/Success: The Telehealth Network has served more than 4,500 patients since 2003. The project has seen success in increasing the quality, effectiveness and cost of care for rural patients: there has been a 39 percent decrease in time between referral and treatment for telemedicine patients; rural residents treated by telemedicine have seen a 13 percent decrease in pharmaceutical expenses; and emergency room visits have been reduced by seven percent with a one percent increase in telemedicine implementation. The average number of visits needed to resolve a medical problem is 4.7 without telemedicine and 2.1 with telemedicine. Patient satisfaction has also increased: wait times are shorter for telemedicine than for traditional medical visits and no-show rates for telemedicine consults are only 4.9 percent compared to 26.8 percent in some traditional clinics.

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Annotated Bibliography

GENERAL

Bennett, Matthew. *Advanced Services, Enhanced Lives: An Examination of Broadband Application Case Studies and Policy Recommendations to Accelerate Deployment* **(Washington, D.C.: Alliance for Public Technology, 2002). Available at http://www.apt.org/publications/reports-studies/casestudy.pdf.**

The centerpiece of this report is a series of stories showing how broadband applications are changing lives. Seven case studies are included, covering applications such as telemedicine, real time sign language interpretation, distance learning and worker training. The report concludes with broad policy recommendations.

Computer Science and Telecommunications Board. *Broadband: Bringing Home the Bits* **(Washington, D.C.: The National Academies Press, 2002). Available at http://darwin.nap.edu/books/0309082730/html/R1.html.**

This report focuses on how public policy can foster dissemination of broadband technologies in "the last mile" – that is, the final link to homes and small businesses. The findings reflect the deliberations of a committee of 14 experts from academia, business and the non-profit sector.

Gillett, Sharon, William Lehr, Carlos Osorio and Marvin Sirbu. *Measuring Broadband's Economic Impact* **(Washington, D.C.: Economic Development Administration, U.S. Department of Commerce, February 2006). Available at http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2006/mitcmubbimpactreport_2epdf/v1/mitcmubbimpactreport.pdf.**

Broadband access enhances economic growth and performance, say the authors of this report. Their conclusions are based on the application of controlled econometric techniques to data on broadband availability and economic performance during the period 1998-2002. They found that communities with widespread broadband availability experienced more rapid growth in employment, the number of businesses overall and businesses in IT-intensive sectors, in comparison to comparable communities without broadband access. They did not find a statistically significant impact in terms of wages.

Lugar, Michael, Leslie Stewart and Johannes Traxler. *Identifying Technology Infrastructure Needs in America's Distressed Communities: A Focus on Information and Communications Technology* **(Chapel Hill, NC: Office of Economic Development, University of North Carolina at Chapel Hill, August 2002). Available at http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs/unc_2dluger_5fcomplete_2epdf/v1/unc_2dluger_5fcomplete.pdf.**

This report examines the role of information technology in helping distressed communities advance their economies. The study focuses on case studies of 13 communities in eight states, including three communities in the Delta: Helena, Monticello and Pine Bluff, Arkansas. The authors draw lessons from the varied experiences. Among the key findings: state-of-the-art technology is not enough to turn a region around. Attention must also be given to other critical factors such as leadership, planning and workforce development.

National Telecommunications and Information Administration and Economics and Statistics Administration. *A Nation Online: Entering the Broadband Age* **(Washington, D.C.: U.S. Department of Commerce, September 2004). Available at http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.pdf.**

Noting that data from the U.S. Census Bureau's Current Population Surveys showed a significant increase in high-speed Internet connections between 2001 and 2003, NTIA set about to examine what Americans were doing with these connections. The resulting report also looks at geographic disparities related to broadband connections. One survey finding was that 22 percent of rural dial-up users cited lack of availability as the main reason for not upgrading to high-speed service, compared with less than five percent of urban dial-up users.

National Telecommunications and Information Administration and Rural Utilities Service. *Advanced Telecommunications in Rural America: The Challenge of Bringing Broadband Service to All Americans* **(Washington, D.C.: U.S. Department of Agriculture and U.S. Department of Commerce, April 2000). Available at http://www.ntia.doc.gov/reports/ruralbb42600.pdf.**

This report focuses on geographic disparities in broadband deployment. Noted disparities include cable modem service in only five percent of towns of 10,000 population or less versus 65 percent of cities of over 250,000 population and DSL technology in less than five percent of these smaller towns versus 56 percent of cities of over 100,000. The report notes that deployment is typically lower in remote rural areas than in rural towns. Satellite and wireless broadband services are discussed as potential solutions to connectivity for rural areas.

Sommers, Paul and Daniel Carson. *What the IT Revolution Means for Regional Economic Development (Washington,* **D.C.: The Brookings Institution, February 2003). Available at http://www.brookings.edu/metro/publications/sommers.htm.**

All industries – not just those considered high tech – are using information technology (IT) in innovative ways, emphasizes this report. In addition to improving internal operations, IT is enabling businesses to organize in new ways, the authors say. The result is that we are beginning to see regional clustering by function, they observe, where firms split off key functions throughout the U.S. and abroad. The authors speak to the importance of investment in IT infrastructure as a competitive advantage in business location decisions. The study is based on interviews with chief information officers from 28 firms located in five metro areas.

COMMUNITY ENGAGEMENT

Boase, Jeffrey, John Horrigan, Barry Wellman and Lee Rainie. *The Strength of Internet Ties* **(Washington, D.C.: Pew Internet & American Life Project, Jan. 2006). Available at http://www.pewinternet.org/pdfs/PIP_Internet_ties.pdf.**

The Internet is not destroying personal relationships and a sense of community, finds this report. Instead, the Internet appears to help build social capital by expanding and enhancing relationships. Not only can the Internet expand an individual's social network to those outside the immediate geographic area, but survey research also shows that people connect more frequently to those that live nearby when they use the Internet. The Internet appears to supplement rather than replace more personal connections. In other words, the more contact by email, the more in-person and phone contact.

Community Connections: Preserving Local Values in the Information Age **(Washington, D.C.: U.S. Department of Commerce, National Telecommunications and Information Administration, September 2000). Available at http://www.ntia.doc.gov/otiahome/top/publicationmedia/comm_conn/community_connections_illus.html.**

Responding to the perception that technology is undermining our sense of community, this report illustrates ways in which information technology is strengthening community bonds. Case studies show how communities are able to generate and analyze information in order to better serve community needs, create a town square in cyberspace and create new markets for rural businesses via the Internet.

Davies, Stephen, Randal Pinkett, Lisa Servon and Andrew Wiley-Schwartz. *Community Technology Centers as Catalysts for Community Change* **(Newark, NJ: BCT Partners, January 2003). Available at http://www.bctpartners.com/resources/CTCs_as_Catalysts.pdf.**

This report to the Ford Foundation examines ways in which community technology centers could become broader forces in bringing about positive social change at the community level. The authors conclude that community development organizations and community technology centers could gain a great deal by learning from and working together. The report provides a review of relevant literature and also includes case studies of two community technology centers in New York City.

The Evolving Role of Information Technology in Community Development Organizations **(New York, NY: Seedco, March 2002). Available at http://www.seedco.org/publications/publications/evolving_role_of_IT.pdf.**

Community development organizations are increasingly making use of information technology for internal operations, but few are using technology in innovative ways in the community, find the authors of this report. One of the key barriers is a lack of technical assistance and support, with few organizations having the resources to hire staff dedicated to information technology – or to fund information technology training for existing staff. The report's findings are based on interviews with over 350 community organizations.

Horrigan, John. *Online Communities: Networks that Nurture Long-Distance Relationships and Local Ties* **(Washington, D.C.: Pew Internet & American Life Project, Oct. 2001). Available at http://www.pewinternet.org/pdfs/PIP_Communities_Report.pdf.**

Rather than isolating people from their communities, the Internet appears to intensify ties to the local community, concludes this report. A nationwide survey of Internet users indicated that over one-quarter had used the Internet to get information or contact local groups and over 40 percent said the Internet helped them become more involved in groups to which they already belonged. Young people were much more likely than other users to indicate that the Internet had helped them become more involved in community organizations.

Pinkett, Randal. *Building Community with Technology* **(Newark, NJ: BCT Partners, June 2002).**

This brief concept paper outlines ten general principles for building community with technology, beginning with developing an understanding of the social, cultural and technological environment in the community. An accompanying chart identifies 15 community-building technologies – from chat rooms to job and volunteer postings.

Promising Practices in Community Engagement at CTCs: Serving, Renewing and Building **(Newton, MA: Education Development Center, 2003). Available at http://www.americaconnects.net/research/community.pdf.**

Community Technology Centers provide residents with opportunities to build technology skills and at the same time improve their communities, emphasizes this report. The report offers examples involving community mapping, promoting community culture and developing youth leadership.

Schuler, Doug. *New Community Networks: Wired for Change* **(Boston, MA: Addison-Wesley Publishing Co., 1996). Available at http://www.scn.org/ncn/. Also available in Spanish at the same website.**

Computer technology can play a positive role in rebuilding a sense of community by strengthening six core values, says the author of this book. These six values include: 1) conviviality and culture; 2) education; 3) strong democracy; 4) health and well-being; 5) economic equity, opportunity and sustainability; and 6) information and communication.

E-COMMERCE

Atkinson, Robert and Thomas Wilhelm. *The Best States for E-Commerce* **(Washington, D.C.: Progressive Policy Institute, 2002). Available at http://www.ppionline.org/documents/States_Ecommerce.pdf.**

The impact of state policies on e-commerce is the focus of this report. Each state was ranked according to the presence of legislation that prohibited or negatively affected the ability to conduct business online. The type of legislation analyzed included laws affecting the purchase of products online – including contact lenses, prescription drugs, mortgages, insurance, automobiles and wine – the presence of Internet access taxes, the availability of e-government and the legality of digital signatures. Recommendations for how states could improve their scores included repealing protectionist legislation, promoting inter-state licensing agreements, increasing availability of e-government, enabling electronic signatures and eliminating Internet access taxes.

Crandall, Robert and Charles Jackson. *The $500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access* **(Washington, D.C.: Criterion Economics, LLC, 2001). Available at http://www.criterioneconomics.com/docs/Crandall_Jackson_500_Billion_Opportunity_July_2001.pdf.**

The focus of this report is the economic benefits of universal broadband deployment for both consumers and producers. The authors' calculations indicate that the benefit of universal broadband deployment could equal $300 billion for consumers and $100 billion for producers. These calculations include direct factors of broadband deployment, such as subscription costs, and indirect factors, such as calculating the benefit of less travel time with online shopping.

Henderson, Jason. *Networking with E-commerce in Rural America* **(Kansas City: Federal Research Bank of Kansas City, 2001). Available at http://www.kansascityfed.org/RuralCenter/mainstreet/MSE_0901.pdf#search=%22e-commerce%20rural%22.**

This issue of *The Main Street Economist* by the Center for the Study of Rural America looks at the benefits and challenges of rural e-commerce. The report studies typically rural-based industries, such as food and agricultural firms and their participation in e-commerce networks. The report concludes that the lack of broadband access, high costs for service and equipment and lack of strong business relationships keeps rural businesses from fully employing e-commerce networking capabilities.

Leatherman, John C. *Internet-Based Commerce: Implications for Rural Communities* **(Manhattan, Kansas: Kansas State University, 2000). Available at http://www.chicagofed.org/cedric%5Ccedric_files/indian/leatherman.pdf.**

This paper challenges local governments to recognize the need for not only Internet access in rural communities, but also the need for empowering their citizens with the capacity to effectively utilize e-commerce programs and applications. While local governments are challenged with capacity-building activities, such as training programs, state and federal governments are challenged to address telecommunications reform, community infrastructure issues, research topics, information dissemination and funding needs.

Pociask, Stephen. *Broadband Use by Rural Small Businesses* **(Herndon, Virginia: TeleNomic Research, LLC, 2005). Available at http://www.sba.gov/advo/research/rs269tot.pdf#search=%22broadband%20use%20by%20rural%20small%20business%22.**

For this report, 458 small rural and urban businesses were surveyed regarding how they use and how much they pay for telecommunications services. Drawing from the survey, 54 percent of urban small businesses subscribed to broadband services, while only 43 percent of rural small businesses subscribed. The study concluded that firm size and higher prices were significant factors in the inability of rural small businesses to take advantage of the benefits of broadband services.

EDUCATION

Allen, I. Elaine and Jeff Seaman. *Growing by Degrees: Online Education in the United States, 2005* **(Needham, MA: The Sloan Consortium, November 2005). Available at http://www.sloan-c.org/publications/survey/pdf/growing_by_degrees.pdf.**

Almost two-thirds of institutions of higher education that offer face-to-face courses also offer classes online, reports The Sloan Consortium in its third annual report on the state of online higher education in the U.S. In 2005, 56 percent of all institutions surveyed identified online education as a critical long-term strategy, as did 72 percent of Associates degree institutions. These and other findings are based on a survey of over 1,000 colleges and universities.

Cavanaugh, Cathy, Kathy Jo Gillan, Jeff Kromrey, Melinda Hess and Robert Blomeyer. *The Effects of Distance Education on K-12 Student Outcomes: A Meta-Analysis* **(Naperville, IL: Learning Point Associates, October 2004). Available at http://www.ncrel.org/tech/distance/K12distance.pdf.**

In terms of overall academic achievement, there is no significant difference between online and traditional face-to-face instruction, conclude the authors of this study. Their findings are based on a statistical review of studies of 14 web-delivered K-12 distance education programs.

Collins, Timothy and Sarah Dewees. "Distance Education: Taking Classes to the Students," *The Rural South: Preparing for the Challenges of the 21st Century, No. 17* **(Mississippi State, MS: Southern Rural Development Center, February 2001).**

This report provides an overview of the issues and challenges surrounding distance education in the South. It concludes that distance education has the potential to bring high-quality education to rural Southerners, but only if it is implemented properly. Some potential challenges include ensuring the quality of new programs, handling organizational, management and education changes, teaching educators to support students in distance learning classes and bridging the "digital divide."

Collins, Timothy and Sarah Dewees. "Challenge and Promise: Technology in the Classroom," *The Rural South: Preparing for the Challenges of the 21st Century, No. 18* **(Mississippi State, MS: Southern Rural Development Center, March 2001).**

This paper discuses the challenges of using technology to improve rural schools. Although Internet access has become available in many rural areas, schools with high minority populations are less likely to be connected. In schools that do have technology, it is often not used in the classroom or integrated into the curriculum. Some of these problems could be ameliorated by teacher professional development, which would train educators to use technology to its full potential in the classroom. Adequate funding to keep the technology in school current and relevant is also important for success.

Critical Issue: Using Technology to Improve Student Achievement **(Naperville, IL: Learning Point Associates, 2005). Available at http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te800.htm#contact.**

This briefing examines current research on technology and student achievement. The results of the studies reviewed consistently indicate that technology use is correlated with higher student achievement and learning, especially in high order skills like critical thinking, analysis and scientific inquiry. The briefing also discusses issues related to technology in education, such as serving students with disabilities, professional development and evaluation of technology applications.

Good, Dixie Griffin. *Investing in K-12 Technology Equipment: Strategies for State Policymakers* **(Denver, CO: Education Commission of the States, 2001). Available at http://www.ecs.org/clearinghouse/23/39/2339.htm.**

This report is intended to provide education technology information to state policymakers and education leaders. One of the key findings is that at least 39 percent of computers already in schools are considered aging or of limited capacity. The report estimates that updating and upgrading the nation's education technology equipment would require an investment of $22.5 billion to $36 billion. Also included is a comparison of different technology approaches available to schools.

Griffin, Dianne. *Technology Use in Rural High Schools Improves Opportunities for Student Achievement* **(Atlanta, GA: Southern Regional Education Board, March 2005). Available at http://www.sreb.org/programs/EdTech/pubs/PDF/05T01-TechnologyUseinRuralHS.pdf.**

The report begins with an overview of technology uses in rural schools – from communication to classroom teaching. It goes on to identify five factors for success, including: 1) effective leadership; 2) adequate and sustainable funding; 3) a technology plan focused on student achievement; 4) high-quality professional development; and 4) competent and available technical support. State efforts in each of these five areas are highlighted. Louisiana's LEADTech training for principals and district superintendents is among the programs featured.

Hammond, Kristen and Judy Salpeter. "Cutting the Cord: Wireless Computing Comes of Age," *2006 CoSN Compendium* **(Washington, D.C.: Consortium for School Networking, 2006). Available at http://www.cosn.org/resources/compendium/3.pdf.**

Wireless technologies are moving into the mainstream, says this article from the Consortium for School Networking. Key benefits include portability for instructional purposes and the ability to extend wired networks. In addition to several case studies, the article includes a resource list of organizations and articles for school leaders interested in exploring wireless technologies.

Mathews, J.B. *Why Are Wireless Services Important to State and Education Leaders?* **(Atlanta, GA: Southern Regional Education Board, March 2005). Available at http://www.sreb.org/programs/EdTech/pubs/PDF/05T02-Why_Wireless_Important.pdf.**

"Wireless technology brings the primary benefit of mobility to traditional class activities," emphasizes the author of this report, providing a brief overview of the growing demand for wireless services and the implications for the education community.

Report on State Virtual Schools **(Atlanta, GA: Southern Regional Education Board, June 2005). Available at http://www.sreb.org/programs/EdTech/onlinelearning/docs/ReportOnStateVirtualSchools.pdf.**

This report provides detailed information on state virtual schools in each of the Southern Regional Education Board's member states. This includes data on funding sources, course offerings and enrollment statistics.

Setzer, Carl and Laurie Lewis. *Distance Education Courses for Public Elementary and Secondary School Students:* **2002-03, NCES 2005-010 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2005). Available at http://nces.ed.gov/pubs2005/2005010.pdf.**

This report presents the results of a national survey of public school district superintendents related to distance education courses in elementary and secondary schools. Among the data included are enrollments in distance education courses, the types of technologies used, reasons for having distance education courses and barriers to expansion. While most of the findings are presented for the nation as a whole, selected findings are presented by district enrollment size, metropolitan status, geographic region and poverty concentration. Overall, approximately one-third of public school districts had students enrolled in distance education courses during the 2002-03 school year.

Smith, Rosina, Tom Clark and Robert Blomeyer. *A Synthesis of New Research on K-12 Online Learning* **(Naperville, IL: Learning Point Associates, November 2005). Available at http://www.ncrel.org/tech/synthesis/synthesis.pdf.**

The authors begin with an overview of K-12 online learning, focusing on issues such as the growth in online learning, progress in implementing online learning and the effects of online learning on academic achievement. The results of eight research studies conducted as part of a Request for Proposals process are then presented. The conclusion offers policy and practice recommendations in several areas, including qualities of effective online courses, professional development for effective online teaching and characteristics of successful online students. Noting that most studies show little difference in academic achievement between online and traditional education, the authors recommend that additional research be conducted to assess the potential academic advantages of integrating online courses into the schedules of traditional high school students.

Technology Counts 2006, **Vol. 25, Issue 35 (Bethesda, MD: Education Week/Editorial Projects in Education, Inc., May 2006). Available at http://www.edweek.org/ew/toc/2006/05/04/index.html.**

The 2006 edition of this annual report analyzes states' computerized data systems and how these systems are being used to make better educational decisions. The report also examines other educational technology issues and assigns letter grades to all 50 states based on access to and use of instructional technology. Two Delta states, Kentucky and Arkansas, received overall grades of B- or better – ahead of the national average of C+. While the other six Delta states were at or below the national average, none ranked in the nation's bottom ten.

Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students are Revolutionizing Expectations **(Washington, D.C.: U.S. Department of Education, January 2005). Available at http://www.NationalEdTechPlan.org.**

This National Education Technology Plan, a requirement of the No Child Left Behind Act, finds that the deployment of educational technology is "thriving" across the nation, with some 99 percent of schools connected to the Internet. Yet the application of technology in schools has not lived up to its promise, they say, due to lack of adequate training in how to integrate technology into the learning experience, among other factors. The report features a number of success stories, including Louisiana's professional development program for teachers and administrators in K-12 schools and Arkansas' Environmental and Spatial Technology Initiative that has served as a national model for providing students with learning experiences that are relevant and challenging. The report concludes with seven major action steps and recommendations.

U.S. Department of Commerce, U.S. Department of Education and NetDay. *Visions 2020.2: Student Views on Transforming Education and Training Through Advanced Technologies* **(Washington, D.C.: U.S. Department of Education, 2004). Available at http://www.ed.gov/about/offices/list/os/technology/plan/2004/site/documents/visions_20202.pdf.**

More than 160,000 students participated in an October-November 2004 survey sponsored by NetDay, which was designed to gather input on how students currently use – and would like to use – technologies for learning. This report summarizes themes emerging from this survey, with an emphasis on student responses to the question, "What would you like to see invented that you think will help kids learn in the future?"

Vander Veen, Chad. "Technology and the Three R's," *Government Technology***, June 1, 2006 (Folsom, CA: e-Republic, Inc., 2006). Available at http://www.govtech.net/magazine/story.print.php?id=99705.**

Can technology help disadvantaged students, or is it just a distraction? This question is posed by the author of this article for *Government Technology* magazine. While nearly all of those profiled in the article believe in the promise of technology, the views of one skeptic are also compelling. Missouri's eMINTS initiative (Missouri's Instructional Networked Teaching Strategies) is among the positive examples highlighted.

Watson, John. *Keeping Pace With K-12 Online Learning: A Review of State-Level Policy and Practice* **(Naperville, IL: Learning Point Associates, October 2005). Available at http://www.learningpt.org/pdfs/tech/Keeping_Pace2.pdf.**

This report provides detailed information about existing statewide K-12 online learning programs as well as information profiling each state's current legislation/policy regarding online education. Based on data from all 50 states, the report concludes that the current status of online learning policy is both promising and concerning. Many states have little or no online education policies and conversely, others have very restrictive policies based on outmoded ideas about education. However, there is also cause for optimism, as many states are making an effort to create appropriate, up-to-date online learning policies.

Web-Based Education Commission. *The Power of the Internet for Learning: Moving from Promise to Practice* **(Washington, D.C.: U.S. Department of Education, December 2000). Available at http://www.ed.gov/offices/AC/WBEC/FinalReport/index.html.**

This report investigates the use of the Internet in all levels of education, from pre-kindergarten through post-secondary and corporate training. Some of the actions suggested by the report include making new Internet resources available and affordable for all learners, providing continuous training and support for educators and building a new research framework of how people learn in the Internet age.

GOVERNMENT

Best Practices in the Use of Information Technology in State Government **(Lexington, KY: National Association of State Chief Information Officers, 2005). Available at http://www.nascio.org/awards/2005Awards/2005NASCIOAwards.pdf.**

This publication includes profiles of 2005 Recognition Awards from the National Association of State Chief Information Officers. A publication on 2004 award winners, including programs in Missouri and Tennessee, can be downloaded at http://www.nascio.org/awards/2005Awards/2005NASCIOAwards.pdf.

Bonnett, Tom. *Leveraging E-Government Toward E-Competitiveness* **(Lexington, KY: National Electronic Commerce Coordinating Council, October 2002). Available at http://www.ec3.org/Downloads/2002/ecomp_white_paper.pdf.**

This white paper argues that e-government applications improve an area's economic competitiveness in three key ways: 1) by reducing businesses' cost of complying with government regulations; 2) by reducing government's cost of doing business, thereby saving money for more productive uses; 3) and by signaling a culture of innovation in the public sector that is valued by private sector and knowledge workers. A checklist of ten questions is included to help public officials assess the level of e-competitiveness in their communities.

Bowling for Broadband2: Toward Citizen-Centric, Broadband-Based E-Government **(Lexington, KY: National Association of State Chief Information Officers, August 2006). Available at http://www.nascio.org/publications/documents/NASCIO_Bowling_for_Broadband2.pdf.**

Much has changed in the short span of two years, say the authors of this report. Key changes since *Bowling for Broadband* was written in 2004 include: 1) public/private community wireless networks have emerged as the solution of choice for getting citizens online with high-speed Internet connections; 2) rich-media (i.e. moving graphics, streaming audio, in-browser video) is becoming more dominant, making broadband and wireless connectivity more of a necessity than a luxury; and 3) the market for dial-up and broadband services may have reached a plateau – leaving policymakers to deal with a hardcore segment of non-adopters. They provide brief examples of promising state initiatives, including Kentucky's "No Child Left Offline" program.

Brown, Mary-Maureen. *Digital Government Innovation* **(Chapel Hill, NC: School of Government, University of North Carolina at Chapel Hill, July 2003). Available at http://ncinfo.unc.edu/pubs/electronicversions/pdfs/dgib0301.pdf.**

This is the first in a series of bulletins to explore issues associated with moving government services online. It is, in essence, a beginning primer that highlights the benefits as well as challenges of providing online services.

Coleman, Stephen and John Gotze. *Bowling Together: Online Public Engagement in Policy Deliberation* **(London, UK: Hansard Society, 2001). Available at http://www.bowlingtogether.net.**

"Two convergent developments are likely to have a profound effect upon the future shape of democracy," says this report. It goes on to talk about how one of these developments (the rise of information technology and digital communications) can have a positive impact on the other (growing citizen dissatisfaction with government). It presents four models of how e-democracy might work and discusses the implications of each. The report also includes several case studies that illustrate how governments around the world are using information technology to engage citizens.

Coleman, Stephen and Donald Norris. *A New Agenda for e-Democracy* **(Oxford, UK: Oxford Internet Institute, January 2005). Available at http://www.oii.ox.ac.uk/resources/publications/FD4.pdf.**

This paper reports on a May 2004 gathering at Oxford University involving 35 practitioners, policymakers and commentators from 13 countries. The focus was on the following three questions related to the Internet and democracy: 1) What has worked so far? 2) What are the obstacles? and 3) What policies, methods and tools need to be developed?

Curtin, Gregory, editor. *The World of E-Government* **(Binghampton, NY: The Haworth Press, 2003). Ordering information available at http://www.haworthpress.com.**

This book explores the potential for e-government around the world, using case studies from the U.S., Canada, Australia and other nations. Contributors include e-government practitioners who share implementation advice and experience.

Dawes, Sharon, Peter Bloniarz, Kristine Kelly and Patricia Fletcher. *Some Assembly Required: Building a Digital Government for the 21st Century* **(Albany, NY: Center for Technology in Government, 1999). Available at http://www.nsf.gov/od/lpa/news/press/images/diggov.pdf.**

This report highlights discussions that took place at a workshop convened by the National Science Foundation that brought together a group of researchers and government practitioners to talk about how to design the digital government of the 21st century. In addition to discussing the potential of digital government, they also made a number of recommendations, drawing attention to the need for interoperable systems that are trusted and secure and for addressing issues related to archiving and electronic records management.

Digital Cities Survey, 2005 **(Folsom, CA: e-Republic, Inc., 2006). Available at http://www.nlc.org/content/Files/CDG06REPORTDigCities.pdf.**

The Center for Digital Government and the National League of Cities surveyed mayors of cities of over 30,000 population to assess the status of their digital infrastructure and services. Among the key observations was dramatic growth in city web portals that link all agencies and departments and through which the public can conduct online services and transactions – 84 percent of those surveyed had such portals in 2005 vs. just 57 percent in 2003.

Economic Development and the New Economy: Using e-Government Capabilities to Competitive Advantage **(Lexington, KY: National Electronic Commerce Coordinating Council, December 2001). Available at http://www.ec3.org/Downloads/2001/Econ_Develop_ED.pdf.**

The knowledge economy and information technology are transforming economic development, emphasizes this paper. For example, prospective businesses often do their initial searches online, making a web presence essential for those areas looking to attract businesses; regional collaboration has become more important as businesses increasingly look for strengths across a region rather than in one particular community; and businesses value streamlined interactions with government, such as those made possible via e-government applications. Broadband access has become a key factor for many prospective businesses, taking some communities out of the race. However, smaller communities that do have access have new opportunities to use quality of life advantages to lure companies that may not have considered them previously.

E-Government: The Next American Revolution **(Washington, D.C.: Council for Excellence in Government, 2001). Available at http://www2.excelgov.org/admin/FormManager/filesuploading/egovsupfinal.pdf.**

Results of an August 2000 nationwide survey indicate that the public sees great potential in e-government. "The public's vision of governmental use of technologies goes beyond a more efficient government that offers accessible high-quality services online, to a more informed and empowered citizenry and a more accountable government," says this report on the survey's findings.

Gant, Jon, Diana Burley Gant and Craig Johnson. *State Web Portals: Delivering and Financing E-Service* **(Washington, D.C.: The PricewaterhouseCoopers Endowment for the Business of Government, January 2002). Available at http://www.businessofgovernment.org/pdfs/JohnsonReport.pdf.**

This report includes an evaluation of the content and features of all 50 state web portals, with an emphasis on openness, customization, usability and transparency. One of the key recommendations from this review is that states should organize services by event rather than department. The report also examines how states are financing the development and maintenance of their web portals and how they are pricing the delivery of e-services to citizens.

Government in the Digital Age: Myths, Realities and Promises **(Lexington, KY: National Electronic Commerce Coordinating Council, 2004). Available at http://www.ec3.org/Downloads/2004/Govt_Digital_Age.pdf.**

E-government is not effortless, emphasizes this paper. The more complex – and more productive – projects often require transformations in organizations and business functions, as well as collaboration at different levels and between different constituencies. The paper includes a review of measures of progress in implementing e-government.

Holzer, Mark, James Melitski, Seung-Yong Rho and Richard Schwester. *Restoring Trust in Government: The Potential of Digital Citizen Participation* **(Washington, D.C.: IBM Center for the Business of Government, August 2004). Available at http://www.businessofgovernment.org/pdfs/HolzerReport.pdf.**

This report uses three case studies to illustrate how government is using technology to enhance citizen participation.

Moon, M. Jae. *From E-Government to M-Government? Emerging Practices in the Use of Mobile Technology by State Governments* **(Washington, D.C.: IBM Center for the Business of Government, November 2004). Available at http://www.businessofgovernment.org/pdfs/MoonReport2.pdf.**

This report explores the movement towards using wireless technologies and mobile devices - such as pagers, PDAs and cell phones - to provide government information and services. Included are case studies on how California, New York and Virginia have pursued m-government.

O'Looney, John. *Using Technology to Increase Citizen Participation in Government: The Use of Models and Simulation* **(Washington, D.C.: The IBM Endowment for the Business of Government, April 2003). Available at http://www.businessofgovernment.org/pdfs/OLooneyReport.pdf.**

This report looks at the potential to address citizens' growing alienation from and distrust in government by using technology tools to increase citizen participation in government. The report focuses on the use of computer models, simulations and decision support technologies.

West, Darrell. *State and Federal E-Government in the United States, 2006* **(Providence, RI: Taubman Center for Public Policy, Brown University, August 2006). Available at http://www.insidepolitics.org/egovt06us.pdf.**

The seventh annual edition of this publication analyzes over 1,500 state and federal government websites, looking for common features, differences and trends. Among the key findings in 2006 were that 77 percent of the sites studied offered services that were fully executable online, up from 73 percent in 2005. Illinois was recognized as one of the top ten states in 2006.

HEALTHCARE

Brantley, David, Karen Laney-Cummings and Richard Spivak. *Innovation, Demand and Investment in Telehealth* **(Washington, D.C.: U.S. Department of Commerce, Office of Technology Policy, February 2004). Available at http://www.telemedicine.com/2004report.pdf.**

This report focuses on the state of innovation, demand and investment in telehealth in the United States at the end of 2003. The report concludes that "only a fraction of the potential for technology to increase access to, improve quality of and reduce the cost of the nation's healthcare has been realized to date." A number of policy recommendations are made in hopes of advancing the use and impact of technology in healthcare, including recommendations related to the development and adoption of industry-wide standards to resolve interoperability issues; more effective coordination of planning, policy-making and allocation of resources among government, academic and private stakeholders; and greater attention to the international market potential for telehealth and other healthcare technologies.

Brown, Nancy. "Telemedicine Coming of Age" (September 26, 1996, updated January 13, 2005). Available at http://tie.telemed.org/articles/article.asp?path=telemed101&article=tmcoming_nb_tie96.xml.

This article is a brief primer on telemedicine for those who are new to the subject. It provides an overview of telemedicine programs and applications, the advantages of telemedicine and the barriers to its use.

Committee on the Future of Rural Health Care. "Rural Health Care in the Digital Age," in *Quality Through Collaboration: The Future of Rural Health Care* **(Washington, D.C.: The National Academies Press, 2005). Available at http://www.nap.edu/books/0309094399/html/R1.html.**

This report seeks to ensure that the needs of rural communities are not overlooked in discussions of national healthcare quality. The report points out that rural and urban areas have a different mix of healthcare infrastructure and needs, with resources in rural areas often lagging behind, at the same time that they are faced with a population that is older, suffers from more chronic health conditions and tends to have poorer health behaviors. They recommend a five-pronged strategy to address healthcare quality challenges in rural areas, one of which is to build a telemedicine infrastructure. Six action items are identified under this strategy, including providing all rural communities with high-speed Internet access, eliminating regulatory barriers to the use of telemedicine and providing ongoing education and technical assistance to help rural communities make the best use of information technology as it relates to healthcare.

Conte, Chris. *Networking for Better Care: Health Care in the Information Age* **(Washington, D.C.: Benton Foundation, 1999). Available at http://www.benton.org/publibrary/health/home.html.**

Educated consumers can be a driving force for improvements in the quality of healthcare, emphasizes this report. It identifies a number of barriers to using the power of the Internet to help consumers achieve this goal, including: 1) lack of consumer access to the Internet, or lack of skills in how to use the Internet to get health information; 2) unreliable health information on the Internet; 3) professional resistance; and 4) lack of performance data on health plans. What's needed? Several ideas are discussed, including trustworthy information, new roles for professionals in relating to patients and the public, ways to provide access to disadvantaged citizens and community-based action.

Field, Marilyn, editor. *Telemedicine: A Guide to Assessing Telecommunications for Health Care* **(Washington, D.C.: The National Academies Press, 1996). Available at http://www.nap.edu/catalog/5296.html.**

This report emphasizes the need for good information to guide decision making related to telemedicine and presents a framework for evaluating telemedicine's effects on the quality, accessibility and cost of healthcare. The report also discusses past evaluation efforts and the challenges of evaluation in this field.

Hillestad, Richard and James Higelow. "Health Information Technology: Can HIT Lower Costs and Improve Quality?" *Research Brief* **(Santa Monica, CA: Rand Corporation, 2004). Available at http://www.rand.org/pubs/research_briefs/RB9136/.**

This research brief discusses the potential costs and benefits of widespread adoption of health information technology (HIT), concluding that annual savings from efficiency alone could be $77 billion or more. Better preventive services and management of chronic diseases, made possible by HIT, could result in considerable additional savings, they say.

Litan, Robert. *Great Expectations: Potential Economic Benefits to the Nation From Accelerated Broadband Deployment to Older Americans and Americans With Disabilities* **(New Millennium Research Council, December 2005). Available at http://www.newmillenniumresearch.org/archive/Litan_FINAL_120805.pdf.**

This report focuses on the potential economic benefits associated with widespread broadband deployment to senior citizens and the disabled. The author concludes that savings could amount to at least $927 billion over the 25 year period from 2005 to 2030 due to lower medical costs, lower costs of institutionalized living and additional output generated by seniors and the disabled in the workforce.

Neuberger, Neal, Mary Ella Payne and Mary Wakefield. *Rural Health Care and the Internet: Issues and Opportunities for Using Interactive Communications to Improve Rural Health Care Services* **(McLean, VA: Health Tech Strategies, 2001). Available at http://www.gmu.edu/departments/chpre/ruralhealth/briefspublications/papers/internet_and_ruralhealth.pdf.**

"The promise of using Internet-based technologies remains out of reach for many rural areas," noted a group of healthcare and technology experts who gathered in Washington, D.C. in July 2000 to discuss needs and opportunities for rural healthcare providers. They cited the costs of new equipment, high-speed connections, transmission costs, reimbursement policies and privacy concerns among the barriers to rural adoption of telemedicine applications. They recommended national pilot programs that emphasized interoperability, the use of low-end and off-the-shelf technologies and that built community awareness and interest in the efforts.

Southern Governors' Task Force on Medical Technology, *From Promise to Practice: Improving Life in the South Through Telemedicine* **(Washington, D.C. Southern Governors' Association, : September 1999). Available at http://www.southerngovernors.org/publications/PDF/TFMTReport.pdf.**

This is the final report of the Southern Governors' Task Force on Medical Technology, a group formed to advise the governors on ways to enhance and expand the use of telemedicine throughout the South. The Task Force report includes a series of recommendations designed to address identified barriers to telemedicine adoption. Among the recommendations were that states come together to evaluate interstate licensure and the sharing of health-related information, such as immunization records, across state borders.

Tracy, Joseph, editor. *Telemedicine Technical Assistance Documents: A Guide to Getting Started in Telemedicine* **(Washington, D.C.: Office for the Advancement of Telehealth, 2004). Available at http://telehealth.muhealth.org/geninfo/TAD.html.**

Telehealth providers offer practical advise and lessons learned in this guidebook that is aimed at helping community-based providers establish new telehealth programs. The first chapter covers "first steps," followed by 12 chapters that focus on specialty areas such as cardiology, dermatology, home care and mental health.

U.S. Congress, Office of Technology Assessment, *Bringing Health Care Online: The Role of Information Technologies,* **OTA-ITC-624 (Washington, D.C.: U.S. Government Printing Office, September 1995). Available at http://www.wws.princeton.edu/ota/disk1/1995/9507_n.html.**

The challenges and opportunities of using information technology to improve the healthcare system are the focus of this report. In particular, the report looks at the potential to connect previously independent parts of the healthcare delivery and administrative systems. One of the keys will be developing standards for systematizing the compilation and exchange of healthcare information, they say.

Wenske, Paul. "Wireless Broadband Would Boost Telemedicine," *Government Technology* **(Folsom, CA: e.Republic, Inc., Jan. 19, 2006). Available at http://www.govtech.net/digitalcommunities/story.print.php?id=97967.**

Experts say there is an urgent need for a national policy on telemedicine, says this article. It identifies lack of broadband access as a major barrier to a revolution in healthcare.

Information Technology Indicators

GENERAL DEMOGRAPHIC INDICATORS

1. Population Density

Population Density = Total Population (2004) / County Land Area in Square Miles

Sources: For population: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Accounts*, Table CA1-3, 2004. Available at http://www.bea.gov/bea/regional/reis/.
For land area: U.S. Census Bureau, Census 2000 Gazetteer Files. Available at http://www.census.gov/geo/www/gazetteer/places2k.html.

2. Per Capita Personal Income

Per Capita Personal Income = Total County Personal Income (2003) / Total Population (2003)

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Accounts,* Table CA1-3, 2003. Available at http://www.bea.gov/bea/regional/reis/.

3. Age – Percent Aged 65 and Older

Percent Aged 65 and Older = Total Population Aged 65 and Older (2004)/ Total Population (2004)

Source: U.S. Department of Commerce, U.S. Census Bureau, *County Population Estimates*, 2004. Available at http://www.census.gov/popest/counties/asrh/CC-EST2004-alldata.html.

4. Ethnicity – Percent Hispanic

Percent Hispanic = Total Hispanic (2004)/ Total Population (2004)

Source: U.S. Department of Commerce, U.S. Census Bureau, *County Population Estimates*, 2004. Available at http://www.census.gov/popest/counties/asrh/CC-EST2004-alldata.html.

5. Race
Percent Minority = (Total African-American (2004) + Total Pacific Islander (2004) + Total Native American (2004)) / Total Population (2004)

Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, *Estimates of the July 1, 2000-July 1, 2004 United States resident population* (prepared under a collaborative agreement with the U.S. Census Bureau, Sept. 2005). Available at http://www.cdc.gov/nchs/about/major/dvs/popbridge/datadoc.htm#vintage2004.

EDUCATION

6. Drop-Out Rate
Drop-Out Rate = Total Drop-Outs 9-12 (2001) / Total Enrollment (2001)

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*. Available at http://nces.ed.gov/ccd.

7. Graduation Rate
Graduation Rate = Total Diploma Recipients (2002)/(9th Grade Students (1999)((Total Enrollment (2003) – Total Enrollment (1999))/Total Enrollment (1999))*

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*. Available at http://nces.ed.gov/ccd.

8. Educational Attainment – Bachelor's Degree or Higher
Educational Attainment = Total Population Aged 25 Years and Older Holding Bachelor, Master, Doctorate, or other advanced degree (2000) / Total Population Aged 25 Years and Older (2000)

Source: U.S. Department of Commerce, U.S. Census Bureau, *Census 2000 Summary File 3*, Table QT-P20. Available at http://www.census.gov.

9. Students per Internet Connected Computer
Students per Internet Connected-Computer = Number of Internet Connected Computers / Total Student Enrollment in County

Source: Varies by State; Figure excludes Kentucky and Illinois

Alabama: Data provided upon request. Alabama State Department of Education, Technology Initiatives. http://www.alsde.edu/html/sections/section_detail.asp?section=61&footer=sections

Arkansas: Arkansas Department of Education. http://adedata.k12.ar.us/

Missouri: Missouri Department of Elementary and Secondary Education. Computing Census. http://dese.mo.gov/computingcensus/2004/

Mississippi: Mississippi Department of Education, On Target Reports. http://reports.ms.ontargetus.com/

Louisiana: Louisiana Department of Education, Technology Surveys & Evaluation Reports. http://www.doe.state.la.us/lde/lcet/2042.html

Tennessee: Tennessee Department of Education, On Target Reports. http://tn.ontargetus.com/TNReports0304/defaultAll.aspx?otID=0x0&accType=StateOfficial

10. School District Websites
Percent of Schools Districts with a Website = Number of School Districts that responded to the survey with a website / Total Number of School Districts that responded to the survey

Source: U.S. Department of Commerce, U.S. Census Bureau, *2002 Census of Governments*. Available at http://www.census.gov/govs/www/cog2002.html.

PERSONAL AND COMMUNITY ACCESS

11. Voter turnout for the 2004 elections

Voter Participation Rates = Total Number of Voters/Estimated Voting Age Population

Source: Brace, Kimball and Michael McDonald. *Final Report of the 2004 Election Day Survey* (Washington, D.C.: U.S. Election Assistance Commission, Sept. 2005). Available at http://www.eac.gov/election_survey_2004/state_data.htm.

12. Percent of Zip Codes without a Competitive Phone Provider

Percent of Zip Codes without a Competitive Local Exchange Provider (CLEC) = Number of Zip Codes without a CLEC in the County/Total Number of Zip Codes in a County

Sources: Federal Communications Commission, at http://www.fcc.gov/wcb/iatd/comp.html and Zip-Codes.com, 2005.

13. Percent of Zip Codes without a High-Speed Internet Service Provider

Percent of Zip Codes without a High-Speed Internet Provider = Number of Zip Codes without a High-Speed Provider / Total Number of Zip Codes in a County

Sources: Federal Communications Commission, at http://www.fcc.gov/wcb/iatd/comp.html and Zip-Codes.com, 2005

14. Internet Connected Library Terminals

Population per Internet-Connected Library Terminals = Total Population (2002) / Count of Internet Connected Library Terminals (2002)

Source: U.S. Department of Education, National Center for Education Statistics, *Common Core of Data*. Available at http://nces.ed.gov/ccd.

GOVERNMENT

15. Government Websites

Percent of Local Governments with a Website = Number of Local Governments that responded to the survey with a website / Total Number of Local Governments that responded to the survey

Source: U.S. Department of Commerce, U.S. Census Bureau, *2002 Census of Governments*. Available at http://www.census.gov/govs/www/cog2002.html.

HEALTH

16. Infant Mortality

Infant Mortality = Number of Infant Deaths / Per 1,000 Births
Calculated by March of Dimes or obtained from state health department websites, weighted for averages on total county population (2002)

Source: Data obtained from the March of Dimes Perinatal Data Center, at http://www.marchofdimes.com/peristats. Based on data from the National Center for Health Statistics.

17. Percent of Counties with a Telemedicine Program

Percent of Counties with Telemedicine = Number of Telemedicine Grant Recipients in the County 2000-2006/ Total Counties

Sources: Lists of grant recipients from the U.S. Department of Health and Human Services, Office for the Advancement of Telehealth and the U.S. Department of Agriculture, Rural Development, Distance Learning and Telemedicine Program.

BUSINESS

18. Entrepreneurship

Proprietorship as a Percent of Employment=Total Number of Proprietors/Total Employment

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Economic Accounts*, Table CA25, 2003. Available at http://www.bea.gov/bea/regional/reis/.

Regional Survey Results

For this survey, Southern Growth compiled the names and contact information for county managers, administrators, judges and mayors, board of supervisor chairmen and parish presidents in all 240 DRA counties and parishes. After establishing the database, each of the appropriate representatives were contacted by phone and asked to respond to a brief survey on information technology in their county or parish.

Sixty-seven percent of the county representatives in 161 of the 240 DRA counties responded to the survey. While some states had higher response rates than others, at least 56 percent of county/parish administrators from each state participated in the survey. The results are described below:

REGIONAL SURVEY RESPONSE RATE SUMMARY

STATE	NUMBER OF INTERVIEWS	NUMBER OF DRA COUNTIES	SURVEY RESPONSE RATE
ALABAMA	13	20	65%
ARKANSAS	29	42	69%
ILLINOIS	9	16	56%
KENTUCKY	18	21	86%
LOUISIANA	30	46	65%
MISSISSIPPI	25	45	56%
MISSOURI	23	29	79%
TENNESSEE	14	21	67%
TOTAL	**161**	**240**	**67%**

POSITIVES

- Ninety eight percent of surveyed counties reported having computer training classes within the county or in a neighboring county
- Nearly 65 percent of the surveyed counties have what their managers consider a "high-tech" company

NEGATIVES

- Very few counties, less than 25 percent of responding counties, offer online government services
- Only 13 percent of surveyed counties have schools that open their computer labs to the public
- Less than 37 percent of responding counties have public access to computers outside of schools and libraries
- Sixteen percent of responding counties are served by a telemedicine program

Each county representative was asked, "What, if anything, is the biggest barrier to technology use in the county?" Representatives often answered by citing more than one barrier. Consequently, we have aggregated these results to reflect all the answers provided; that is, a single county that cited three barriers to information technology use will be counted three times in the results.

"Education" and "Limited or No Broadband" were the most frequently cited barriers with 37percent and 21percent of the surveyed counties noted these barriers respectively. "Funds/ Money" (14 percent), "Computer Access" (9 percent) and the fact that the county was rural (6percent) were the next three most frequently referenced barriers to information technology. Employment, Resources, Drugs, Location, Limited Demand and Age were also mentioned. Illustrating the need for increased awareness and local leadership training, nearly 13 percent of counties were unsure of the major barrier to information technology use. More than six percent said that there was no significant barrier to technology usage in their county.

PHONE INTERVIEW QUESTIONS

1 Does your county offer any government services online? For example can people pay their bills or register their cars online? (Yes/No)

2. Do any of the schools in your county stay open after hours to let people in the community use their computers? (Yes/No)

3. In your county, can people get access to a computer without going to a school or library? (Yes/No)
   a. If so where?

4. Are there any computer or Internet training classes available at a community college or workforce center in your county or in a neighboring county? (Yes/No)

5. Do you have any local companies in your county that sell their products over the Internet? (Yes/No)

6. Are their any high tech companies in your county? (Yes/No)

7. Is there a telemedicine program in your county? (Yes/No) (A telemedicine program is a distance medicine program, where a person's health can be monitored using technology by a hospital or healthcare facility in another county.)

8. What is your county's biggest barrier to using more technology? (For example, what technology would help your businesses grow or help your county have a more computer savvy workforce?)

9. Can you provide an example of the best use of technology in your county in the private sector? (For example, a high tech company or company that uses technology in an innovative way.)

10. Do you have a similar example of the best use of technology in your county from the public sector? (For example a school or department that uses technology in an innovative way.)

STATE	PERCENT OF COUNTIES OFFERING ONLINE GOVERNMENT SERVICES	PERCENT OF SCHOOLS OPEN AFTER HOURS TO PROVIDE COMPUTER AND INTERNET ACCESS TO THE COMMUNITY	PERCENT OF COUNTIES WITH COMMUNITY COMPUTER ACCESS POINTS OUTSIDE OF THE SCHOOLS AND LIBRARIES	PERCENT OF COUNTIES WITH COMPUTER TRAINING CLASSES IN THE COUNTY/ NEIGHBORING COUTNY	PERCENT OF COUNTIES WITH COMPANIES THAT SELL THEIR PRODUCTS OVER THE INTERNET	PERCENT OF COUNTIES WITH HIGH TECHNOLOGY COMPANIES	PERCENT OF COUNTIES WITH A TELEMEDICINE PROGRAM
ALABAMA	0%	8%	31%	92%	54%	77%	0%
ARKANSAS	38	17	55	100	72	62	21
ILLINOIS	11	11	11	100	78	44	11
KENTUCKY	28	22	50	100	78	78	28
LOUISIANA	30	7	30	93	73	70	20
MISSISSIPPI	20	0	24	96	60	60	8
MISSOURI	9	9	43	100	83	52	17
TENNESSEE	21	43	29	100	79	57	14
DRA	**22%**	**13%**	**37%**	**98%**	**72%**	**63%**	**16%**

Source: Information Technology for Economic Development Phone Surveys, Spring 2006