The University of North Carolina **Board of Governors**



Long-Range Plan 2004-2009

The Role of UNC in **Economic Development**









THE UNIVERSITY of NORTH CAROLINA























X. The Role of the University of North Carolina in Economic Development

From their inception, public universities have been linked to state economic development. The passage of the Morrill Acts in 1862 and 1890 created our nation's land-grant colleges. States were given land to create universities with a mission to support agriculture and mechanical arts through teaching, research, and outreach. Those new institutions were to provide a large segment of the population with a practical education, relevant to their livelihoods. The Hatch Act of 1887 added experiment stations at land-grant institutions to enhance scientific knowledge. The Smith-Lever Act of 1914 created the Cooperative Extension Service associated with the land-grant institutions to disseminate information gleaned from the experiment stations' research. These Acts created an important foundation for the three-part mission of public universities: teaching, research, and outreach.

The engagement activities of universities were significantly affected by the federal patent reform amendments of 1980 known as the Bayh-Dole Act, which permitted universities to own patents and license intellectual property. Since the enactment of this landmark legislation, universities have dramatically increased ownership of patents and intellectual property and expanded technology transfer opportunities.

Today, North Carolina is undergoing a fundamental shift from a manufacturing economy to a knowledge economy. Only a decade ago, more than 25 percent of North Carolina's non-farm workforce was employed in manufacturing (e.g., textiles and furniture). Manufacturing jobs—generally high-wage and low education level—were part of North Carolina's economic foundation. That percentage of manufacturing jobs in the non-farm economy has now fallen to about 16 percent (Figure X.1). Given the changes in the United States and North Carolina economies, this decline in traditional manufacturing jobs is not expected to change.

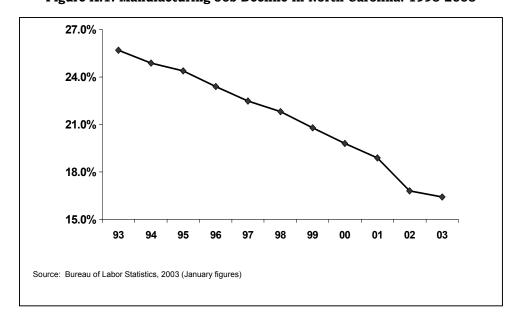


Figure X.1. Manufacturing Job Decline in North Carolina: 1993-2003

A strong partnership with government, business, and higher education is critical to overcome the challenges of the transition to the new global, knowledge-based economy. There are increasing expectations from legislative and executive leadership in the State that the University of North Carolina assume a more direct, active role in economic development. This reflects increased awareness that the university has extensive resources that can help lead and

support the transition to a knowledge-based economy. The University will be called upon to expand access to university education to fill the growing need for college graduates over the decades ahead. It is also positioned to leverage and focus resources to nurture local entrepreneurs, aid the transformation of existing businesses, and attract new businesses to North Carolina.

In its growing role in economic development, UNC is building on a strong record of service and support for communities and entrepreneurs, including those in rural areas:

- ♦ The cooperative extension services on our two land-grant campuses continue to serve agricultural interests and entrepreneurs in all 100 counties.
- The Industrial Extension Service serves manufacturers across the State.
- Seventeen Small Business and Technology Centers play a key role in entrepreneurial development, offering services to existing businesses and industries and supporting strategic economic development initiatives.
- Area Health Education Centers provide access to advanced health care in rural areas and encourage health professions graduates to practice in underserved areas, thus making these areas more attractive for economic development.
- UNC-TV provides increasingly important access to college telecourses, and its digital conversion offers enormous potential for new programming and outreach for business and economic development.

The University serves a leadership role in economic development in the State through its core missions of teaching, research, and outreach and engagement. Only by doing so can the State have an educated, highly skilled workforce, innovation and global competitiveness, and partnerships and alliances necessary to secure economic prosperity for future generations.

Teaching—Educating and training the State's workforce for high skilled jobs

- Continued support from federal and state funds expands access and improves the State's college-going rate through important early intervention programs such as GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs), Pathways, and the College Foundation of North Carolina.
- 2. UNC institutions will continue to address the retraining of workers through life-long learning opportunities and distance education.
- 3. Recent projections indicate that our campuses will grow by as many as 58,000 students by 2012. Continued state funding for enrollment growth will be critical for ensuring that the University has the resources to provide North Carolina's citizens with the education and skills necessary to adapt and change in a knowledge-based society.
- 4. Students must be prepared for the knowledge-based economy by campuses expanding academic skill development and effectively integrating information technology into the learning experience.

Research—Creating, transferring, and applying new knowledge and ideas to stimulate economic development

1. With a 2003 total of \$941 million in sponsored grants and contracts, UNC ranks third among university systems in the nation (Figure X.2). As important as the dollar volume of total research funds is the distribution of that support among academic disciplines. The following chart indicates the heavy concentration of investment in the important areas of life sciences, health professions, and biotechnology.

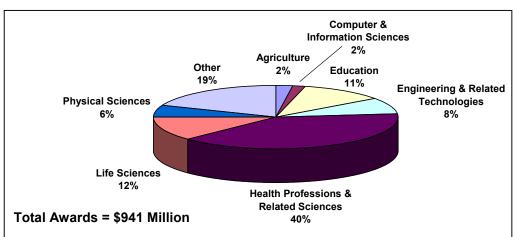


Figure X.2. Sponsored Research Awards by Discipline: FY 2003

- 2. Recent public/private investments of over \$800 million in new genomics, bioinformatics, and proteomics research programs at UNC institutions will foster new business growth in these emerging areas.
- 3. The University should continue to invest facilities and administrative receipts in building infrastructure for research and in encouraging innovation.

Outreach and Engagement—Fostering a climate for innovation and the development of emerging companies

- 1. UNC supports the North Carolina Economic Development Strategic Plan, "We Are Changing the Way We Do Business." The second of the four cornerstones of this plan, developed by the State Economic Development Board, is "Invest in Science, Technology, and University Outreach." A number of the action steps in the plan call for University leadership to:
 - a. Promote expanded technology transfer
 - b. Create an economic development portal
 - c. Support enhanced tax credits for University-based technology
 - d. Increase direct state investment in targeted areas of university research
 - e. Support incubator/business accelerator activity throughout the State
 - f. Improve access to early stage capital
 - g. Mobilize broad-based public leadership support for science and technology objectives
- 2. The University continues to assist campuses in developing technology transfer capabilities and opportunities. One successful example of this is the Technology Development Initiative. In 2000, the University engaged the Research Triangle Institute (RTI) to assess technology transfer capacity throughout the University. RTI concluded that while the campuses were at different stages (Figure X.3), there was intellectual property with commercial potential on all 16 campuses. In many cases, the campuses lacked infrastructure to support the process of bringing technology to the commercial stage. The following were among the opportunities identified for improvement:
 - a. Foster an enterprising university culture
 - b. Develop an asset managing portal on each campus
 - c. Establish highly effective intellectual property offices
 - d. Create funding modes for technology assessments
 - e. Provide legal support
 - f. Retain, reward, and recruit enterprising faculty
 - g. Provide business accelerators and venture capital where appropriate

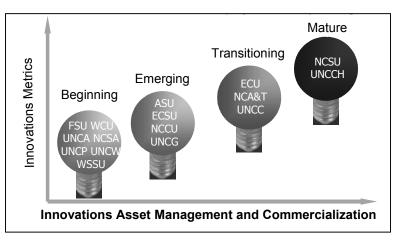


Figure X.3. Categories of UNC Technology Development

- 3. The University should develop a University-wide Economic Development Alliance, using the model of other successful University-wide organizations, to create a functional network of key University leaders throughout the State involved in economic development activities, to inventory university programs and resources, to foster communications and best practices, to promote effective outside contact, and to leverage University resources to support economic development.
- 4. The North Carolina Small Business and Technology Development Center (SBTDC), the University's business development service, now serves over 12,000 small to medium-sized businesses annually across the State through 17 offices (Figure X.4), each affiliated with one or more of the constituent institutions.

Asheville, Beaufort, Boone, Chapel Hill, Charlotte, Cullowhee,
Durham, Elizabeth City, Fayetteville, Greensboro, Greenville,
Hickory, Pembroke,
Raleigh, Rocky Mount, Wilmington, and Winston-Salem

Figure X.4. SBTDC Offices in North Carolina

SBTDC consultative and management education services are focused on helping businesses improve their strategic focus and competitiveness, expand their markets and access the capital necessary to support growth. The impact on the State's economy from SBTDC activities has been significant, and the return on the State's investment has been impressive (Figures X.5 and X.6).

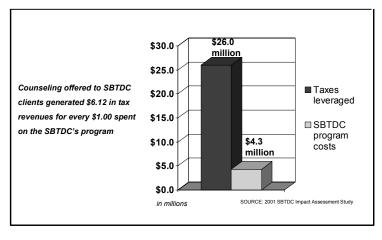
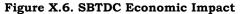
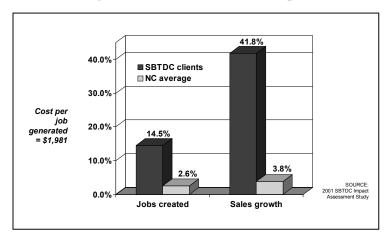


Figure X.5. SBTDC Return on Investment





- 5. The University and the State should continue to support university, government, and private sector partnerships, especially through the development of UNC Millennial Campuses. The North Carolina State University Centennial Campus is the preeminent model in the country of this approach. It is an integrated, planned research campus of university, corporate, and government R&D facilities and business incubators. In 2000, the General Assembly gave the Board of Governors the authority to designate areas of campus land as Millennial Campuses. As a result, several other campuses are currently planning mixed-use developments that draw on their particular research and other strengths, regional needs, and business collaborations. The most ambitious of these plans to date is the Carolina North campus at UNC Chapel Hill.
- 6. The University should continue to strengthen the relationships with existing private industry associations and economic development organizations to leverage interests of all partners. Key partners include the U.S. Department of Commerce, North Carolina Department of Commerce, regional partnerships, the North Carolina Biotechnology Industry Association (NCBIO), North Carolina Electronics and Information Association (NCEITA), and entrepreneurship organizations such as the Council for Entrepreneurial Development (CED).
- 7. In 2001, key business and academic interests in the region commissioned a comprehensive economic analysis on the Research Triangle Region. The resulting report, "Clusters of Innovation," stated that "future U.S. competitiveness will not hinge just on policies and investments at the national level but on the capacity to foster clusters of innovation in

- regions across the country." A CEO-level business and higher education task force is using this study and other resources to develop a New Regional Vision and a shared blueprint for local organizations, businesses, and government to work collaboratively to achieve future economic success. Other regional planning and implementation activities also are taking place in other regions of the State with University support.
- 8. Continued support is required for the North Carolina statewide initiative in biomanufacturing, a collaboration involving the bioprocessing industry, the University, and the Community College System. It will provide state-of-the art education, research and training at community colleges and universities, with a capstone experience in a unique facility at North Carolina State University. Also, this initiative will help position North Carolina as a leader in biomanufacturing and attract and retain biotech companies and high skilled workers in the State.

Every aspect of UNC contributes to the economic development effort. New and up-to-date degree programs respond to the need for highly knowledgeable employees from entry to advanced research levels. Exceptional faculty current in their field can provide the continuing education, either through advanced degrees or seminars and short courses, employees and employers need to stay current and competitive. The research programs of the faculty provide the foundation for cutting-edge training and for advances that can fuel additional companies, products, and processes that will keep North Carolina at the forefront in the global economy. Research, outreach, and assistance will provide the knowledge needed for existing sectors of the economy to grow, transform, and remain competitive. University engagement with business and government will help keep the educational, governmental, and business sectors working for the same end of having a vibrant, expanding economy to serve the needs of the state and its people.