

+ National Initiatives to Give North Carolina a Competitive Edge

The Issue

If North Carolina is to compete in the global economy, it must be able to attract top talent in fields such as biotechnology, engineering and communications technology and in academic research. Regions with top-tier universities and the talent they bring—the Boston area and Silicon Valley, for example—are best equipped to bring new high tech businesses and major research dollars to their state economies. Large research projects, in turn, create new jobs and a general “positive buzz.” In time, these large-scale national projects are a lure to business and often create new business spin offs. North Carolina needs to develop and retain the human and technical resources to be a top competitor on the national scale—both for research dollars and business ventures.

RENCI Projects

RENCI’s unique position as a multi-campus, multidisciplinary institute makes it a suitably neutral organization that can pull together North Carolina’s formidable universities and business sectors to work on projects with a national scope. Partnerships that involve the Triangle universities, businesses in Research Triangle Park, additional North Carolina campuses and partners from other states bring positive attention to North Carolina and give the state a prominent role in major projects to build information infrastructure, improve healthcare and address a host of issues from climate change to alternative energy.

RENCI’s technological expertise and national track record in informatics was important in UNC Chapel Hill winning a \$61 million Clinical and Translational Science Award from the National Institutes of Health. RENCI’s role in this project is to use data management and analysis technologies to improve healthcare delivery systems. RENCI’s computing, data and visualization resources make North Carolina a strong contender for national research projects such as TeraGrid Track 2d, a \$4 million proposal to develop a grid computing test bed, where researchers nationwide can test the networking and software that will become part of the next generation of computing architectures. RENCI also helped North Carolina get its foot in the door in research to develop the next generation of the Internet by winning an award with Duke University from the National Science Foundation GENI (Global Environments for Network Innovation) project.

Through RENCI, North Carolina researchers have access to national-scale computational resources, such as the TeraGrid, a distributed collection of computing, data and visualization resources, and the Open Science Grid, a consortium of U.S. universities and laboratories that provide their computing and communications infrastructure needed to do top-tier research. An internationally known research team, the Data Intensive Cyber Environments (DICE) group, moved from the University of California at San Diego to UNC Chapel Hill in part because of the chance to work closely with RENCI.

The Expertise

Since its inception in 2004, RENCI has attracted experts in data management and analysis, networking, software development, embedded systems, hardware engineering, visualization, and high performance computing to North Carolina from across the U.S. These professionals are part of national projects to build the technological infrastructure that will make research easier and more productive, improve healthcare and enhance our ability to effectively respond to major storms and other disasters.

The Partners

RENCI’s national partners include U.S. Department of Energy Labs

Research universities in North Carolina and throughout the U.S.

Federal agencies such as the National Science Foundation and the National Institutes of Health, and major corporations such as Microsoft.

The Impact

In FY09, RENCI brought \$5.7 million in sponsored research to North Carolina. Sponsored research has grown as a percentage of the total RENCI budget each year and since 2004, more than \$21 million from federal agencies and the private sector has come to North Carolina through RENCI. These dollars bring even more value to North Carolina because they are leveraged in other RENCI projects. For example, a Microsoft-sponsored project to develop a database of data collected from sensors benefits state-sponsored projects to build a flood sensor network in Brunswick County and the State Climate Office, which can use data from the Microsoft database to fulfill its own mission.

New, large-scale funding proposals that pool the expertise of different universities that in the past more often chose to compete than to cooperate are now in the works. As faculty research teams are linked to the Open Science Grid or TeraGrid through RENCI, word gets out that North Carolina is a favorable environment for the kind of research that leads to major federal investments. The DICE group, which brought its \$1.2 million in federal funding from California to North Carolina, sees RENCI as a resource it can use to build regional, interconnected data resources that could benefit academic and private sector researchers across the state. DICE is also working to implement a huge data storage system to manage library collections and participates in projects that could improve public health by integrating health records across the state.

By thinking nationally, RENCI provides benefit locally and regionally and North Carolina finds new ways to use the talents in its universities and its business sectors to compete in the information age.