Reporting to Work: Postsecondary Institutions as Regional Economic Development Actors

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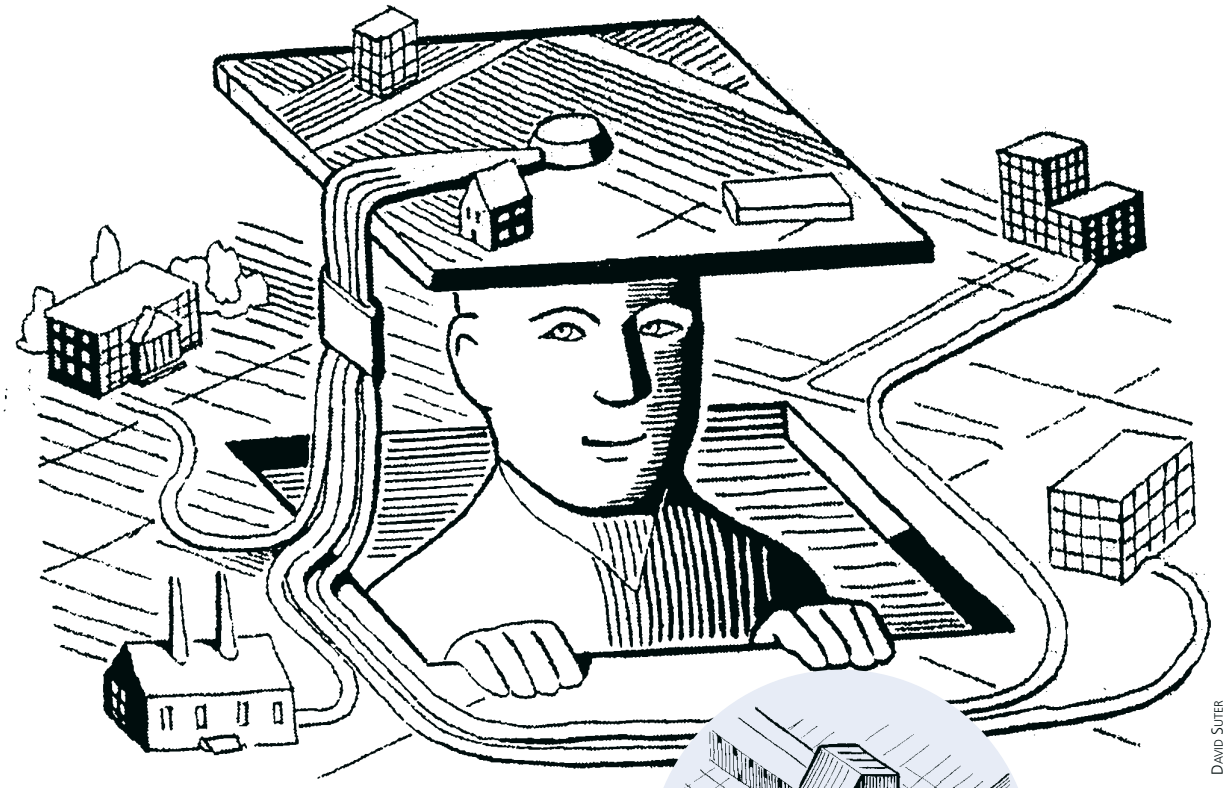

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Advanced industrial countries such as the United States are moving away from producing things—or at least from producing easily made goods, with lower value added—toward producing value from knowledge. What does this mean for postsecondary educational institutions, which undoubtedly are key players for regions striving to succeed in a new economic landscape? How are they responding to a multitude of challenges and opportunities?

The American Economy, Then and Now

At one time the American economy was governed by mass production, business strategies that focused on high volume and low cost, and base technologies that chugged along at a manageable pace. At the state level, industrial development policy revolved around tax exemptions and abatements and other public investments like buildings, land, and rail spurs. These policies made sense as an industrial recruitment strategy because reducing input prices improved the ability of the industries being recruited to compete on the basis of cost.

The world has moved on. In developed economies, manufacturing companies that compete strictly on cost are an endangered species. Instead, firms survive and prosper in volatile, niche-

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Table 1. **Key Economic Development Functions for Postsecondary Institutions**

Community Colleges	Universities
Preparing Technicians	***Educating***
Filling the pipeline	Producing knowledge and talent
Recruiting minorities, immigrants, and women	***Transferring Technology***
Customizing Training and Other Services for Industry	Moving intellectual property to the private sector
Providing specialized training	Generating local wealth and jobs
Offering technology assistance	***Allying with the Private Sector***
Connecting employers	Providing R&D, infrastructure, technical assistance, etc.
Supporting Entrepreneurs	Offering access to facilities and equipment
Providing classes and guidance on business plans and financial issues	***Providing Public Service***
Incubating businesses, especially in rural areas	Contributing technical assistance to governments and nonprofits
Embedding entrepreneurship in curricula	***Defining the Economic Development Milieu***
Going Global	Supporting arts, culture, and community development
Exposing students and faculty to international perspectives so that they are prepared for the global economy	

oriented, often lucrative global markets by adding value in design, function, precision, speed of delivery, appearance, and customization.

For any region to be successful in this vast, quick-changing, and free-flowing global economy, it must call on the community colleges and universities that serve it to generate new value and new wealth through the knowledge of their graduates and through engagements with private-sector partners.[1] Such engagements may take the form of training programs, business development, technical assistance, support for research and development, and technology transfer.

The corollary to this statement is that the old cost-sensitive policies of industrial recruitment are dangerously outdated. Continuing to pursue an economic development strategy that primarily depends on the approach many southern economic developers have used for the past thirty years—that is, attracting branch plants looking for low labor costs—is ill advised. Although this strategy may achieve limited success in the short term, it will fail in the long run. The consequence will be migration of workers, particularly new entrants, out of the state and destabilized communities with fewer and fewer opportunities for good jobs.

A number of support structures can help regions be economically competitive, but one group of institutions that is exceedingly important is two- and four-year colleges and universities. This article describes the evolution of higher education institutions as pivotal actors in economic development and explores some of the key roles that these institutions play to support the growth of their regional economies.

The Importance of Postsecondary Educational Institutions

The link between postsecondary education and economic development has not always been obvious. For most of the industrial era, the job of economic developers was to attract manufacturing plants. This type of economic development focused on generating jobs that required no more than a high school diploma (and in some cases not even that). Throughout that era, the role of the community college was to prepare students to succeed in a four-year institution or to teach them trade skills. The role of the four-year institution was to produce managers and professionals and conduct basic research.

Since the mid-1980s, however, the role of postsecondary institutions in economic development—indeed their value—has significantly and inexorably increased. Today in many communities, public officials and economic development professionals are focusing on strategies and actions to foster more knowledge- and talent-based regional economies, and community colleges and universities often are at the core of these strategies. (For a summary of the key functions that postsecondary institutions are playing, see Table 1.)

Community Colleges and Economic Development

Across the nation, and particularly in the South, community colleges have emerged as powerful catalysts for regional competitiveness. One of their greatest advantages has been their ability to change with the times. Most state community colleges began as junior colleges to prepare youth for four-year institutions and, after World War II, as vocational schools to prepare semi-skilled industrial workers. In the 1980s, concerns about growing competition from countries with lower labor costs prompted a few colleges to adopt a more proactive economic development stance. They established advanced technology centers (such as the Regional High Tech Center in western North Carolina) and supplemented their education program with industry services in order to function as technology intermediaries, spurring modernization of small and mid-sized enterprises.

By the 1990s, economic development had become a widely accepted part of the community college mission, with many institutions providing a broader range of services. This was especially the case in rural areas, where the community college often is the only higher education institution in the region and where few other resources exist to support economic development. The most proactive colleges began to offer more

intensive services, such as seminars and training in quality control and "lean manufacturing" (a widely used program that helps manufacturers cut costs by operating more efficiently and reducing waste). As trusted neutral parties, they also began to connect local employers with one another through manufacturers councils and other associations, helping them learn how they could work together on technology, training, or other issues on which collaboration benefited everyone. For instance, Oklahoma State University—Okmulgee (a two-year branch of the university system) started the Northeast Oklahoma Manufacturers Association for local employers to cooperate on training, development of a supply chain, and e-commerce. Ties with companies strengthened during this era, and colleges partnered with local economic development agencies more often than they used to.

For the most part, increased core funding did not accompany these expanded economic development functions, the exception being customized training. Services oriented toward economic development fell outside traditional funding streams, which reimbursed colleges for each equivalent of a full-time student. Therefore, colleges turned to external funders such as development organizations, private foundations, and federal agencies to support the array of activities that developed within their growing business and industry centers (sometimes called the "shadow" college).

At present, most community colleges balance three institutional missions: preparing students to transfer to four-year colleges; improving access to post-secondary education by serving as open-admission second-chance institutions; and supporting economic development.[2] Following is a description of some key economic development functions that community colleges are likely to pursue today, and a discussion of some of the challenges and trends that affect how they will respond next to their regions' needs.

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Preparing Skilled Technicians

In policy circles these days, one often hears the term "K–12" being replaced by "K–14" or "K–16," for good reason: successful U.S. production firms require skilled technicians to program and operate computer-driven design and manufacturing processes, and a high school diploma is not enough to qualify for these jobs. Community colleges are the primary producers of skilled technicians for advanced manufacturing firms.

There are growing needs for technicians in other industries as well. Two examples are information technology and biotechnology. Community colleges offer an amazing array of curricular programs and information technology training specific to vendors, such as Oracle and Microsoft. The biotechnology sector needs workers who understand the stringent laboratory, regulatory, and quality-control processes required for the next generation of advanced medical products and drugs.

The technician workforce is important to a region because companies are unlikely to recruit technicians from outside the region. So the more effective a college is in producing these graduates, the more hospitable its region is to advanced and emerging technology companies.

A challenge that community colleges face is to train a workforce that is increasingly minority, immigrant, and female. One response comes from South Carolina's Advanced Technological Education Center of Excellence, located at Florence-Darlington and Piedmont technical colleges and supported by the National Science Foundation. The center partners with employers to recruit more women and minorities into its engineering technology program. It also offers an innovative curriculum that combines technical and general education courses in an accelerated program.

Community colleges understand that, above all, they are educators. They must diligently pursue their role in filling the technician pipeline.

Customizing Training and Other Services for Industry

Southern states pioneered programs to spur economic development by using community colleges as purveyors of company-specific training for industrial workers. In the 1950s, North Carolina became the first state to offer free or inexpensive customized training for industry to help attract companies. Its program, New and Expanding Industry Training, run by the state's community colleges, remains among the most emulated in the nation. Other southern states soon followed suit. The rationale was simple: along with tax abatements and assistance with infrastructure, states would offer new or expanding firms training assistance for production workers. Many companies known for choosing to invest in equipment rather than in training for workers leapt at these offers. By 1998 all the states combined were investing $575 million per year in employer-specific training. (Not all states use community colleges as the training providers, though most southern ones do.)[3]

Although noncredit customized training programs are generally seen as successful, some states are linking the training to certificates and degrees that hold value in the job market for workers beyond their employment at a specific company. Another innovation is to work more broadly with industry sectors, or even with geographically based clusters of similar firms, to create entry-level employer-endorsed training programs.

Georgia's QuickStart program, run by the state's technical colleges, is at the forefront of both these trends. It offers four "specialist certificates"—manufacturing, warehousing, construction, and customer service—both on campus and in the workplace, and at flexible times. Each certificate bears about one semester's credit and feeds into a two-year degree program. These certificates are a powerful incentive for

a workforce to upgrade itself. Some workers go through the training at their employer's behest, receive the credit, and realize that college-level work is not out of their reach. The program thus increases the likelihood that people who obtain one of these certificates will pursue further education.

Smaller in scale but still significant are a broad range of services such as technology, quality assistance, and business support in areas like marketing and environmental consulting. Alabama's Technology Network, for example, is a system of ten centers dispersed across the state, most of them at two-year colleges (with participation from Alabama universities). The centers provide technical assistance and consulting services to improve companies' competitiveness. Catawba Valley Community College's Hosiery Technology Center in Hickory, North Carolina, creates specialized training and coordinates technology projects for the state's large hosiery cluster (for more information, see the article by Jonathan Q. Morgan on page 43).

Supporting Entrepreneurs

Frequently, many community colleges host small business centers and provide counseling services for potential entrepreneurs. These services typically focus on assistance with business plans, instruction on basic financial and tax issues, and guidance on gaining access to capital. Generally the types of companies that take advantage of these services are fledgling mom-and-pop retail or service companies—not those with the highest growth potential. However, some community colleges are more aggressively supporting entrepreneurs. Some are operating business incubators that help launch higher-growth companies with technical assistance and shared resources. The Technical Innovation Center at Hagerstown Community College in western Maryland is an excellent example.[4] Asheville-Buncombe Technical Community College in North Carolina is turning one of its facilities into an incubator for biotechnology companies.[5]

Other colleges are taking a cluster approach. An international alliance of fourteen rural community colleges in areas with strong traditions in arts and crafts is supporting local artisans (see the sidebar on page 27). Also, a network of twelve colleges, with support from the U.S. Department of Education, is collaborating to create tailored curricula and resources for industry clusters ranging from medical device manufacturing to tourism.[6]

Another innovative approach is to embed instruction in entrepreneurial skills and behaviors into existing technical programs through simulations, case studies, and other methods. Haywood Community College in Clyde, North Carolina, is adopting this approach for all its curricular programs. Among its graduates, then, are "latent" entrepreneurs who one day may recognize the potential for a product spin-off or a new type of machinery that will improve a manufacturing process. The more exposure students gain while in college to the decisions and the skills important to starting and running a company, the more likely they are actually to pursue an entrepreneurial route later in their careers.

Community college efforts to support entrepreneurship are on the rise. More colleges will likely expand their entrepreneurship services to include supporting companies that compete in high-end markets or use speed of delivery, precision, or other competitive advantages to command higher prices.

To be well prepared, students, including those enrolled in community colleges, will have to understand cultures, economic systems, and business environments in other parts of the world.

Going Global

A small but growing number of community colleges are looking far beyond their colleges' own borders for ideas to improve themselves. To be well prepared, students, including those enrolled in community colleges, will have to understand cultures, economic systems, and business environments in other parts of the world. Further, faculty and administrators need to search globally for solutions to problems and innovations. The Trans-Atlantic Technology and Training Alliance, directed by Regional Technology Strategies, Inc. (a nonprofit policy organization in Carrboro, North Carolina), includes about thirty U.S., European, and South African community colleges (or comparable institutions), among them North Carolina's Guilford Technical and Haywood community colleges. It allows members to exchange faculty and students and collaborate on projects across national boundaries. Another sign of the growing internationalization of community colleges is that last year, for the first time in its history, the U.S. Peace Corps began recruiting community college graduates.

Functions of Four-Year Institutions

The function of four-year colleges and universities in economic development has gone through three phases. From the passage of the Morrill Act in 1862 until the 1950s, colleges and universities undertook extensive applied research. During the decades of the 1960s, 1970s, and 1980s, the focus shifted to basic research aimed at fueling breakthroughs in medicine, defense, and aerospace. The passage of the Bayh-Dole Act in 1980, which allowed universities to retain the property rights to federally funded research inventions, saw the beginning of a third era, commercialization of technology.

In the decade after the passage of this legislation, the university community began to explore the implications and the benefits (including royalties) of technology commercialization. As they developed fledging operations to transfer technology and as they engaged with the private sector, they encountered and worked through a host of attendant conflict-of-interest, ownership, confidentiality, and mission-related issues. Many universities now regard technology transfer as a significant element in their overall mission. Some even include it in their mission statement, marketing this capacity as an economic development tool for their region and state.

Propelled by this experience, a number of universities throughout the coun-

CraftNet

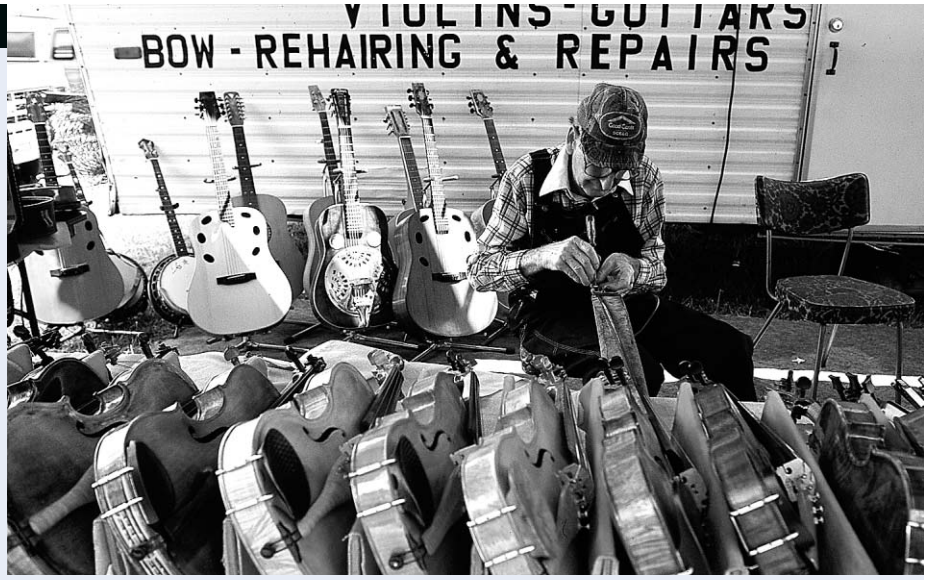
Supported by the Ford Foundation, CraftNet is a network of fourteen community colleges from the United States, Europe, and South Africa, many of which are located in poor areas. The colleges are collaborating to help prepare youth and adults for employment and self-employment in craft-based enterprises, to develop the craft industry into a sustainable growth sector, and to create opportunities for marginalized populations.

Led by Regional Technology Strategies, Inc., and assisted by HandMade in America (a nonprofit group in Asheville, North Carolina, that supports the region's craft industry), participating colleges are developing art- and craft-based programs and services in such areas as the following:

- Design
- Production
- Technologies
- Marketing
- Business management skills

Some colleges plan to start craft-based incubators. Others are linking artisans in local networks to help them grow, thus increasing their regional economic development impact.

For more information about CraftNet, visit www.rtsinc.org/craftnet.



Photos by North Carolina Division of Tourism, Film and Sports Development

try have become integral players in regional economies whose future prosperity is governed by what their companies and workforces know and how fast they can learn. In doing so, these universities have been compelled to expand and accelerate their engagement with the private sector and to think strategically as they assume new, numerous, and varied economic development roles. This is a major shift, and it has not come without its share of on-campus debate about the impact of these applied, often private-sector-driven activities on the fundamental academic values of scholarship and unfettered inquiry.

In the United States, four-year colleges and universities are currently featured performers in at least five important economic development functions: educating, transferring technology, allying with the private sector, providing public service and community leadership, and an intangible one, defining the economic development milieu.

Educating

From an economic development standpoint, the foremost function of universities is education. Some feel that the emergence of the university communities' more focused and direct economic development activities (discussed later) has pushed the education role into the background. Richard Florida argues that the United States is in danger of losing sight of universities' most important contribution to economic development. Universities have been naively viewed as engines, pumping out new ideas that can be translated into commercial innovations and regional growth. From Florida's perspective, this has led to overly mechanistic national and regional policies that seek to commercialize those ideas and transfer them to the private sector. He contends that, although there is nothing wrong with policies that encourage joint research, this view misses the larger economic picture: universities are far more important as the nation's primary source of knowledge creation and talent. Smart people are the most critical resource to any economy, and especially to the rapidly growing knowledge-based economy on which the future of the United States rests. Misdirected policies that restrict universities' ability to generate knowledge and attract and produce top talent suddenly loom as large threats to the nation's economy.[7]

The impact of the knowledge, skills, creativity, and character of the almost two million graduates of U.S. four-year colleges and universities every year swamps the impact of these institutions' more direct or directed economic development activities. This does not mean that the other economic development functions are not important.

Transferring Technology

"University technology transfer" is the process of moving intellectual property from the university environment, where it was created, to the private sector, where it can be further developed and then commercialized in the form of products and processes. It also includes university support of faculty entrepreneurship in this process.

Universities engage in technology transfer for a host of reasons. A large body of work already addresses its impact, promise, and practice. From the standpoint of those concerned with the national economy, the primary goals of university technology management clearly should be to make as many technologies as possible available for public use and to facilitate and encourage ties with industry. From the standpoint of those concerned with local or regional economies, the goal of university technology management should be to generate as much of the wealth and job-creating impact of this activity as possible at the local level.

Two challenges immediately present themselves in this regard. The first is to find ways to encourage colleges and universities to license intellectual property to business interests within their region. The second is to sponsor and promote strategies and actions that generate viable local candidates for licensing in the private sector. To put it simply, universities cannot be expected to license technology to local companies if there are none with an interest in the technology and access to the financial resources required for commercialization. Even under the best of circumstances, many university-based technologies and technological opportunities will not be suitable for licensing to a local company, so many technologies will continue to be licensed outside the region.

To date, there have been few efforts to create incentives that encourage universities to concentrate on licensing and commercializing their technology within their own region. In fact, the notion of developing local licensing incentives is, by and large, uncharted territory. There is room for policy innovation in this area.

For example, with two major medical schools and a host of public and private universities, including the University of New Orleans and Tulane, New Orleans possesses a substantial university research base. Two local economic development entities, Greater New Orleans, Inc., and the Louisiana Technology Council, have formed a fund to increase the frequency and the quality of local business development opportunities by licensing intellectual property that this base generates. The fund provides financing for emerging technologies that can reasonably be expected to translate into business development in the Greater New Orleans area. Eleven colleges and universities with research facilities located in the region have qualified to submit applications to the fund. The first two university recipients were announced in January 2004. Greater New Orleans, Inc., and the Louisiana Technology Council also have created an award for local Technology Transfer Company of the Year.

Allying with the Private Sector

This function encompasses a group of economic development–related endeavors that posit the university as a resource and an enabler for the private sector. It can be separated into at least four dimensions:

- **Research and development:** undertakings performed through sponsored research, cooperative agreements, and joint ventures, within separate university centers that serve specific industry sectors and clusters
- **Infrastructure:** participation in, ownership of, or sponsorship of research parks, incubator funds, and seed funds
- **Technical assistance:** consulting with the private sector on technology and product or process development and commercialization, and business development
- **Facilities, plants, and equipment:** provision of access (often for a fee but occasionally gratis) for entrepreneurs and companies to expensive facilities and equip-ment that they could otherwise not afford

Numerous examples of effective and innovative practice of each of these

The Millennial Campus Legislation

North Carolina's Millennial Campus legislation has major implications for the state's regional universities and especially for comprehensive rural development initiatives in concert with the private sector. Western Carolina University drafted the original legislation to cover itself only. Subsequently, legislators expanded the legislation to include all other UNC system campuses except North Carolina State University and UNC at Chapel Hill.

The legislation both acknowledges the campuses' economic development responsibilities and provides them with the tools to pursue their economic development goals. Specifically it allows them to do the following:

- Acquire property to promote the location of businesses
- Develop flexible land-lease arrangements to achieve specific economic development objectives
- Use their electronic infrastructure to support economic development efforts, including provision of direct service to companies
- Issue revenue bonds (with Board of Governors approval) to support business development
- Develop public-private partnerships and facilities to be used jointly by public and private partners
- Incubate firms that may have no relationship with existing academic programs

For media stories about the Millennial Campus legislation, see www.wcu.edu/pubinfo/news/campus.html and www.nccbi.org/NCMagazine/2001/mag-09-01execvoices.htm.

elements are sprinkled throughout the country. Following are descriptions of three that combine all four elements in single initiatives on different scales.

North Carolina State University's Centennial Campus. Springing from a modest beginning in 1991 through the university's College of Textiles, the Centennial Campus has blossomed into a 1,300-acre research park and campus where faculty and students work with industry and government to develop new technologies, products, and services and to solve problems. This is success on a large scale. The campus features more than 100 tenants representing about 1,500 jobs, a mix of large companies and small start-ups, a business incubator, cutting-edge facilities and equipment, an advanced telecommunications network, and an affiliated venture-capital fund. Its technical focus is advanced materials, information communication technologies, and biosciences and biotechnology. Its future plans are driven by an ambitious vision: condominiums, townhouses, an advanced transportation system, a hotel/conference center, a golf course, and a town center, in addition to more office and laboratory space.

Montana State University and TechRanch. On a smaller scale, Montana State University (MSU) and its neighbor, TechRanch, serve as an example, in a rural state, of a comprehensive initiative in which the participants share information, coordinate their activity, leverage against one another, advance one another's missions, engage in joint projects, and seek advice from one another day to day. TechRanch is a not-for-profit corporation located in the ninety-acre Advanced Technology Research Park adjacent to MSU in Bozeman. TechRanch functions as the technology-based start-up hub for the region. It features an incubator, start-up assistance, advanced telecommunication capacity, and a "pre-seed fund" (venture capital provided in the very early stages) for university-related start-up opportunities. It also houses TechLink, a technology transfer center; the Center of Entrepreneurship for the New West; and the Montana Business Foundry, a partnership among the National Science Foundation, TechRanch, MSU, and the Governor's Office of Economic Opportunity to develop technologies and build companies around them. Although it is only in its third year of operation, the TechRanch incubator already has nurtured and spun out three technology companies. In addition, TechLink has helped ten Montana companies acquire $11 million for technology development funding, provided seed grants to thirty-eight firms for technology development, and helped thirty-eight companies gain access to technology developed by the National Aeronautics and Space Administration and the U.S. Department of Defense.

Millennial campuses. Building on its successful Centennial Campus concept, in 2000 the North Carolina legislature unanimously passed innovative Millennial Campus legislation. It provides all UNC campuses (except North Carolina State University and UNC at Chapel Hill, which are supported through the Centennial Campus legislation) with the tools and the flexibility to become regional, technology-based economic development hubs (for more information on the legislation, see the sidebar on page 28).

Providing Public Service and Community Leadership

Universities also promote economic development through public service and community leadership. These efforts include assuming leadership positions on economic development–related task forces and committees and providing free technical support to government and nonprofits for projects or issues that affect statewide or regional economic development capacity, such as strategic planning and fiscal reform.

Institutions traditionally viewed as regional universities often lead the way in this regard because they tend to be more oriented toward regional and local economic development issues and opportunities. Most universities these days feature a public service element in their marketing efforts and public discourse, and occasionally in their mission statements.

Beyond their role as educators and producers of talent, universities frequently define the regional or local economic development milieu through their contributions to arts, culture, recreation, education, learning values, and community creativity.

At least one university has taken this a step farther. The University of Louisiana at Lafayette includes its role in support of regional economic development as a formal criterion in its accreditation relationship with the Southern Association of Colleges and Schools. "Expanding the role of the university in support of regional economic competitiveness and cultural development" is one of the four major goals of its five-year plan. Part of its accreditation process involves an assessment by the association of progress made on a series of objectives and strategies that advance this goal.

Defining the Economic Development Milieu

Beyond their role as educators and producers of talent, universities frequently define the regional or local economic development milieu through their contributions to arts, culture, recreation, education, learning values, and community creativity. They often function as major contributors to a community environment that attracts talent. The presence of The University of North Carolina at Chapel Hill, Duke University, North Carolina Central University, and North Carolina State University in the state's Piedmont is a well-traveled example of this role. This aspect of four-year colleges' and universities' place in regional economic development should be recognized and valued, though it is difficult to describe.

Some Findings and Considerations

On the basis of these discussions, at least ten findings or issues should be addressed.

Community Colleges

- Many economic developers view southern community colleges' history

of active engagement with employers as one of the region's most significant competitive advantages. Policy makers in other parts of the country have generally been much slower to realize the impact that could come from these institutions and in many ways still are trying to catch up. The key is to keep innovating, but tight state budgets have made pursuing new ideas or initiatives difficult.

• The impact of community colleges on economic development stems largely from their flexibility and willingness to embrace new roles and services. Generally more responsive to changes in local conditions than universities, leading two-year colleges have carved out important roles for themselves not only as purveyors of technical skills important to economies but also as conveners for and catalysts of regional development. North Carolina should focus its efforts on ensuring that two-year colleges obtain resources and support for their proven economic development work. That will help their regions, some of which are highly distressed.

• Community colleges often must fund their economic development activities by stringing together external support from the private sector, foundations, federal agencies, and other sources. They tend to obtain seed money to start an economic development initiative, but once the grant expires, they have few options to sustain the program. Yet the service being provided often is a public good, so there is a strong argument for public support. Community colleges' impact would be greater if their economic development roles were more widely accepted and financially supported by state and local governments as core functions.

• Many of the conditions and trends likely to influence community colleges over the next decade already are in place, so a few predictions are possible. Cluster-based economic development, expansion of efforts to support information and biological technologies, globalization, and rising expectations and need for educational attainment will create a new set of challenges and opportunities for entrepreneurial colleges.

Universities

• Universities' economic development roles and terms of engagement with the private sector will continue to evolve on the basis of what works and what does not work. This will vary from institution to institution, depending on the regional economy, the political environment, the university mission, and university leadership and culture, including business culture.

• On the basis of what works, universities will continue to hone a comprehensive understanding of what their region needs to remain competitive, and what the requirements of private-sector businesses are. At the same time, they will improve their capacity to think as strategically as the companies they seek to support. This will happen through licensing of intellectual property, research and development, formation of industry and cluster centers, and especially education of students.

• There is an opportunity to generate a more productive relationship between colleges and universities, on the one hand, and the economic development community, on the other. This can be pursued in two ways.

First, universities can regularly invite local economic developers to their campuses for pragmatic planning sessions. Economic developers can function as a major resource for universities because they are more in touch with the current and anticipated needs of many businesses and can aggregate information to communicate to the university community. Universities can use these regularly scheduled sessions to help economic developers become more familiar with commercially promising research areas and to foster ongoing relationships with university researchers.

• Second, whenever appropriate and practical, universities can solicit industry counsel to help them coordinate their investments to complement regional economic development objectives. For instance, they can routinely seek advice from science- and technology-intensive industries about their long-range research plans and skill requirements for new employees to inform faculty hiring decisions and program development.

• The on-campus debate will continue between applied activities, often funded by the private sector, and scholarship and unfettered inquiry. However, it is no longer a question of one or the other. Rather, it is a matter of reaching a proper balance.

• Because they tend to be more oriented toward regional and local economic development issues and opportunities, the regional and city colleges and universities will continue to blaze new trails as an economic development resource and in community leadership in many places throughout the country.

• Legislatures, higher education governing boards, university leadership, and economic development professionals will pay more attention to developing strategies for local capture of talent and intellectual property generated by four-year colleges and universities.

Notes

1. As used in this article, the term "community colleges" encompasses technical colleges.

2. Thomas R. Bailey & Vanessa S. Morest, The Organizational Efficiency of Multiple Missions for Community Colleges, CCRC Brief (New York: Community College Research Ctr., Columbia Univ., 2003).

3. National Governors' Association, A Comprehensive Look at State-Funded, Employer-Focused Job Training Programs (Washington, D.C.: the Association, 1999).

4. For more information, *see* www.technicalinnovationcenter.com.

5. For more information, *see* www.abtech.edu/ce/biotechnology.htm.

6. *See* the Cluster Hubs' website, at www.clusterhubs.org.

7. Richard Florida, *The Role of the University: Leveraging Talent, Not Technology*, Issues in Science and Technology, Summer 1999, at 1.