

2008 NASCIO AWARD APPLICATION

The e-NC Authority: Capturing the Promise

The e-NC Authority

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Award Category: Information Communications Technology Innovation

State: NORTH CAROLINA

## EXECUTIVE SUMMARY

Innovative programs that provide best practice models for technology-based economic development being adopted by governments across the U.S.; a unique hybrid operating structure that supports flexibility and responsiveness; an activist 15-member Board composed of leaders from public and private arenas that sets a bench mark for collaboration that permeates down to the grass roots programs it enables; a strategic vision that is guided by recognition of the need to integrate supply and demand issues into a connectivity solution that is rigorous and sustainable; and a forward focus that is catapulting some of N.C.'s most distressed counties into regional technology lighthouses – this is N.C.'s e-NC Authority.

Devoted to connecting people to the Internet and a better future, the e-NC Authority (e-NC) works with all 100 of North Carolina's counties, with a focus on rural and distressed urban areas. Created by the N.C. General Assembly in 2000, e-NC is dedicated to increasing prosperity for N.C. citizens and businesses by creating jobs through technology-based economic development, which requires a broadband Internet platform for success. E-NC follows a dual strategy of catalyzing public-private partnerships that invest in improved connectivity infrastructure to **increase the supply** of high-speed Internet to underserved regions and to **build demand** by increasing citizen's awareness of and capacity to utilize high-speed Internet and the web-based information, services and business development platform it supports. Three principles guide e-NC in its investment decisions and programmatic activities: 1) **accuracy**: e-NC utilizes GIS technology in conjunction with information supplied by ICT providers and citizens to develop and update annually NC's connectivity status reports; 2) **neutrality**: e-NC does not advocate particular connectivity technologies, having invested in established, experimental and entrepreneurial services and technology solutions customized to specific locations and/or applications; and 3) **leverage**: e-NC ascribes to the "whole is greater than the sum of the parts" philosophy. Through e-NC's efforts, collaborative public-private partnerships are bringing connectivity to underserved regions. Through e-NC's innovative use of web-based outreach the value of its research, GIS-based mapping, toolkits and training programs are leveraging change as they are widely disseminated to governments and interested individuals worldwide.

The results document the success of this innovative, integrated and comprehensive strategy. Between 2001-2006 dollars leveraged by e-NC investments totaled \$9,966,760, creating 1,190 new jobs at an average cost of \$5,070 per job. E-NC grew to seven its statewide system of business and technology telecenters that collectively served 132,770 public access site visits and 20,533 technical and business clients. Returns are growing: in a single year (2007-2008), e-NC's state funding leveraged more than \$3,231,761 in cash and \$380,604 in-kind. Three hundred new jobs were created, with an average salary of \$35,000 per job for a total impact of \$9,000,000, or a total of 13,381,761, a 17:1 return on investment. This funding also provided technical training for 18,338 people for a total of 573,157 contact hours of instruction. Technical clients served totaled 2,513, and 27,888 public interest access visits were logged. E-NC is harnessing the power of technology to transform the economic prospects to rural and distressed North Carolina and to extend the benefits of lessons learned more broadly to any and all via the Internet.

## **THE BUSINESS PROBLEM AND SOLUTION**

Broadband Internet is a powerful, transformative technology that is infiltrating every sector and aspect of economic and community development. Businesses, communities and individuals that lack access to the Internet and the knowledge and capacity to use it are increasingly unable to be competitive players in the global information-driven economy. In 2000, nothing less than a digital chasm separated disadvantaged and rural communities in N.C. from their more affluent and urban counterparts. Despite being home to one of the world's premiere science and technology centers, the Research Triangle Park, and world-class universities, N.C. ranked in the bottom quartile in the percentage of its population that had access to the Internet.

First founded as the N.C. Rural Internet Access Authority (RIAA) and subsequently reauthorized in 2004 as the e-NC Authority, e-NC has worked diligently to bring to 83.54 percent (December 2006 data) the proportion of households in N.C. that have high-speed internet access available for purchase, ranking it 11<sup>th</sup> in the nation. Progress has been considerable, but challenges persist: 26 rural counties still have access rates that are below the 70 percent benchmark. E-NC was seeded by \$30 million in private foundation funding from MCNC and received its first state funding in 2004 for Business and Technology Telecenters and in 2005 for e-NC operations. E-NC and its lean staff of eight (including 3 part-time) are based in Raleigh, N.C., but have a physical and virtual presence throughout the state. E-NC is supported through appropriated state funds and through contributions from foundations, nonprofit, public and private entities.

Factors that characterize N.C. and make ubiquitous connectivity an especially challenging goal include: 1) geographic diversity that includes heavily forested mountains and expanses of wetlands including swamps, estuaries and coastal regions that are difficult to connect; 2) a preponderance of rural counties (85 out of 100) with communities that often have low population densities and high unemployment and poverty rates that undercut support for the business case for updating connectivity infrastructure and 3) an uneven distribution of skilled network and computer specialists that makes it difficult to obtain needed technical assistance in rural and distressed regions of the state. Beyond these place-based challenges, the baseline speed and bandwidth that defines competitive Internet is escalating, creating a moving target that demands constant vigilance on the part of e-NC and other government agencies charged with ensuring e-competitiveness.

The solution cannot be left to the private sector which has a fiduciary duty to invest limited funds for research, development and infrastructure upgrades into regions and projects with the potential for the greatest returns. Rural and distressed communities would not meet this hurdle. Similarly, competition for scarce public funds demands that priority be given to launching economic development initiatives that will deliver significant returns on investment in the short term and have strong potential to become self-sustaining in the long term. Often the perception is that rural and distressed communities lack both the demand for, and ability to utilize, high-speed Internet access. The conundrum is this: if access is based on growth and growth requires access, which comes first?

The logic behind the e-NC approach becomes clear. Since its creation 2000 the e-NC Authority has followed a comprehensive strategy that simultaneously addresses both the supply and demand elements of the connectivity equation. E-NC has developed, tested, and implemented a comprehensive, integrated and innovative package of programs comprised of research, outreach, toolkits, training programs, and technical assistance designed to build awareness and capacity to grow demand. At the same time, e-NC has been working to reduce the exposure of supply-side partners through collaborative infrastructure investment partnerships that leverage the investment and reduces the risk of all partners.

In establishing e-NC the N.C. General Assembly mandated that e-NC serve as the primary Internet planning body for NC, that it track broadband connectivity levels by county, that it advocate and serve as a catalyst for infrastructure build-out in underserved areas, and that it develop telecenters as regional loci for technology diffusion, tech-based economic development and small business growth in economically distressed areas. E-NC had no roadmap to follow to meet its mandate. E-NC's organizational structure and programmatic themes reflect an amalgam of best practices gleaned from an international scan of digital inclusion efforts, and from the knowledge brought to the effort by e-NC's expert staff, who collectively have more than 150 years of direct experience in the telecommunications industry and in launching technology-based economic development programs in NC and elsewhere around the world. E-NC has adapted best practices to its context, forged novel approaches and customized programs to facilitate adoption in different regions of state and by diverse communities within regions. Specific e-NC programs and products that could be of particular interest to other governments are highlighted in the following section, arrayed against the backdrop of e-NC's legislative mandates.

## **SIGNIFICANCE to the IMPROVEMENT of the OPERATION of GOVERNMENT**

**e-NC as an effective policy and planning body:** e-NC documents and quantifies regions and sectors in the state that do not have adequate Internet infrastructure. This information guides e-NC as it advocates for and manages incentive funds that it leverages at least 1:1 with private sector funds to raise the level of access in a region. E-NC documents the results of previous infrastructure and demand building investments in support of additional funding for telecenters and for new applications and technologies for local governments. At the local and county level, e-NC's e-community planning effort in Polk County led first to development of PANGEA, a project to provide access through a not-for-profit managed wireless program that has since expanded into a county-to-county effort to network schools and emergency services in underserved regions of neighboring Rutherford County.

At the state level, e-NC was successful in its advocacy for an appropriation to support equipment purchases needed for local public education and government channels (PEG). E-NC is currently planning a series of digital broadband summits to be held across the state in the fall of 2008 and the subsequent development of first-ever state connectivity plan for N.C. At the federal level, e-NC has worked with VA and S.C. in efforts to secure funding for collaborative cross-border programs that implement regional development strategies based on an Internet platform. E-NC

has been working with other states to advocate and plan for creation of a national center to track broadband access and advocate for rural expansion. E-NC regularly provides guidance to other states and countries wishing to study and adopt e-NC models.

**Tracking broadband connectivity:** The solution is only as good as the data from which it is derived. E-NC employs the most rigorous standards in its NC connectivity status assessments. E-NC queries the public through regular Citizen's surveys -- 1999, 2002, 2005 and 2008 (in process) -- and collects proprietary data directly from the DSL and cable providers that is cloaked and summarized in the annual 100 County Report. To improve the accuracy, timeliness and compliance of the service providers in updating the data e-NC developed an innovative web-based tool, e-NC's proprietary on-line "Service Provider Update" (SPU) tool which updates the service availability function of the e-NC website in a real time basis as companies update their service areas and levels. SPU allows companies to control their data but allows e-NC a means of providing citizens and businesses searching for the providers that serve their location the information that is current. All a citizen has to do is enter their address in the application and it will return a list of all internet providers serving the location. E-NC was the recipient of the 2007 Techie award for this innovative on-line tool that was the first of its kind in the U.S.

**E-NC as a catalyst for infrastructure build out:** E-NC serves all 100 counties in NC as a champion, mentor and funder of first-out-of-the-gate programs to develop local e-communities (2001), e-government and ecommerce utilization programs (2002). These programs have been instrumental in increasing demand in low density regions. E-NC has been actively engaged in securing funds to complete the state's BETA \$24 million education network that will secure broadband access for all of the state's K-12 public schools. E-NC is currently working with a coalition of public health departments and free clinics to develop a FCC-funded model statewide health network that will be analogous to the education network. Building on a major leveraged partnership that raised the level of access statewide to a current level approaching 84%; in 2007 e-NC leveraged \$1.21million appropriated by the N.C. General Assembly at a rate of 1.25:1.0 to bring the five counties with the lowest levels of access up to 70 percent. E-NC is committed to continuing to work in partnership with various wireless, cable and DSL/fiber-based service providers to ensure that the state does not rest on progress to date but continues to makes progress in towards a goal of ubiquitous deployment of competitive bandwidths and speeds throughout N.C.

**Business and Technology Telecenters as technology resource centers:** a unique statewide system of technology lighthouses have been established in seven of the most distressed counties of NC. BTTs rapidly become a centerpiece of regional economic development, each with a unique focus and partners, but united towards nurturing and sustaining technology based businesses. Several are located in defunct manufacturing and textile buildings, providing a powerful symbol of the community shedding its dependence on old technologies in the adoption of the new. BTTs have recruited international firms to the state, launched new ventures and birthed emergent sustainable value-added industry clusters, and delivered, in collaboration with local schools and higher-education institutions, training programs tailored to the clients' needs, including

technology training distance education and e-learning programs. BTTs are becoming active service distribution centers for other assistance agencies in the state that serve small businesses and entrepreneurs. E-NC secured funding from the Kellogg Foundation via the N.C. Entrepreneurial Development System to develop and test the concept of “technopreneur” as a resource person that served the technology assistance needs of entrepreneurs in regions surrounding BTTs. This highly successful model is being adopted by other EDS partners organizations and BTTS.

In all cases, promising approaches and tools have been reduced to practice and made generally available in electronic format through the e-NC website at [www.e-nc.org](http://www.e-nc.org).

### **BENEFIT of the PROJECT**

The e-NC Authority was established with no less lofty a goal than transforming North Carolina from a manufacturing economy to an information economy. Significant progress has been made towards this goal in even the most rural and distressed regions of the state. The e-NC Authority has delivered significant benefits -- tangible and intangible-- to North Carolina’s citizens and businesses.

**Third party evaluations and performance metrics:** From the beginning e-NC has recognized the importance of building performance metrics into every aspect of its operations and into the grants and contracts that it manages on behalf of the state and federal governments and of the private foundations and organizations that are its partners in various undertakings. Beyond this fiduciary responsibility, e-NC recognizes the value of objective third party evaluations in validating the emergence of its programs and projects as best practices and in providing the feedback that is needed to support continuous improvement efforts. To that end, the e-NC has submitted regular program reports to the Governor, the Government Operations Committee of the NC General Assembly, and to the Office of Fiscal Research. External audits of e-NC’s fiscal agent, the NC Rural Center have been clean without exception since first the RIAA and then e-NC were created. Finally, external audits of key programmatic efforts have been conducted. For example, U.S. Department of Commerce-funded LEG-UP program that supported the development of interactive and transactional websites for 58 rural local governments was evaluated by faculty at UNC-Chapel Hill’s Department of City and Regional planning, while the BTT program, Phase I was evaluated by the Research Triangle Institute. Results of these evaluations are available on-line at [www.e-NC.org](http://www.e-NC.org). BTTs are required to submit detailed and documented quarterly activity reports to individual e-NC staff that are assigned to monitor specific BTTs and conduct regular site visits. Individual training and outreach activities are evaluated on-site by participants to guide program improvements.

**Consensus Building, Coordination and Collaboration:** From its platform of public service and technology neutrality e-NC has been able to work effectively at the boundaries of issues, organizations and local and state governments to broker information exchanges and negotiations that have resulted in various instances of new partnerships being formed, stalemates being broken and common issues developed as the basis for progress towards improved connectivity. Key

strategic partners include the N.C. Office of Information Technology Services, the N.C. Technology Association, the N.C. Department of Commerce, the N.C. Health Information and Communications Alliance, the Microelectronics Council of N.C. (MCNC), seven N.C. regional economic development partnerships, regional Councils of Government, county governments, managers, legislators and economic developers in all 100 counties and service providers.

**Documented benefits:**

**Local and County Benefits:** All 85 rural counties, five distress urban communities and the Eastern Band of the Cherokee became certified e-communities with grassroots derived strategic connectivity plans to guide their public access, digital literacy, training and technology implementation efforts.

E-NC secured and managed \$1.5 million U.S. Department of Commerce grant that funded 58 rural county and municipal governments in establishing high-speed access and implementation of interactive website with at least one transactional e-government application.

**Regional Efforts:** E-NC is leading the IT assessment and planning effort that is part of the broader comprehensive 11 county Base Realignment and Closing effort to support this region of N.C. prepare for the influx of 25-30,000 technology-intensive military units and their support contractors. Critical to their plans are efforts developed by e-NC to secure funding to fully implement the regional first responder network adequate to the challenges presented by the presence of Ft. Bragg, one of the largest military bases in the United States.

**Responsible investment of public funds:** Accurate documentation of connectivity status has allowed the state to prioritize projects to target connectivity infrastructure investments to the regions of the state that truly need it most. In the most recent session of the General Assembly, e-NC successfully advocated for appropriations that were directed to raise connectivity access in the 5 counties where access remained below 50 percent to at least the 70 percent benchmark.

**Project cost reductions** Review of the connectivity components of various state and locally-funded projects by e-NC's expert staff have identified opportunities for significant costs savings. For example, conservative estimates of at least 30 percent cost savings have resulted when e-NC consultants reviewed fiber deployment plans/quotes on projects in the western part of the state.

**Individual Capacity Building and Wealth Creation:** E-NC-supported public access visits at the 7 e-NC BTTs between 2001 and 2007 totaled 160,658 visits.

Technical assistance was provided to 23,046 public and private sector clients during this 7 year period.

**Jobs Created:** Between 2001-2007 1,490 new jobs were created that earned on average \$35,000 per job, for a very conservative total direct economic impact of \$52.15 million. For the 2007-2008 year this amounted to a 17:1 return on investment.

