Public-sector strategy: North Carolina builds a high-tech center

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do certain things,” he says. “One is to provide research opportunities; the other is to provide seed money.”

Formed as a nonprofit corporation, the MCNC works closely with five North Carolina universities—North Carolina State, North Carolina A&T State, North Carolina at Chapel Hill, North Carolina at Charlotte, and Duke—as well as the Research Triangle Institute, a contract research organization.

MCNC president Don Beilman sees the center not only as the pivotal element of microelectronics development but of North Carolina’s entire high-technology industrial development strategy. “Microelectronics is maybe the most pervasive of all areas in developing high-technology opportunities and industries,” he says.

To staff the microelectronics center, about 60 industrial laboratory people will be hired, representing advanced areas of microelectronics from chemistry to computer science. Many of these people also will have joint appointments with the universities. “Part of our uniqueness is that the universities are an integral part of the overall microelectronics program of the state,” says Beilman.

Role of Education

Indeed, educational institutions play an important role in the MCNC strategy, as well as in North Carolina’s overall industrial development plan. People of the “tar-heel” state always have known the value of education. The state was founded in 1776 on the belief that democracy requires an educated citizenry.

But the wooing of high-technology companies didn’t begin until the 1950s, when North Carolina set about to use its then greatly expanded education system to attract industry to the state. Even then it was not high-technology companies per se that the state was vying for—the term had not yet been coined—but a new industrial base to vitalize the state’s sagging economy. At that time, North Carolina was dependent on what were then three labor-intensive, low-wage industries—tobacco, textiles, and furniture manufacturing—and suffered with the lowest per capita income and average industrial wages in the United States. Moreover, 20 percent of its college graduates were leaving their home state each year for lack of career opportunities.

One of those who resolved to change all that was Luther Hodges, who was the governor of North Carolina from 1954 to 1961. He, along with others, supported the premise that what North Carolina needed in order to boost its economy and its labor force were new and higher-paying industries.

To foster such an industrial renaissance, Hodges envisioned a research park to cooperatively run by the state’s leading universities. The main attraction for new industry would be the universities themselves, with their nationally recognized and multidisciplinary strengths in science, mathematics, engineering, and medicine; the research support that the universities would provide, in the form of faculty and research consultants; and the graduates that the universities would produce, which would provide the scientific and engineering manpower necessary for industry to grow. Ultimately, it was predicted, companies that settled in the park would spawn manufacturing facilities elsewhere in the state.

Selected as the academic base for North Carolina’s research park were three universities: the University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, and the privately endowed Duke University, in Durham.

In 1958, the dream came true. Backed with $1.5 million of privately raised funds, a research park was realized. Named the Research Triangle Park and modeled in part after the Stanford Research Institute, it is situated on 5,500 rolling, pine-forested acres in the center of the triangularly shaped area formed by the cities in which its three participating universities are located. The park is operated by the three universities through the Research Triangle Foundation, a nonprofit organization.

At present, the park has about 50 tenants. Major companies with facilities in the area include IBM, Northrop Corporation, and Data General. But the park’s tenant base, by design, is quite diversified. It includes, besides support services, Burroughs Wellcome (pharmaceuticals), the U.S. Environmental Protection Agency, the National Research Center for the Humanities, as well as educational and research facilities of the MCNC and other park programs. More than 20,000 people work in the park, and it is estimated that the high-tech companies surrounding the park employ three times that number.

One of the park’s tenants, Northern Telecom (a Toronto-based company owned 51 percent by Bell of Canada) made two decisions to move to North Carolina. In 1974, it chose the town of Creedmoor as the site for a sub-plant for manufacturing its analog telephone switching equipment. “We were after the tech graduate at that time and looking primarily at North Carolina’s technical schools and community colleges,” says Tom Worthy, group vice president of Northern Telecom’s digital switching systems division in the Research Triangle Park.

In 1977, when the company replaced its analog switching system with a digital system, the company began to press harder for college graduates and master’s degrees. “One of the key reasons for staying here—in addition to the healthy business climate in North Carolina—was the Research Triangle and the colleges, such as NC State, that have terrific engineering schools,” says Worthy. “That forced us to rethink our whole program.”

University-Industry Bridge

The concepts of the Research Triangle Park and the microelectronics center are unique, maintains MCNC President Don
Working with the universities and industry, he explains. "Ours is a national center. The commitment to the state initiatives like this. They are a superb way to take advantage of the investments being made in universities and the need for a closer coupling between universities and industry. We think that this major new state initiative can evolve into a national center to address the very aggressive international competition. We’re moving into a new technological era in microelectronics where, unless there are technology-transfer bridges such as MCNC, it will be much more difficult for the nation to maintain international leadership."