

Vision Plan
for the Economy of the
AdvantageWest Region of North Carolina
and Supporting Report

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Table of Contents:

Vision Plan for the Economy of the AdvantageWest Region, and Supporting Report

Five-Year Vision Plan for the Economy of the Advantage West Region: 2004-2009 **i**

Section 1: Introduction	1
1.1 Background on Regional Task Force	1
1.2 Report Purpose and Organization	2
1.3 AdvantageWest Five-Year Economic Development Vision Plan	2
Section 2: Data Analysis	9
2.1 Review and Synthesis of Prior Studies and Plans	9
Table 1: Economic development plans and studies in the Advantage West region	10
2.2 Poll of Regional Leaders	12
Table 2: Selected suggestions from the regional poll	13
2.3 Analysis of Industry Clusters	14
Table 3: Summary of recent growth clusters in the Advantage West region	14
Table 4: Possible target industries for the Advantage West region	15
Table 5: Ten clusters of innovation for the future economy of the AdvantageWest region	18
2.4 Focus Group with Economic Development Advisory Committee	19
2.5 Analysis of Priority Clusters vis-à-vis University Capacities	22

Table of Contents, continued

Section 3: Recommendations for Taking the AdvantageWest Vision to Action	25
3.1 Structure/Process for Implementation in AdvantageWest Region	26
3.2 Implementing Cluster-Based Strategies for Regional Development	27
Table 6: Examples of investments targeted to clusters	30
Table 7: Examples of cluster networking strategies	32
Table 8: Examples of human resource strategies for clusters	34
3.3 Demonstration Project Ideas under each Goal from the Vision Plan	38
3.4 Using this Report	44
Bibliography for best practices review	45

Appendix A: Vision Task Force for the AdvantageWest Region

Appendix B: Leadership Development Programs

Appendix C: List of Industries within National Clusters

Appendix D: Analysis of the AdvantageWest Region's Competitive Advantages within National Clusters

Table D-1: Competitive Advantages for AdvantageWest Region in National Industry Clusters

Table D-2: Employment and Concentration Changes in Clusters, Region vs. U.S., 1996-2002

Appendix E: Baseline Inventory of Workforce Development Programs by Cluster, 2003

Table E-1: Baseline Inventory of the AdvantageWest Region's Training and Education Offerings within Clusters, by Sub-Region, 2003

Five-Year Vision Plan for the Economy of the Advantage West Region: 2004-2009

In response to the North Carolina General Assembly's requirement (S.L. 2002-126, Section 8.3)¹, this plan contains:

- I. Realistic economic development goals for the AdvantageWest region;
- II. A profile of the clusters of innovation expected to drive the future job market of the region and its four sub-regions; and
- III. A corresponding plan for developing the necessary higher-education curricula to prepare the region's workers for that future job market.

This plan was developed through the active involvement of a task force of public university chancellors, community college presidents, and AdvantageWest board members, staff and consultants in 2003 and early 2004. Local economic developers, entrepreneurs and other civic leaders were also asked for their input, and several recent consultant reports informed the development of strategies for the region. The sections of this plan correspond to each of the three required elements above.

Section I. Economic Development Goals for the AdvantageWest Region

For the years 2004-2008, the region will pursue the following four goals:

GOAL 1: Grow and support several "clusters of innovation" in regional niches with education, infrastructure, services, and technology transfer (see Section II of this plan for a complete discussion of those clusters)

GOAL 2: Establish a regional think tank to lead strategic thinking and policy development about the economy

GOAL 3: Change the culture of educational institutions (K-12, community colleges, and universities) and the expectations and skills of workers to meet the needs of growing companies in clusters of innovation.

GOAL 4: Establish "Tier 2" level of broadband Internet service for the entire region by 2008.

¹ Requires the development of a five-year vision plan for each of the economic development regions in the State. "At a minimum, each vision plan shall determine the realistic economic development goals and the future job market in that region and shall identify community college and university courses currently offered or needed to effectuate the vision plan."

The key strategies the region will use to realize each of these goals are listed below. Each of these is discussed further in the full report.

GOAL 1: Grow and support several “clusters of innovation” around regional niches with education, infrastructure, services, and technology transfer

Strategy 1A: Implement best practices in innovation-based and cluster-based strategies for economic development *(see report section 3 for a menu of these best practices)*

- ❖ Support the formation of industry-driven networks that can innovate together and speak with one voice to state and federal government

Strategy 1B: Develop education curricula to support the region’s clusters of innovation

- ❖ Work with state to fast-track new programs that relate to the priority clusters

Strategy 1C: Attract and retain star faculty to lead innovation within clusters

- ❖ Promote the attraction and retention of creative people as an economic development strategy

Strategy 1D: Develop regional infrastructure to support the region’s clusters

- ❖ Develop the specific infrastructure – e.g., transportation corridors, attractive downtowns, online networks, and business support services -- that firms in the priority clusters need most

Strategy 1E: Support innovators and entrepreneurs in all clusters

- ❖ Bridge gaps in information, relationship networks or capital for aspiring, lifestyle, and growth entrepreneurs, and recognize innovators in all sectors of the economy

In addition to these cross-cutting strategies, the Vision Task Force has discussed strategies to support specific clusters, including advanced manufacturing, biotechnology and bioprocessing, crafts, tourism, value-added agriculture, and others.

GOAL 2: Institutionalize capacity for strategic thinking, research, policy development, collaboration and leadership on the regional economy

Strategy 2A: Establish and sustain a strong leadership development program

- ❖ Train local citizens, including youth, to understand the new economy and the continuous innovation and collaborative partnerships necessary to sustain it

Strategy 2B: Strategize for economic development across local boundaries and sectors

- ❖ Educate citizens and local officials about the benefits of cooperating with neighboring jurisdictions to establish a strong business climate

Strategy 2C: Think strategically about workforce development to support the continuous innovation of the region

- ❖ Continue to include education leaders in economic development planning, and also include entrepreneurs and workforce development boards

Strategy 2D: Think strategically about infrastructure planning for the future economy

- ❖ Revisit current plans to ensure investments provide competitive advantage to companies that are poised to grow and stay in western NC

Strategy 2E: Align public services with business and citizen needs, and measure results

- ❖ Re-engineer government to focus on taxpayers and customers, and report results annually

Strategy 2F: Change state policy that impedes the competitiveness of the region

- ❖ Revisit the state’s policy on worker’s compensation, the allocation of the Small Cities Community Development Block Grant, and the lack of tax incentives for R&D

GOAL 3: Change the culture of educational institutions (K-12, community colleges, universities) and the expectations and skills of workers to meet the needs of growing companies in clusters of innovation.

Strategy 3A: Work with state-level education boards to set policy that helps the economic competitiveness of AdvantageWest and other N.C. regions

- ❖ Encourage University of North Carolina, N.C. Community College System and Department of Public Instruction boards to revisit and update their institutional mission statements and statewide goals.
- ❖ Encourage those same boards 1) to change both incentives and resource allocation formulas to achieve revised statewide goals that include innovation and job creation, and 2) to assess institutions' performance on that basis.
- ❖ Simplify and shorten curriculum review processes for higher education programs
- ❖ Re-think end-of-year testing in K-12 schools

Strategy 3B: Work with the N.C. General Assembly to increase the budget flexibility for community colleges and public universities to assist them in achieving the economic development goals of the state.

- ❖ Adjust the formulas for funding each institution to be forward-oriented and performance-based

Strategy 3C: Change culture within the region's educational institutions

- ❖ Develop short-term technical certification programs for high school and post-secondary students
- ❖ Provide incentives, entry portals and liaisons to faculty to engage in public service, product innovation and entrepreneurship in and for the region
- ❖ Encourage faculty to meet frequently with different CEOs around the region to stay current on competitiveness issues and spur collaborative ventures

Strategy 3D: Conduct ongoing public relations campaign to inform the expectations and skills development of workers and students

- ❖ Teach soft skills related to work ethic in K-12 schools
- ❖ Engage CEOs of growing companies to co-sponsor career fairs and classroom visits to describe what they do and will need from workers
- ❖ Teach entrepreneurship as well as the skills required to work for others

GOAL 4: Establish "Tier 2" level of broadband Internet service for the entire region by 2008.

Strategy 4A: Work with federal and private sector partners to create the equivalent of a Major Point of Presence on the Internet for the entire AdvantageWest region from Murphy to Boone by 2009.

Strategy 4B: Create affordable access to broadband Internet for entrepreneurial Internet-based businesses, in part through the telecenters in Murphy and Sparta.

Strategy 4C: Bring the available broadband Internet to existing industry, to help connect them more quickly and directly to vendors and suppliers in major metropolitan area markets, research universities, federal labs, and other partners within their clusters of innovation.

A complete discussion of each goal and strategy above is included in the full report.

Section II. Clusters of Innovation for the AdvantageWest Region

The future job market for western North Carolina will be determined by 1) the degree of innovation among companies and universities within the region; 2) the influences of Metro Atlanta, Greenville/Spartanburg, Charlotte, and other large markets in the southeast; and 3) state and federal economic policy. This plan is intended to give the Advantage West region a competitive advantage by focusing on the clusters in which it has the strongest assets for growth and innovation, as well as to work with policy makers to create the most favorable business climate possible for the region.

The Advantage West region of 23 counties (see map) is about the size of the State of Maryland and has a variety of economic drivers both in and outside the state. The region is sometimes discussed in terms of various sub-regions, including the Highlands or southwest mountains “west of the Balsams,” the Asheville metro/I-26 corridor, the foothills or industrial crescent, and the High Country or northwest. The fast-growing metro Atlanta region, the Greenville-Spartanburg corridor in South Carolina, the Tri-Cities (Johnson City/Bristol/Kingsport) area of Tennessee, as well as the Winston-Salem and Charlotte metro areas of North Carolina, are all strong markets for the AdvantageWest region.



As the Atlanta region in particular experiences diseconomies of scale from growing too rapidly, western North Carolina has a unique locational advantage in attracting entrepreneurs to grow their businesses in proximity to that market but with a more relaxed quality of life.

Relative to North Carolina (and the nation), the AdvantageWest region's industries with a demonstrated competitive advantage are: recreation and tourism, retirement and second homes, arts and crafts, vehicle parts assembly, metalworking, chemicals and plastics. Section 2 of the supporting report provides the background analyses.

In recent years, promising regional niches are emerging in advanced manufacturing, IT, food production, health care, the commercialization of native plants, environmental sciences, home-based crafts, and homeland security. These could flourish to national competitive advantage with additional innovation.

The table on the next page shows ten clusters that the Vision Task Force believes are appropriate targets of innovation and focus for at least the next five years. These ten reflect both 1) the clusters strongest in the nationally comparable secondary data for the AdvantageWest region, and 2) the knowledge of Task Force members and other stakeholders about more current, innovative activity on the ground in the region. Many of these are indigenous to the region and cannot easily be exported or replicated elsewhere in the U.S. Within each of the ten overall categories, several examples and specific niches are listed as a starting point.

However, the Vision Task Force recognizes that continuous innovation will lead to new products that haven't even been invented yet, and that other niches within these overall clusters will emerge, as well as new combinations at the intersection of one or more of those in the table. In addition, while the focus here has been on private businesses, targeting should also include state and national agencies, associations, foundations and institutes that will provide innovation and substance to the clusters. Civic and social entrepreneurship can help stimulate private entrepreneurship and vice-versa.

The AdvantageWest region's strategies will focus on developing infrastructure to support innovation, with the hope and trust that the innovation will define the most competitive niches and clusters for the future. One purpose of this plan's Goal 2, establishing a regional process for strategic thinking, is to revisit and retool the cluster-based strategies on a regular basis to respond to new opportunities in the global marketplace.

**Ten Clusters of Innovation
that Leverage the Advantage West's Regional Assets**

<u>Advanced manufacturing-related</u> Automobile components, 2 nd & 3 rd tier Advanced materials & composites (incl. ceramics) Chemicals and plastics Metalworking Optics Professional services: architecture, engineering, finance, law	<u>Arts, crafts and design-related</u> Home-based entrepreneurs and artisans Niche wood products and furniture Graphic arts Architects Historic preservation Set design Arts education and training
<u>Communications and IT-related</u> IT/software Distance education and training Multi-media, incl. film, TV, video Internet-based businesses in many sectors	<u>Environment-related</u> Alternative/renewable energy Environmental sciences Value-added natural resources, including minerals Environmental reclamation
<u>Food-related</u> Wine and culinary arts Food horticulture, processing and packaging, including organic Regionally-branded food products	<u>Health care-related</u> Health care delivery (hospitals, labs and specialized medical services) Medical equipment and materials field testing and manufacturing
<u>Life sciences and agribusiness-related</u> Native plant commercialization, including biotechnology Nutraceuticals ² Biomanufacturing Sylviculture and horticulture Nontoxic pest management	<u>Recreation and tourism-related</u> Eco-tourism Heritage tourism Hospitality Outdoor attractions and services Outdoor recreation equipment
<u>Retirement-related</u> Construction of second homes Continuing care retirement communities Gerontology Adaptive technologies for the elderly Senior services, activities and work	<u>Security-related</u> Forensic sciences Homeland security technologies Criminal justice

² Nutraceuticals (often referred to as phytochemicals or functional foods) are natural, bioactive chemical compounds that have health promoting, disease preventing or medicinal properties. Nutraceuticals are used in the production of various compounds in the food industry, the herbal and dietary supplement market, the pharmaceutical industry, and combinations of the above.

Section III. Higher-Education Curricula to Prepare the Region's Workers for the Future Job Market

The leadership of the higher education institutions in the AdvantageWest region is committed to developing the necessary programs to prepare the regional workforce to staff and lead the companies in the current and future clusters that drive innovation and economic growth for the region. Those programs include not just innovative curricula and certificate programs but leadership development, policy seminars, executive education, and R&D partnerships with business leaders.

As Goal 3 above suggests, in order for the region's colleges and universities to be more nimble in responding to changing economic requirements, they will need state-level policy, review processes and funding to become more nimble as well. In particular, they are asked to

- ❖ Simplify and shorten review processes for responsive and innovative curricula
- ❖ Develop short-term technical certification programs for high school and post-secondary students

As part of the background work for this plan, the workforce programs of the region were mapped to the ten clusters of innovation from Table 1. There are already strong university and commercial capacities and assets in many of the niches listed in the table. There is great potential for enhancing, to national-class status, the education and training programs in the region so that they can prepare an innovative workforce for the region's emerging economy. The first priority focus areas should be:

- ❖ Pharmaceuticals and medical technologies
- ❖ Biotechnology, biomanufacturing and bioinformatics
- ❖ Vehicle parts assembly
- ❖ Chemicals and plastics
- ❖ Advanced materials and composites
- ❖ Medical equipment and materials manufacturing
- ❖ Gerontology and technologies for the aging
- ❖ Alternative/renewable energy
- ❖ Environment-related programs
- ❖ Food processing, packaging and nutrition
- ❖ Forensics
- ❖ Homeland security and navigation technologies
- ❖ Outdoor recreation equipment
- ❖ Materials science and research for the crafts industry
- ❖ Distance learning to support home-based businesses

Supporting Report to the Vision Plan for the Economy of the AdvantageWest Region, North Carolina

Section 1: Introduction

1.4 Background on Regional Task Force

At the end of the 2002 session, the North Carolina General Assembly passed a bill mandating that each of the state's seven economic development regions complete a five-year vision plan that is based on realistic economic development goals and a projection of the future job market.³ Additionally, in order to be in compliance with the legislation, regional leaders are asked to identify community college and university courses currently offered or needed to successfully implement the vision plan.

Leaders in western North Carolina moved quickly to respond to the legislation. In March 2003, to begin the regional visioning process for the 23-county region of western North Carolina, AdvantageWest convened a vision task force of public university chancellors, community college presidents, private college leaders, and regional economic development commission members (the AdvantageWest board members and staff)⁴. Between March 2003 and December 2003, the vision task force met four times and participated in a two-day regional vision planning retreat.

AdvantageWest enlisted staff from the Office of Economic Development (OED) at the University of North Carolina at Chapel Hill to assist with this project. OED is housed within the Kenan Institute of Private Enterprise at the OED Business School. OED's scope was to review and synthesize relevant information from prior economic development plans and studies, to conduct an analysis of promising industry sectors for the region, to facilitate the meetings of the vision task force, and to gather input from regional stakeholders, including local economic developers and other civic leaders. AdvantageWest and the OED team worked together to design and implement the vision planning retreat for the task force. OED also provided assistance to the vision task force in drafting and revising the Vision Plan.

AdvantageWest is the first economic development region in the state to organize itself to respond directly to the new regional economic development legislation⁵. Leaders in

³ S.L.2002-126, Section 8.3

⁴ A list of the task force members is included in Appendix A.

⁵ At the end of the 2002 legislative session, the Research Triangle region was implementing a cluster-based planning project that was subsequently revised to address the requirements of the new bill.

the west set an internal deadline of April 2004 for completion of the Vision Plan in order to submit it for review in the 2004 legislative session.

1.5 Report Purpose and Organization

The second section of this report provides the results of the analyses conducted by the OED team that helped inform the direction of the task force in developing the Vision Plan, including an analysis of the industry clusters that are most promising for regional workforce development. In Section 3, we provide more detailed information about the process the vision task force used to develop the goals and strategies presented in the Vision Plan. Section 3 also contains a discussion of how the region might fill the gaps in current education and training programs so that they can more effectively drive and support the demands of particular clusters of innovation.

The purpose of this report is to clarify and amplify the information contained in the Vision Plan – which is a concise, action-oriented document (reproduced in Appendix B). This report is a companion piece to the Vision Plan in providing the reader with more details about:

- the historical and political context for the regional visioning process
- the *modus operandi* and decision-making process of the vision task force
- the economic and qualitative data; best practice examples; relevant regional, state, and national studies; and other materials reviewed by the task force
- the goals and strategies of the Vision Plan

Finally, this report addresses the next phase of implementation by providing recommendations for regional leaders in selected aspects of the Vision Plan. The appendices of this report include documents that the authors hope are useful both in interpreting the discussion and conclusions of this report and in moving forward with Vision Plan implementation.

1.3 The AdvantageWest Five-Year Economic Development Vision Plan

In preparing for meetings and the vision planning retreat, vision task force members reviewed summaries that the OED team compiled of prior regional and statewide studies and a regional poll of stakeholders.⁶ In addition, the vision task force considered the output of recent seminars and strategic plans, including the 2003 annual meeting of the North Carolina Economic Developers Association (NCEDA), the 2003

⁶ The poll was conducted in August 2003 and asked respondents to name the most significant barriers to economic success of the region and to propose both short- and long-term solutions to address these barriers.

N.C. Emerging Issues Forum, and Comprehensive Economic Development Strategy (CEDS) reports for the Northwest Piedmont and the Western Piedmont.⁷

In its deliberations, the vision task force also looked at regional and rural economic development approaches supported by respected national organizations, such as the Economic Development Administration and the National Governor’s Association (see text box). Many task force members believe that these strategies are valuable because they can be customized to the regional environment and, once implemented, will assist the AdvantageWest region to become more competitive nationally and globally. The attention paid nationwide to the development of a regional perspective as well as their own experience led vision task force members to conclude that ***regionalism is a key requirement for competitiveness in the “new economy” and should be an important framework for the AdvantageWest Vision Plan.***

Strategies for the New Economy

- Invest in people
- Build state-of-the-art infrastructure
- Treat citizens as customers
- Streamline taxes and regulations
- Nurture entrepreneurs
- Create high-tech magnets
- Preserve quality of life

Source: National Governor’s Association report for states, 2000. www.nga.org

The vision task force used the following assumptions in developing its decision-making process:

- A major goal of the legislation is to encourage higher education institutions in NC to focus more on economic development
- North Carolina legislators hope the thinking process regions undertake to respond to the requirement will promote culture change in these institutions and increase their responsiveness to the economy
- Some legislators also have concerns that the increase in college transfer

programs at NC community colleges is undermining their ability to deliver employment-focused vocational and technical programs to citizens and workers.

The Vision Plan (the front piece of this report, like an executive summary) has three sections that correspond to the three main requirements of the state’s regional planning legislation. Section I presents the goals and strategies of the Vision Plan. Section II contains a brief discussion of innovation and public policy as key determinants of the future job market in western North Carolina and lists ten emerging clusters of innovation that leverage the region’s assets. Section III presents an approach for

⁷ A CEDS is required to be eligible for EDA and other federal funding for economic development projects. The CEDS plans recently completed in North Carolina include the AdvantageWest counties of Ashe, Alleghany, Avery, Burke, Caldwell, McDowell, Mitchell, Rutherford, Watauga, and Wilkes.

developing higher education curricula to prepare the region's workers for the future job market.

In the remainder of this section of the report, we introduce the four economic development goals contained in the Vision Plan, define the terms used in the goal statements, and provide a summary of the vision task force's discussion of each goal.

Goal 1: Grow and support several "clusters of innovation" in regional niches with education, infrastructure, services, and technology transfer.

The first goal in the Vision Plan provides a means for the AdvantageWest region to synchronize with and capitalize on forward movement in the larger economy. In the context of economic development, "clusters" are groupings of companies in a region according to a common strategic interest, such as a set of markets and supply chains, or a set of technologies or labor they all use. "Innovation" refers to the introduction of new methods, products, and industries that will stimulate economic growth and produce new jobs. The common wisdom among American economists about the "new economy" of the 21st Century is that our nation's competitive advantages will no longer be cheap land and cheap labor, but the continuous invention of products, services, and delivery systems.

A "cluster of innovation" is a term of art used most commonly in connection with Professional Michael Porter and his associates from Harvard Business School who have pioneered much of the analysis of regional clusters in the United States. Most simply, ***a cluster of innovation is a group of companies that work together in driving the innovation that provides the value-added for all of them and thus their ability to stay in business and hire locally.*** A cluster of innovation in composite materials, for example, could include companies making components for markets as different as automotive assembly plants and dentists' offices; however, they could have a common need for research and development in materials science and a place to train their engineers and technicians on an ongoing basis in the use of the latest technologies.

The "clusters of innovation" for AdvantageWest's regional economy will be those most likely to produce valuable new products and services or add value to existing ones, and they are based on the existing areas of regional strength. (For a detailed discussion of the region's clusters of innovation, see Section 2 of this report).

When crafting this first goal, the vision task force also discussed the need for a mechanism for "fast-tracking" new programs if they relate directly to clusters identified in the Vision Plan. For example, an approval period of six months as opposed to the current 18-24 months would give regional leaders and entrepreneurs much improved flexibility to respond to emerging market opportunities, if they can be assured that area universities and community colleges are ready to provide the needed worker training.

The vision task force members agreed that continued excellence in general education is vital to the region and is the core of any area's success. At the same time, the Vision Plan's first goal is intended to stress that the region's development is tied to its capacity to focus on innovations that will help drive economic development, such as rapid prototyping at Western Carolina University. These innovations must further be supported with targeted education curricula, technology transfer, infrastructure, and services.

Goal 2: Institutionalize capacity for strategic thinking, research, policy development, collaboration and leadership on the regional economy

Goal 2 addresses the vision task force's belief that good public policy supports the kinds of development that are desired by and appropriate for the region and provides an enabling environment for innovation. The task force advocates the assignment of an independent organization of strategic thinkers to lead the development and marketing of such policies. *The regional "strategic institute" will conduct issues-based research and be equipped to use the results of its research to advocate for specific changes in policies.* The board of directors will include key leaders from around the region who work hard to preserve the neutrality of the organization, in part by avoiding conflict of interest with existing organizations in the region with which those individuals are affiliated.

Once established, the strategic institute can also be charged with periodically revisiting and retooling cluster-based strategies to allow the region to respond to new and changing opportunities in the global marketplace.

Another critical component of the regional strategic institute will be a leadership development program. Its purpose will be to train people to understand the requirements and opportunities of the new economy and to be effective change agents in preparing their citizens to participate fully in those economic opportunities. There are currently several leadership programs in North Carolina. Leaders of the AdvantageWest region would like to take the best of the existing programs and tailor them to the western North Carolina economy. Appendix B summarizes the existing programs that can be used in crafting that hybrid.

The vision task force proposes that Western Carolina University lead an effort among the higher education institutions in the region to build an AdvantageWest regional think tank. It will include capacities for rigorous research, economic base analysis, political polling, tracking employment trends by industry sector and firm size, and documenting outcomes in each of the priority clusters. Then that information can be used in crafting policy at the state and regional levels that supports growth and innovation in industries with high economic multipliers.

Goal 3: Change the culture of educational institutions (K-12), community colleges, and universities) and the expectations and skills of workers to meet the needs of growing companies in clusters of innovation.

In crafting this goal, the leadership of the higher education institutions serving on the vision task force acknowledged the need for a change in how both educational institutions and workers view their roles in economic development. *This culture change must include increased flexibility in administration, teaching, and research, e.g. entrepreneurship rather than regulation, replacing command-and-control systems with innovation and incentives.* These changes will require new systems of evaluation and outcomes-based accountability for achieving results.

However, even with such cultural change within institutions, the region's colleges and universities will only be able to respond effectively to innovation in the economy (the end result of Goal 1) if they can have more flexible state-level policies, simpler and shorter review processes, and receive increased funding. In particular, community colleges need to be released from the old paradigm of linking program development only to existing jobs and FTEs, and must be able to increase the low faculty pay (47th in the nation). They must also start thinking regionally to address needs rather than each trying to do it all.

The region's universities would benefit from additional flexibility to attract star faculty and research dollars, and to create industry-liaison positions with higher salaries and lower teaching loads. These types of changes at the state level will support educational institutions in creating technical certification programs and, ultimately, a regional workforce that meets the needs of the companies driving innovation and economic growth in the region.

Goal 4: Establish "Tier 2" level of broadband Internet service for the entire region by 2008.

According to maps developed by the e-NC Authority in December 2002⁸, in eight of the AdvantageWest counties, less than 50 percent of households have access to high-speed Internet through either DSL or cable modem and are therefore considered "connectivity-challenged." Since the mid-1990s, when the ConnectNC project was implemented with funding from the Appalachian Regional Commission (ARC), the western region has been a leader in understanding the critical link between information technology infrastructure and economic development.

⁸ See <http://www.e-nc.org/HiSpeedIntAccess.asp>

Regional education and business leaders have worked hard with the federal government to bring the best possible access to the entire region, both for equity reasons in support of its workforce and to assist and attract small business owners who rely on electronic commerce for their bottom lines. According to a May 2003 press release from Western Carolina University:

The first phase of a federally funded fiber-optic cable network designed to bring affordable, high-speed Internet access to Western North Carolina is now in place... ***With the opening of the 1,600-square-foot "MetaPoP" (or a Major Point of Presence on the Internet) linking WNC directly to the Washington, D.C., area, the region will soon have the same type of "Tier 2" Internet access as Charlotte, Raleigh and the Research Triangle Park.*** With federal funding obtained by U.S. Congressman Charles Taylor, [WCU is building] a fiber-optics network that, when complete, will stretch from Cherokee County in the west to Mecklenburg County in the east, and extend to Upstate South Carolina.

Through this initiative, network computing infrastructure is nearing completion for the southern part of the region; it entails state-of-the-art electronic equipment that enables simultaneous transmission of voice, data and video signals. The resulting level of service will be a benchmark for the rest of the region. The vision task force proposes that the entire AdvantageWest region from Murphy to Boone become a single Tier 2 Internet network, and possibly Tier 1, by 2009.

The region needs fast data infrastructure to support its entrepreneurial Internet-based businesses and their owners who relocate their company's investment and jobs to western North Carolina from metro areas for quality of life reasons. The data infrastructure would support entrepreneurs as well as existing industry, to help connect them more quickly and directly to vendors and suppliers in major metropolitan area markets, research universities, federal labs, and other partners within their clusters of innovation.

Supporting Report to the Vision Plan for AdvantageWest

Section 2: Data Analysis

The OED team conducted several types of analysis in support of the task force's planning efforts:

- A review and synthesis of prior plans and studies in the region
- An informal polling of citizen leaders from around the region about economic competitiveness issues
- An analysis of industry clusters for the region overall and for four sub-regions within AdvantageWest
- A focus group with the region's economic developers
- An analysis of the gaps in the educational curricula and certificate programs currently offered vis-à-vis the region's priority clusters of innovation identified by the vision task force.

In the remainder of this Section, we discuss the process and key findings of each of these analyses.

2.1 Review and Synthesis of Prior Studies and Plans

In the early discussions about the strategic visioning process, several task force members noted the preponderance of good recent work on economic development strategy in the region and its counties. They decided to build their visioning work directly on the findings and recommendations from these other studies, both to honor those efforts and to avoid spending unnecessary time and effort going over ground already plowed.

Table 1 lists the studies and plans the OED team reviewed and synthesized in preparing for the first retreat of the vision task force.

Below we highlight several of the key findings and recommendations from these prior studies that were interesting and important to the work of AdvantageWest's vision task force.

Table 1: Economic development plans and studies in the Advantage West region

Regional reports:

- **Market Street Services study on labor and workforce development (10 counties), 2001**
- **CEDS for Northwest Piedmont (Angelou Economics) and Western Piedmont (Future-Forward), 2003**
- **Duke Endowment Program for the Rural Carolinas (MDC), 2001**
- **Regional Vision 2010 (Land-of-Sky Regional Council), 2002**
- **Western NC National Heritage Area Feasibility Study and Plan (AdvWest and Handmade in America), 2002**
- **Report of the Steering Committee to Strengthen Biotechnology in WNC (NC Biotech Ctr.), 2002**
- **Regional Technology Assets and Opportunities in Appalachia (UNC), 2002**

Local plans:

- **City of Asheville Sustainable ED Plan (Lockwood Greene), 2000**
- **Cherokee County ED plans (Kenan Inst. and DCA), 2000, 2001**
- **Henderson County ED master plan (Lockwood-Greene), 2002**
- **Rutherford County ED plans (DCA and Luke Consulting), 2002**
- **Transylvania County ED plan (Fluor), 2002**
- **Wilkes County Vision Plan (Luke Consulting), 1999**
- **Yancey County ED plan (DCA), 2002**

Statewide reports:

- **Economic Development Strategic Plan, 2002**
- **KPMG Executive Summary (observations and recommendations), 2002**
- **Workforce Development Summit report (Anderson Economic Group), 2002**
- **High-Tech Clusters in North Carolina (UNC, for Vision 2030), 2000**
- **Rural Prosperity Task Force report, 2000**

National reports:

- **National Governors Association, New Economy Economic Development Strategies for the 21st Century**
- **National Governors Association, Innovative State Policy Options to Promote Rural Economic Development, 2003**
- **Rise of the Creative Class (Richard Florida) and related analyses, 2002**

Key Findings from Recent Studies about the Region

- Many businesses are unable to adapt to global markets and change their historical focus from competing on price to competing on specialization or innovation

- Growth sectors (as of 2000) are metalworking, transportation equipment, plastics and instruments
- AdvantageWest is a great location for “quality of life” entrepreneurs who work for themselves but hire few people; but it needs work to attract high-growth firms that tend to cluster in metro areas
- Lack of educational focus on entrepreneurship
- Lack of high-tech jobs for graduates in the region, so they leave = brain drain
- Labor study findings (from Market Street Services):
 - Not an educated and skilled enough labor force to attract many high-wage, high-tech companies (and could not validate underemployment)
 - Lack of racial and ethnic diversity
 - Regional culture fosters an expectation of working for a corporation, not entrepreneurship
 - 50 percent of employers graded high schools as A or B in how well they prepare students for the workforce, compared with 73 percent for community colleges and 69 percent for the universities & colleges
- Well-developed and progressive tourism and film industry with many natural and man-made attractions
- Cleaner than metro areas but more fragile environment as well; several prior studies identified environmental concerns
- Limited and variable land use planning outside federal lands
- Diverse plant species that may help drive both eco-tourism and plant-based biotechnology
- There is a new biotech initiative underway involving regional labs, hospitals, firms, higher education, and the NC Biotechnology Center
 - exploring agricultural, health and environmental applications
 - incubation and training center at Asheville-Buncombe Tech
- Affordable housing and affordable quality health care/health insurance are key challenges in some parts of the region
- Overburdened leadership and limited regional vision for economic development

Key Recommendations from Prior Studies

- ***Integrate economic development strategies into a balanced approach that includes existing industry business services, tourism, film, retirement, agriculture, and entrepreneurship.*** (This more holistic approach was a strong common theme among many of the prior plans and studies.)
- Continue to deploy high-speed telecommunications throughout the region.
- Develop growth corridors and regional plans for economic development infrastructure and land use (Future-Forward, Lockwood-Greene, State ED plan).
- Protect and leverage natural and cultural resources, including for eco-tourism and film industries (Land of Sky, DCA, Handmade).

- Create a more coordinated and integrated system of workforce development that is proactive in training for current and future employment needs (Market Street).
- Facilitate business participation in determining school curricula, and encourage career opportunity training in middle and high school (Anderson).
- Develop and empower entrepreneurs in the region (Land of Sky); assist small businesses in using e-commerce (OED).
- Build a biotech industry around specific regional advantages (e.g., the Asheville-Buncombe Tech facility, biodiversity).
- Increase R&D activity at regional businesses (Land of Sky) and in niche areas at universities (state ED plan).
- Enable current institutions to lead and focus ED efforts (Duke Endowment)
- Direct community wealth towards creating and sustaining conditions for ED (Duke Endowment).
- Establish a leadership training program (DCA).

In addition to the studies of the region itself, *the vision task force was very interested in the work of the National Governors Association and of Professor Richard Florida about innovation and creativity as critical ingredients for competitiveness in the new economy.* Vision task force members expressed a commitment to help the region more fully embrace its arts and crafts heritage, its ecological treasures, and the “funky” culture of Asheville. These existing factors give western North Carolina an edge over other areas because they are appealing to those sought-after, creative people who are creating some of the best-paying new jobs. As of the 2000 Census, the Asheville metro area has been a net importer of people with college educations. On Dr. Florida’s measures of Technology, Talent and Tolerance⁹, Asheville rates above national averages on talent and tolerance measures but below average on technology innovations. The challenge is to create an entrepreneurial environment where the young and educated can innovate and create new value-added jobs, rather than simply taking available service jobs.

2.2 Poll of Regional Leaders

In preparation for the vision task force’s planning retreat, AdvantageWest staff helped the OED team circulate a few questions to community leaders around the region, including chamber executives, economic developers, and local elected officials. Only about a dozen people replied but their responses were thoughtful and useful. The most frequent responses are summarized below, and several of the interesting ideas are featured in Table 2.

In the aggregate, the key themes from the poll questions were as follows.

⁹ For more information on the rankings see www.creativeclass.org

What are the two or three most significant barriers to the economic vitality of your community in the next five years?

- ❑ Low education and skills of the workforce
- ❑ Lack of a cohesive economic development strategy
- ❑ High costs of real estate and its impact on business site location

What are the most important short-term fixes that you would apply to overcome these barriers?

- ❑ Workforce training and re-training
- ❑ Reducing land and operating costs for existing employers
- ❑ Widespread high-speed Internet access

What is the most important long-term solution to building a strong economy for the western region?

- ❑ Development of processes to add value to natural, historic, and agricultural resources
- ❑ Identification of next wave niches
- ❑ Support for entrepreneurs and small businesses
- ❑ Curbing urban sprawl through infill development and improving air quality

Table 2: Selected suggestions from the regional poll

Help businesses understand and access high-speed Internet to make their businesses more competitive – include e-commerce training

Engage existing large employers in the recruitment of suppliers and new technology applications

Retool small business and entrepreneurship training programs for the 21st Century using best practices

Establish a regional venture capital to fund 10 businesses per year at \$10K each in every county

Offer workshops around the region to inform people about the realities and opportunities of the new economy; conduct ongoing public relations campaign re: importance and benefits of lifelong learning

Expand university and college offerings on community college campuses

Establish incentive programs for workers to develop high-demand skills, including technology literacy, communications, business sense, work ethic, problem-solving, and customer service (e.g., Future Work)

Educate citizens and local officials about the benefits of cooperating with neighboring towns/counties

Reward science teachers and students

Work harder to get/keep priority road projects on DOT's Transportation Improvement Program

Coordinate better the many efforts on high-speed Internet

Get grant funds to develop a facility at Lees-McRae to produce a natural predator for the insects killing the hemlock trees

Expand Penland gallery and visitors' center; develop inn, studio tours, etc. with entrepreneurs

Create new attractions to draw new people and dollars to the far west, e.g., mountain village with authentic old stuff, old-time music, cabins

Develop multi-use facilities at Lake James e.g., lodging, environmental studies, conference center

Complete the North Shore Rd. to expand Great Smoky Mountains National Park visitation and heritage tourism

Offer affordable housing and transportation assistance to tourism/hospitality workers (model=Hilton Head, SC)

Build a region of attractive downtowns, large and small, and market them as a region to both businesses and visitors

2.3 Analysis of Industry Clusters

The primary quantitative analysis the OED team conducted in support of this project was an examination of the national industry clusters that have been growing in the region relative to the United States. These are summarized in Table 3, both for the 23-county region overall and for four sub-regions that AdvantageWest staff helped to identify.

Most of the clusters listed in Table 3 use national benchmark definitions to allow comparisons across geographies. The Recreation and Tourism cluster was constructed for this study using the lodging, restaurant and attractions sectors. (Please see Appendix C for a description of the component industries in each cluster.)

Table 3: Summary of recent growth clusters in the Advantage West region

	Advantage West overall	Highlands Cherokee, Clay, Graham, Jackson, Macon, Swain	Asheville metro Buncombe, Haywood, Henderson, Madison, Transylvania	Foothills Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes	High Country Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey
Pharmaceuticals and Medical Technologies					
Hospitals, Labs, and Specialized Medical Services					
Information Technology and Instruments					
Communication Services and Software					
Metalworking and Industrial Machinery*					
Vehicle Parts Assembly*					
Food Products*					
Business Support Services					
Recreation and Tourism					

strongest 
 also important 

** Advanced manufacturing applications within these sectors are what is growing. No manufacturing clusters will be competitive without the continuous application of new technology.*

The data for Table 3 come from an analysis of the rate of employment growth, the concentration of employment relative to the United States, and the rate of increase in that concentration relative to the U.S. The clusters shown as strongest for a region or sub-region represent those that grew in employment by 50 percent or more in the 1996 to 2002 period and that have a high or growing concentration relative to the U.S. Appendix D includes the “bubble graphs” that show the employment growth and concentration changes for the region and the four sub-regions.

Please also note that this analysis only includes what is substantiated in the Employment Security Commission data for the recent past, among companies that provide unemployment insurance. Past growth, of course, is no guarantee of future growth. As a check on these data, therefore, we broke down the clusters into their component industries and then consulted national employment projections to determine which specific industries are likely to grow in the future and pay good wages. **Table 4 shows industry sectors in which the AdvantageWest region is under-represented relative to the U.S. and in which employment is expected to grow.** The entries are sorted with the highest growth industries shown first, to help inform industrial marketing efforts.

Table 4: Possible target industries for the Advantage West region:
*Industry sectors in which the region is under-represented relative to U.S.
 and in which projected U.S. employment is increasing¹⁰*

SIC(s)	Description	Cluster(s) with which the industry has active trading relationships	Projected Percentage Change in U.S. Employment 2000-2010	2001 Mean Annual Income of U.S. Workers
737	Computer programming, data processing, and other computer related services	Hospital and med services, information technology, communication and software	45.7%	\$59,740
422	Public warehousing and storage	Transportation and logistics	30.5%	\$29,060
873	Research, development, and testing services	Hospital and med services, communication and software, pharmaceutical and med tech	26.0%	\$50,600
871	Engineering, architectural, and surveying	Communication and software	22.6%	\$52,790
451	Air transportation, scheduled and air courier	Transportation and logistics	19.7%	\$42,380
283	Drugs manufacturing	Pharmaceutical and med tech	19.2%	\$45,930

¹⁰ Sources: Bureau of Labor Statistics: 2001 National Industry-Specific Occupational Employment and Wage Estimates; and Industry Output and Employment Projections for the Year 2010

Supporting Report to the Vision Plan for AdvantageWest

SIC(s)	Description	Cluster(s) in which the industry figures	Projected Percentage Change in U.S. Employment 2000-2010	2001 Mean Annual Income of U.S. Workers
622	Commodity contracts brokers and dealers	Business support	18.9%	\$61,590
308	Misc. plastics products	Chemicals and plastics, vehicle parts assembly	17.3%	\$30,410
384	Surgical, medical, and dental instruments and supplies	Pharmaceutical and med tech, fabricated textiles	14.9%	\$39,010
367	Electronic components and accessories	Information technology	14.6%	\$42,990
611	Federal and federally sponsored credit agencies	Business support	13.2%	\$40,780
358	Refrigeration and service industry machinery	Metalworking, vehicle parts assembly	12.2%	\$33,480
352	Farm and garden machinery and equipment	Metalworking, vehicle parts assembly	9.2%	\$32,540
359	Misc. industrial and commercial machinery and equipment	Metalworking, vehicle parts assembly	9.1%	\$35,070
369	Misc. electrical machinery, equipment, and supplies	Information technology, vehicle parts assembly	8.2%	\$34,730
371	Motor vehicles and motor vehicle equipment	Metalworking, vehicle parts assembly	7.8%	\$44,810
344	Fabricated structural metal products	Metalworking	7.8%	\$33,150
201	Meat products	Food products	7.2%	\$22,950
243	Millwork, veneer, plywood and structural wood	Wood products and furniture	6.4%	\$28,710
449	Services incidental to water transportation	Transportation and logistics	6.0%	\$39,440
249	Misc. wood products	Wood products and furniture	5.8%	\$27,670
364	Electric lighting and wiring equipment	Vehicle parts assembly	5.7%	\$33,480
373	Ship and boat building and repairing	Metalworking	4.5%	\$34,460

Table 4 will be of particular interest to AdvantageWest's economic developers at a tactical level. Still, this purely quantitative approach cannot capture sectors that are emerging among entrepreneurial companies and that may be considered interesting targets for the future. Thus we also asked the vision task force and the economic developers for their insights about emerging clusters that might not show up in the past numbers.

The final list of ten “clusters of innovation” included in the Five-Year Vision Plan represents a combination of the clusters substantiated by the recent past and those thought to be emerging for the future. This list is also shown in Table 5. These ten clusters represent a strategic packaging of the most globally competitive assets of the region, which can be marketed in a cohesive way. One of the tests the task force applied for selecting the clusters of focus was whether the key related assets are secure or the technology unlikely to be exported.

It should be noted that the selected clusters have considerable overlap with but do not strictly use the U.S. benchmark cluster definitions, which were used in the earlier analysis for the sake of comparability with the U.S. How industry clusters are defined is more art than science. Making them work well for regional strategy and marketing should be a stronger priority than using the generic contours that include many industries irrelevant to western North Carolina.

**Table 5: Ten clusters of innovation
for the future economy of the AdvantageWest region**

<p><u>Advanced manufacturing-related</u> Automobile components, 2nd & 3rd tier Advanced materials & composites (incl. ceramics) Chemicals and plastics Metalworking Optics Professional services: architecture, engineering, finance, law</p>	<p><u>Arts, crafts and design-related</u> Home-based entrepreneurs and artisans Niche wood products and furniture Graphic arts Architects Historic preservation Set design Arts education and training</p>
<p><u>Communications and IT-related</u> IT/software Distance education and training Multi-media, incl. film, TV, video Internet-based businesses in many sectors</p>	<p><u>Environment-related</u> Alternative/renewable energy Environmental sciences Value-added natural resources, including minerals Environmental reclamation</p>
<p><u>Food-related</u> Wine and culinary arts Food horticulture, processing and packaging, including organic Regionally-branded food products</p>	<p><u>Health care-related</u> Health care delivery (hospitals, labs and specialized medical services) Medical equipment and materials field testing and manufacturing</p>
<p><u>Life sciences and agribusiness-related</u> Native plant commercialization, including biotechnology Nutraceuticals¹¹ Biomanufacturing Sylviculture and horticulture Nontoxic pest management</p>	<p><u>Recreation and tourism-related</u> Eco-tourism Heritage tourism Hospitality Outdoor attractions and services Outdoor recreation equipment</p>
<p><u>Retirement-related</u> Construction of second homes Continuing care retirement communities Gerontology Adaptive technologies for the elderly Senior services, activities and work</p>	<p><u>Security-related</u> Forensic sciences Homeland security technologies Criminal justice</p>

¹¹ Nutraceuticals (often referred to as phytochemicals or functional foods) are natural, bioactive chemical compounds that have health promoting, disease preventing or medicinal properties. Nutraceuticals are used in the production of various compounds in the food industry, the herbal and dietary supplement market, the pharmaceutical industry, and combinations of the above.

2.4 Focus Group with Economic Development Advisory Committee

The AdvantageWest Economic Development Advisory Committee (EDAC) consists of the local economic developers from each member county, the N.C. Department of Commerce regional staff, and AdvantageWest staff. The EDAC met with OED staff on October 8, 2003 to discuss this visioning project and provide their input.

The primary purpose of that meeting was to discuss promising industry clusters for the region, based on the experience and perceptions of the state, regional and local economic development professionals. The list of possible clusters the group generated figured prominently in the task force discussion and final list shown above in Table 5.

The economic developers offered their perspectives on several other issues related to the Vision Plan and the future economy of the region, as summarized here. A few of their suggestions that relate directly to a role for AdvantageWest are highlighted.

Lessons from New England:

- As we learned from the visits we made with the Asheville Chamber, we have a lot to learn now from New England, which has been losing manufacturing jobs since the 1960s. Towns like Newburyport, MA are revitalizing their downtowns, restoring old homes, and growing tourism. Highly educated people with technical skills are moving in and attracting or starting small companies. Over time, other employers have relocated there, attracted by the skilled work force. This describes a strong dynamic that is just beginning here in the NC mountain region.

The role of higher education institutions in the regional economy:

- The role of higher education in the region's economic development is not simply to react to existing and emerging clusters and prepare the region's workforce (though these are critical too). In addition, these institutions need to establish research capability to nurture the industry clusters and help the clusters grow, as they are in the Triangle and at East Carolina University (ECU). Although it's difficult – in part because of their funding streams – higher education institutions need to invest in forward thinking and take the necessary leaps of faith to expand their leadership role. [Also see additional discussion later in this section about university roles.]
- Job training at the community colleges is like the “flavor of the month – sometimes with no sense of connection to good jobs that are (or could be) local.
- We need to support higher education institutions in their negotiations with the General Assembly and the University of North Carolina Board of Governors and Community College System. For example, as WCU is stepping up to establish need-based programs like engineering, the EDAC should offer its voice of support.

Existing manufacturing companies pushed for an engineering program, and WCU listened. The mechatronics degree program at UNCA -- a partnership with NC State University, leading to a bachelors degree in engineering -- is another bottom-up example.

- The state needs to provide flexibility and incentives to higher education institutions to take new approaches to delivery of workforce development. We have an “Edifice Complex” – it does not have to be a building to be a school. We need to capitalize on a virtual world where anyone can train for technology jobs, and pursue advanced degree programs via the Internet. We need to build a stronger educational partnership with good schools from all over the nation, e.g., Greenville Tech in South Carolina. We should tie into Congressman Taylor’s broadband initiative, which helps keep people at home in their communities.
- Higher education is also itself an industry cluster. It exports well-trained labor all over the country, and it creates good jobs at community colleges and universities.
- ***AdvantageWest’s EDAC can facilitate communication between emerging industries and higher education institutions.***

Public relations and public education:

- We need to build awareness with community leaders and the general public about our changing economy and realistic future industry clusters – and their workforce requirements. For example, we need to retrain workers for service and technical jobs, not primarily manufacturing anymore.
- We produce a well-trained workforce, realizing they may need to relocate for a related job, at least in the short term. But there is a lot of pressure on local developers to create jobs locally and now. That means if we train someone to be a biotechnician, we need to create a *local* job for her or we don’t get any economic development credit or payback.
- Workers’ frame of reference is their neighborhood. But the economy’s frame of reference is the world. In between is the region or community, which has to build an economy on its own well-informed sense of place in the world.
- Western Carolina Industries and local industry associations can play a key role – we have good connections.
- ***AdvantageWest can lead and coordinate a PR campaign.***

Community and product development:

The EDAC offered several examples of redevelopment of existing buildings, from in and outside the region:

- The Alleghany Business Development Center in Sparta used federal textile mill revitalization credits to turn an old cut-and-sew factory into a telework center, with Wilkes Community College and JobLink centers on-site.
- Drake Enterprises turned an old factory in Macon County into a family entertainment center, which is now a profit-making business, and also helps keep workers' families from going outside the community.
- Forest City is targeting the old Cone Mill, using CDBG money, for conversion of former industrial space to condos, amphitheaters, and shops.
- Durham has converted warehouses into Brightleaf Square and is now redeveloping the former American Tobacco complex into offices, condos, and stores.
- Newburyport, Massachusetts, rebuilt its waterfront using some of the same federal money and strategies as Baltimore, including enhancement money from the Department of Transportation.
- Pittsburgh's Rivers of Steel project is a 530-acre property located on Pittsburgh's rivers that has converted old steel mills to sites for technology industries and retail shops. In addition, some of the old equipment has been recycled as yard art.

Economic development planning and financing:

In discussing how to plan and pay for projects such as those above, the EDAC also raised these product development and funding issues:

- Quality real estate at competitive prices often requires some subsidy to make it work, at least initially.
- ***We need an infrastructure plan to go with the focus on particular industry clusters.***
- Project development financing will be on the ballot in 2004 for a public referendum, and we need to help it pass.
- The Governor is pushing for general obligation bond flexibility to help finance industrial projects (Rhode Island has this).
- ***We need to revisit the state's policy on the Community Development Block Grant (CDBG) as part of developing a strong regional sense of place and helping low- to***

moderate-income people. CDBG funding for the Small Cities program in VA and SC is more creative than the approach we are currently taking in NC. CDBG policy is set at the state level. Virginia supports economic development with its CDBG funds while NC targets housing. There is some new CDBG money in NC for entrepreneurship. The CDBG allocation will be changing; western NC needs to develop more eligible projects to take advantage of the opportunities.

- Other sources of federal funds are important, too. Incubators are currently not eligible for CDBG funding. And the wage test eliminates some of the best employers. ARC funding may have more options due to its flexibility. Farmers Home Administration is underutilized. USDA Rural Development is another area with unrealized potential. The regional councils of government (COGs) are looking at all of these programs. AdvantageWest will use the region's recent designation as a National Heritage Area to access various federal grants.

Policy issues:

The economic developers also noted the following policy issues that affect the regional economic opportunity:

- U.S. trade policy
- Escalating health care costs putting companies out of business
- Rising workers' compensation costs
- Tax policy to encourage R&D and small business development
- Incentives for existing industry, not just new
- Need to focus on innovation within companies as one strategy

In relation to all of the above, the region's economic developers stressed that ***Western Carolina Industries (WCI) is a key partner for lobbying on state and federal policy issues.***

2.5 Analysis of Priority Clusters vis-à-vis University Capacities

To the credit of a workforce development study commissioned by AdvantageWest and completed in 2001 by Market Street Services, the region already has a working inventory of the curricula offered by each institution and an interactive regional website called www.workready.net.

For the purposes of thinking strategically about where the workforce development gaps are, the OED team mapped the existing curriculum offerings to the clusters of innovation from Table 5 and consulted the institutions' web sites for additional information. An inventory in tabular form of the region's existing training and education programs by cluster is contained in Appendix E of this report. It includes masters, bachelors, associates, and K-12 programs related to each opportunity area.

Based on this inventory, there is great potential for enhancing, to national-class status, the education and training programs in the region so that they can prepare an innovative workforce for the region's emerging economy. The first priority focus areas should be:

- Pharmaceuticals and medical technologies¹²
- Biotechnology, biomanufacturing and bioinformatics
- Vehicle parts assembly
- Chemicals and plastics
- Advanced materials and composites
- Medical equipment and materials manufacturing
- Gerontology and technologies for the aging
- Alternative/renewable energy
- Environment-related programs
- Food processing, packaging and nutrition
- Forensics
- Homeland security and navigation technologies
- Outdoor recreation equipment
- Materials science and research for the crafts industry
- Distance learning to support home-based businesses

As the EDAC notes, and as the vision task force has observed from the start of this planning process, the role of higher education institutions should be not only to address the curriculum gaps such as those listed above, but also to assert leadership in the research and technology development aspects of the clusters where the region has a competitive advantage (see Table 5). ***Working with companies and entrepreneurs that are innovating in each of the ten targeted clusters to develop new technologies, processes and markets is as important as training the next generation of workers for those jobs***

One example of an opportunity for this type of collaboration is if the locally owned durable medical care equipment companies could work with engineers and computer experts at Western Carolina University on R&D and to field-test their innovations in regional health care facilities.

The federal Bayh-Dole Act (1980) and its subsequent amendments (1984) created incentives for the government, universities, and industry to work together in the commercialization of new technologies for the public benefit. The policy permits universities (all non-profits) and small businesses to elect to retain title to inventions made in performance of federally-funded programs. Thus the

¹² Asheville-Buncombe Tech will soon be offering the BioWork program for training biotech technicians but is the only such college in the west.

region's universities should leverage federal research dollars as well as partnerships with CEOs in the region to conduct strategic research in the ten clusters of innovation that will be of value to the region's private entrepreneurs.

North Carolina, however, has struggled to realize the full potential for such education-industry collaboration in part because of conflicts with the state's Umstead Act, which prohibits any unit of state government (including its universities) from competing with citizens and private enterprises of the state. Many business groups as well as the state's Board of Science and Technology have recommended substantial amendments to the Umstead Act to help free up both private and education sectors to innovate and collaborate.

The University of North Carolina system is promoting the development of "millennial campuses" in the service regions of several of the UNC campuses. Outside Centennial Campus (NCSU) and Carolina North (UNC-Chapel Hill), most of these millennial campuses are seen as economic development opportunities focused primarily on business development, not R&D. For example, the one proposed near WCU suggests a mixed-use development to include retail, office, incubator, recreational, retirement and residential uses. Nonetheless, in niche areas of research, such as those tied directly to the target clusters, the regional universities of the AdvantageWest region can assist in the development of new technologies and knowledge to help local entrepreneurs remain on the cutting edge and access new markets.

The UNC system's intended economic development portal may also help the region's faculty engage meaningfully and more easily in entrepreneurship and regional development projects, especially if AdvantageWest's local economic developers can serve as liaisons in their communities.

Section 3: Recommendations for Taking the AdvantageWest Vision to Action

What good is a vision if it never becomes reality? To keep up the momentum established by the vision task force, it will be important to demonstrate some results in a short period of time. ***Action plans, with an implementation timetable of a year or less, can be a good way to identify the “low-hanging fruit” of a vision plan.*** Early action items should be selected so that they focus efforts, create effective working relationships, and produce demonstrable success.

In this section we offer several specific suggestions for how the AdvantageWest region could organize itself to execute this Vision Plan in a phased approach that is manageable and satisfying for the many volunteers and citizens who will want and need to be involved. One way is to establish a few focused demonstration projects, perhaps at least one per goal, that can be accomplished or at least show measurable results in the first year.

Since a cluster-based approach is at the heart of the plan¹³, and the jargon of clusters is unfamiliar to many of the region’s residents, we also spend some time in this section explaining what a cluster-based strategy involves. We have included some general best practices in implementing economic development strategies around “clusters of innovation” and offer examples of how a cluster-based strategy could apply to specific clusters already emerging in the AdvantageWest region. Starting from areas of existing strength and/or growth markets will save time and build momentum quickly.

Two particular case examples from within the region are presented in this report, one emerging and one longstanding: the advanced materials cluster in the Northwest and the recreation and tourism cluster in the Southwest. Either or both of these would make a suitable Year One demonstration project. The advanced materials case is an interesting “new economy” cluster in a rural area, and the tourism case focuses on value-added eco- and cultural tourism by leveraging the new National Heritage Area designation for western North Carolina.

Finally, in addition to the detailed discussion of specific ideas to support Goal 1 (providing all the necessary infrastructure to grow selected clusters of innovation), we provide a starting menu of ideas for possible early demonstration projects related to all four goals of the Five-Year Vision Plan. These proposed projects represent a composite of many specific ideas offered by vision task force members, respondents from the August 2003 poll, and authors of recent studies. Although the Vision Plan developed by the task force did not need to specify this level of detail, the Demonstration Teams

¹³ Goal 1 of the Five-Year Vision Plan says “ Grow and support several clusters of innovation around regional niches with education, infrastructure, services, and technology transfer”.

(discussed below) will want to consider these ideas in brainstorming and designing approaches to cluster-based planning.

3.1 Structure/Process for Implementation in AdvantageWest Region

The authors of this report have worked with numerous communities, urban and rural, in the U.S. and abroad, on the development of vision plans and strategic plans. We have also witnessed many an effort that had a “bad handoff” between the planning and implementation phase, to the disappointment of all who contributed time and energy to the effort. To avoid this problem in the AdvantageWest region, we offer several specific suggestions that will help maintain momentum, continuity, and achieve results. In the current cyclical and structural downturn, there is ample discussion of the need for rural economic development but a scarcity of effective models that can support the changes needed to stimulate economic opportunity. A few process ideas for the vision task force to consider are as follows.

1. ***Develop a clear agenda for political action on behalf of the entire region.***
AdvantageWest staff can coordinate and disseminate a unified agenda of policy issues to discuss with the region’s state delegation as well as its representatives on the community college and UNC system boards, thus preventing duplicative or conflicting lobbying efforts. Additionally, the CEOs of a broad array of public and private organizations should be invited to endorse the Vision Plan and offer their logos on its front page. It is important also for the business, local government and education leaders to support each other’s agendas when they are in Raleigh or Washington, and for them to use the same communications materials.
2. ***Organize the cluster implementation effort, at least in part, by sub-region.*** In this way, manageable numbers of partners can come together in face-to-face meetings to tackle discreet parts of the overall plan. The sub-regions could be the four used in this analysis or smaller ones of just a few counties, but even in the early stage of implementation it should be possible for any local area that has the capacity and interest to participate to do so.
3. ***Each sub-region should identify and agree to complete at least one focused demonstration project that can be completed in the first year.*** Each project will:
 - Establish a Demonstration Team that includes growth entrepreneurs, cutting-edge scientists/engineers, policy scholars, designers/artists, CEOs, individual investors, and community college and university leaders
 - Build a strategy around the unique assets of the participating communities, including their clusters of innovation from Table 5
 - Build on the cluster data in this and other reports
 - Build on the prior studies done in the participating communities

- In the parts of the region where there are existing steering committees or alliances, such as through the CEDS or Rural Carolinas initiatives, AdvantageWest’s vision task force can provide additional focus and leadership for those efforts already identified.
 - Include at least one R&D partnership with a university or research institute (not necessarily, though preferably, in the region)
 - ***Include leadership development for people in the participating communities as an integral aspect of the demonstration***
 - Include elements that have clear opportunity for replication elsewhere in the region if they are effective
4. ***Plan an annual forum for the entire region to report out and network.*** Develop common templates for the Demonstration Teams to keep inventories, industry and educational data, etc. across all the early demonstrations, so that their results can easily be aggregated and evaluated in parallel. Each of the Demonstration Teams will report back to the public, as well as to a joint public meeting of the boards of the universities, community colleges and AdvantageWest. ***This event might be done in conjunction with the AdvantageWest Annual Meeting.*** The purpose of the forum will be both to hear the progress accomplished in the prior year and to galvanize public support for sustaining and replicating those efforts.
5. ***Challenge the vision task force and other leaders to periodically review and revise the Vision Plan*** to support implementation of existing strategies, to minimize unintended consequences, and to respond to new opportunities as they develop. This activity could be part of the scope of the regional think tank and could also be combined with the annual meeting.

3.2 Implementing Cluster-Based Strategies for Regional Development

Conducting an analysis of AdvantageWest’s most competitive clusters is a good first step. Many other regions have commissioned cluster analyses, only then to struggle with how to implement a cluster-focused economic development strategy. Often regional leaders have little experience with thinking creatively about creating the conditions for business growth around regional competitive advantages. However it may begin, ***any cluster-focused effort will have to demonstrate how it adds value, saves time, or otherwise leads to competitive advantage in the marketplace to keep businesses at the table.***

The OED staff that prepared this report also prepared a recent report on *Best Practices in Cluster Implementation* for the Research Triangle Regional Partnership,¹⁴ and many of

¹⁴ That report is available under Reports at www.oed.unc.edu.

those practices are relevant for the AdvantageWest region as well, so we provide several relevant excerpts from that report in this section. The remainder of this section divides the best practices into those related to designing, implementing and sustaining cluster-based economic development, and then we offer several overall recommendations for the AdvantageWest regional approach to clusters.

Designing Cluster-based Approaches

The U.S. Economic Development Administration (EDA), under Assistant Secretary David Sampson, has actively promoted cluster-based planning as a key ingredient for regional competitiveness. According to the EDA, in its report, *Cluster-Based Economic Development: A Key to Regional Competitiveness*, there are five overall imperatives for any successful cluster-focused effort¹⁵:

- 1) Recruit highly committed leadership
- 2) Develop a strategy to ensure adequate resources throughout the process
- 3) Choose the right geographic level of focus (what is the region of action?)
- 4) Find tools to sustain momentum between stages
- 5) Engage potential implementing institutions from the earliest stages of the process

Because of the importance of collaborative regional leadership, which does not just happen naturally, EDA's report goes on to explore and explicate more fully the success factors for collaborative strategy, as follows:

- 1) Hold events that confront and engage participants from key industries and institutions in the region
- 2) Select working group leaders who are committed and can recruit high-profile participants reflecting small and large companies in the region
- 3) Create accountability mechanisms and progress milestones throughout the process
- 4) Develop concrete action plans focusing on reform and redesign of services, adding value to existing resources, and enabling market innovation
- 5) Establish the market viability of each initiative to ensure the necessary support from stakeholders for taking action

Implementing Cluster-based Strategies

Once the overall strategy has some leaders, stakeholders and managers lined up, what exactly do they do, to carry out a cluster-based approach? What do the firms get out of it that they would not otherwise?

¹⁵ EDA, 1997, p.2.

Regional Technology Strategies (RTS), another key source for best practices, many of which are based on its work for the National Governors Association, specifies four main elements for a successful cluster implementation strategy:

- 1) Organize **service delivery** to address cluster businesses' needs collectively
- 2) Target **investments** --in innovation, entrepreneurship, and recruitment -- to clusters
- 3) Increase clusters' **networking and learning** for competitive advantage
- 4) Improve the **workforce** and its readiness for work in the cluster

A closer look at each of these four policies follows, along with examples of specific ways they have been implemented in other regions and ideas about how they may apply to selected AdvantageWest clusters of innovation.

1) Organize service delivery around clusters

Strategies for organizing service delivery to meet cluster needs can both make the process more streamlined from the firms' perspective and help focus the limited resources of service providers. A few of the specific best practices in this arena are:

- cross-agency quick-response teams
- one-stop shops
- government incentives for multi-firm activity
- regulatory or tax policy reform

Companies in similar industries banding together to influence public regulatory and fiscal policy certainly pre-dates the notion of clusters. Many states have industry associations that are now becoming active players within clusters. The North Carolina Electronics and Information Technologies Association, for example, has helped develop language and support for a research and development tax credit similar to those used in most other high-tech states. To support a ceramic tile cluster in Sassuolo, Italy, legislators have committed regional resources for collaborative activities and research at a local university testing center.¹⁶ *The Italy case is a good model for AdvantageWest's advanced materials cluster and the crafts and design cluster to study for ideas, in part because it works in a rural area.*

2) Target investments to clusters

Many cluster support services can be grouped under this targeted investment category.

A few examples of actions that target investment to clusters are to:

- invest in R&D and innovation in cluster
- support entrepreneurial activity in cluster

¹⁶ Rosenfeld, 2002 (a), p. 11.

- invest in cluster technology
- market clusters and build cluster markets
- provide infrastructure needed by cluster

For example:

- Leading bioscience regions have private markets that provide facilities offering space for bioscience companies. Access to specialized facilities and equipment, such as core labs and animal facilities, is readily available. (Colorado, 2003)
- Regions can help provide a supply of real estate available for all three corporate growth stages: start-up, initial self-supporting quarters, and full-fledged operations. Developers are more willing to build facilities on a speculative basis if a critical mass of companies creates steady demand. (Walcott, 2002)
- North Carolina, Virginia and other states are discussing providing supercomputing or grid computing as the next cutting edge competitive advantage for bioinformatics and advanced manufacturing companies.

Table 6 offers several additional examples of strategies that direct investments, public or private, to specific clusters.

Table 6: Examples of investments targeted to clusters

<i>Strategy/program</i>	<i>Example where used</i>	<i>Cited in</i>
Recruit entrepreneurs and vendors from declining clusters	Suggested for Florida medical technology cluster	Hagen, p. 23
Created new optics research centers at the University of Arizona	Arizona, optics cluster	Turner, p. 28
Collective promotion	“Made in Oregon” campaign, Wood Products Competitiveness Corp.	Rosenfeld, 2001, p. 11
Most firms in the cluster are small, but cluster helps them sell as collective unit	Arizona’s Environmental Technology Industry Cluster	http://www.azetic.com/index.asp
Joint action groups for exports were formed around clusters with similar or common markets	New Zealand	Rosenfeld, 2002(a), p. 29
Host cluster conventions and trade shows to establish brand	NC & Copenhagen furniture shows, Sassoulo Italy ceramic tile show	Rosenfeld, 2002(a), p. 30

The successful bid for a National Heritage Area and the South Mountains initiatives are examples of a diverse cluster of tourism, crafts and related organizations working together to establish a regional brand. Through the Hosts programs and other efforts, western North Carolina’s hospitality industry already does joint promotion. Continuous engagement of the region’s various attractions, some of which have very sophisticated marketing and market research savvy, will strengthen the cluster further, particularly as it targets specialized niche customers such as the eco-tourist or the history buff. What will make recreation and tourism a cluster of innovation in western North Carolina, and not just a cluster of convenient labeling, is if new ideas from

around the world about enhancing and extending the leisure experience are tested, evaluated and tweaked for continuous improvement. Broadband systems will also help support a more comprehensive joint marketing effort.

The e-NC's Blue Ridge Business Development Center (BDC) in Sparta could be a place for start-up businesses in the advanced materials cluster working with Martin Marietta Composites, Gates Rubber Company and others as anchor buyers. Alleghany County's successful proposal in 2001 to establish a business development center there was not limited to particular clusters; nonetheless, if targeted to meet the common needs of advanced materials companies, the BDC could be an example of effective leveraging of a new technology resource to help grow a cluster.

3) Strengthen networking and build bridges

The networking aspect of clusters takes some support as well, at least initially until companies see a benefit and want to continue. Examples of these strategies include:

- recognize existing cluster organizations
- establish new ones to fill gaps
- facilitate linkages from cluster to assets
- encourage cluster communications channels
- facilitate external linkages (e.g., through international benchmarking, study tours, global professional organizations)

Frequently these linkages are facilitated by a dedicated organization like the N.C. Biotechnology Center or San Antonio's Technology Accelerator Initiative (SATAI). Some of the types of assets that such efforts may provide for firms include: distributors and exporters, engineering consultants, financial institutions, industry lawyers and accountants, maintenance and repair facilities, marketing consultants, nonprofit organizations with industry focus, R&D centers, technology extension centers, trade associations, training programs, and testing laboratories (Rosenfeld, 2002(b)). Linkages to various types of specialized business support infrastructure can be a strong regional competitive advantage.

Wilkes Community College, Appalachian State University, the Business Development Center in Sparta and both corporate leaders and entrepreneurs in the advanced materials sector should work together to establish these types of networks.

Networks formed for economic purposes sometimes take on other issues as well. Joint Venture Silicon Valley (JVSV) was founded in part on the stated interests of Silicon Valley companies to address transportation, education, environment and affordable housing issues as a group, in an effort to maintain the region's quality of life. JVSV's board includes industry CEOs, local government officials, and education leaders. One example of its recent achievements is the development of photo simulation tools to

promote smart growth. Such an effort may be an instructive inspiration to the many leaders in western North Carolina who are concerned about air quality. The private sector, and not just environmental groups, must be involved in developing policy that preserves both economic opportunity and the natural beauty that sustains the quality of life everyone appreciates about the mountains.

Table 7 offers additional ideas for how to network companies within a cluster.

Table 7: Examples of cluster networking strategies

<i>Strategy/program</i>	<i>Example where used</i>	<i>Cited in</i>
Cluster councils (for organizing and aggregating demand; sometimes with cluster coaches)	Arizona	Rosenfeld, 2001, p. 12
Pyramid 3-tier maps of export-based companies, suppliers and foundations in region; cluster councils	Palm Beach County, FL	Rosenfeld, 2001, p. 20
Electronic communities of commerce	Ben Franklin Partnership/Industrial Resource Centers, PA	Rosenfeld, 2001, p. 13
Learning networks	Portland, OR; Australia	Rosenfeld, 2001, p. 15
Industry funded research program at university – a way for companies to contract with specific research groups	Puget Sound (Bothell)	Sommers, p. 23
Cluster org’s web site includes a manufacturers’ database, a supplier’s database, a clearinghouse for business opportunities, personnel and job postings	NC’s hosiery cluster	Rosenfeld, 2002(a), p. 21
Benchmark counterparts in Europe, visit tech and research centers, trade associations and tool builders, then applied new ideas at home	NC’s hosiery cluster reps’ study tour to hosiery cluster in northern Italy	Rosenfeld, 2002(a), p. 24

Another networking strategy is simply to link up various existing networks. Although the hired personnel of organizations often see one another at meetings, periodically getting their boards together brings new people to the table. For example, the community college boards of each college in a region could all meet together to work on a broader regional effort. Bringing together the boards of all the participating public and private organizations will serve to provide networking opportunities for educators, business persons, policy makers and government officials. And relevant entrepreneurs -- including farmers – should be invited to participate in the cluster-focused efforts, because their contacts and networks often bring in new leadership and ideas.

4) Develop human resources for clusters

Workforce development strategies to ensure that businesses can access the skilled labor they need on a sustained basis are a critical aspect of life sciences and many other clusters. It takes considerable creativity to combine workforce and economic development strategies, which in many regions are not well integrated. Examples of human resource (HR) strategies include:

- develop more skills and specialized labor force
- establish cluster skills centers
- qualify people for employment
- engage community-based employment intermediaries
- establish new ones to fill gaps
- support regional skills alliances

One broad strategy in EDA's words is "linking education providers with employers". In the successful bioscience regions studied by Colorado, educational institutions from K-12 through higher education are responsive to training students to meet needs for cluster workers at all skill levels --scientists, technicians, and production workers. (Colorado, 2003).

Along these lines, the OED completed a plan in 2000 to develop human resources for clusters for the N.C. Community College System.¹⁷ The rationale behind "Industry Cluster Resource Centers" was to induce community colleges to team up and create specialized training programs appropriate for the types of workers that would be demanded by emerging clusters of businesses in the state. As stated in that report, a cluster center that maximizes its impact on regional and state economies:

- Is demand driven by cluster firms
- Is industry-led
- Is collaborative
- Is semi-autonomous from the college
- Connects work-based to theoretical competencies
- Has in-depth industry expertise and experience among its management and staff
- Exhibits and supports associative behavior among firms
- Is connected externally
- Operates as a continually learning "knowledge network"
- Addresses needs of under-represented populations

¹⁷ *Maintaining Competitiveness in the New Millennium: A Plan to Establish Industry Cluster Resource Centers in North Carolina.* For the North Carolina Community College System. By Lucy Gorham, Michael I. Luger, Leslie Stewart, Stuart Rosenfeld, and James Jacobs. December 2000. Available at www.oed.unc.edu.

- Serves as a catalyst for broader economic development
- Serves as a resource for all firms in the cluster anywhere in the state, and for all programs serving the cluster
- Earns the trust of members of cluster

That report also suggested industry cluster focus areas for a cluster center in each region of the state, e.g. Metalworking and Industrial Machinery in the Piedmont Triad and Plastics and Composite Materials in AdvantageWest. The recommended process was to ask each region ‘s community colleges to submit competitive proposals to host the cluster center and make a case for its economic impact, community and private-sector support, and sustainability. ***The Advanced Materials cluster in the Northwest could be a good test case for establishing a collaborative among several community colleges and regional universities that builds on the existing strengths of their faculty and facilities.***

Table 8 offers several additional specific examples of HR strategies tailored to particular clusters.

Table 8: Examples of human resource strategies for clusters

<i>Strategy/program</i>	<i>Example where used</i>	<i>Cited in</i>
Cluster skills centers	South Carolina technical colleges	Rosenfeld, 2001
Regional skills alliance	Regional Skills Alliance program, US Dept. of Labor	Rosenfeld, 2001
Educational institutions at all levels offer training to meet needs for cluster workers at all skill levels (scientists, techs, production workers)	bioscience regions	Colorado, p. 9
Local colleges have organized an inter-collegiate education center to support the cluster	Spokane area	Sommers, p. 15
Developed new community college curriculum for optics technicians	Arizona	Turner, p. 28
Initiated a Targeted Industry Partnership Project to work with universities, community colleges, and K12 school districts to develop curricula that meet industry standards for targeted clusters	Minnesota State Colleges and Universities System	Turner, p. 26
Specialized centers of vocational excellence that match needs of local economies at higher education colleges	United Kingdom	Rosenfeld, 2002(a), p. 25

The Southwest’s ideas to 1) establish Tourism Ambassador certification programs, and 2) create better career ladders within the hospitality industry, modeled upon European programs, are both examples of human resource development for a cluster. The Northwest is working hard to educate various members of its partnership about cluster-based economic development, which is a new way of thinking and working. Two leaders recently attended a national train-the-trainer session on growing clusters so they can return and share the best practices approaches with other partners in the region.

Sustaining Cluster-Based Efforts

Frankie Roman of the Kenan Institute Asia has observed *two key success factors for cluster sustainability*. First, a charismatic leader who can build consensus, is a key ingredient. Private sector leaders are especially convincing to other companies wondering if their bottom lines will in fact improve. Second, there needs to be a focal point around which all the companies have an interest. A tangible outcome like a shared piece of equipment, a design center, or a changed regulation can be a way to galvanize firm participation¹⁸.

The case examples on advanced materials and tourism and recreation illustrate both of these points well. The leadership of Grant Godwin, Vice-President and General Manager of Martin Marietta Composites in Sparta, is one key reason for the momentum and interest among community leaders in building an advanced materials cluster in the Northwest. When this blue-chip company endorsed a cluster-based approach to help the region grow and create more jobs, it further mobilized local partners that were involved in the Duke Endowment program for the Rural Carolinas and the work of Angelou Economics in conducting the CEDS study for the Northwest region. These partners are now coming to the table to learn about advanced materials and what companies in that business require to compete globally.

In the case of the tourism cluster in the Southwest, the common interest that may bring the many small enterprises together is a Tourism Ambassador certification program that would strive to make every worker in a public interface position a better host and promoter of the many recreation and tourism options in the region.

Although the early phases of any new initiative benefit from the “novelty factor,” the challenges of sustaining any regional effort are well known. The success factors for sustained implementation of a cluster-based approach, according to EDA, are:

- 1) A management stewardship group
- 2) Strong supply and demand connections
- 3) Ongoing funding commensurate with the scale and type of initiatives
- 4) Sustained leadership
- 5) Monitoring/benchmarking

The **stewardship group** should be a new or existing organization to spearhead and oversee the initiative – it cannot simply be volunteers. This is sometimes also referred to as the “cluster management organization,” an entity whose purpose is to deliver services to cluster members and provide the glue that keeps the cluster together. The Northwest Alliance Program for the Rural Carolinas, a faith-based organization, is

¹⁸ Frankie Roman, p. 5.

serving the steward function for the advanced materials effort, in partnership with Wilkes Community College.

Strong **supply and demand linkages** are one way to show companies how their bottom-line interests are served by the cluster. A common role of the cluster management organization is to connect buyers and suppliers within the cluster and between the cluster and the rest of the world. **Funding** needs to be realistic and continuous to avoid breaking momentum. The **leadership** plan needs to allow for new leaders to come in easily and prior leaders to exit after they have mentored the new ones, but before burnout sets in.

Finally, the **measurement** of outcomes needs to be both for demonstrating the results of the initiative and for continuous improvement of program design. It can be difficult to separate outcomes of cluster strategies from effects that would have occurred in their absence. Also, some cluster initiatives work in tandem with economic development agencies, making it difficult to measure the impact of cluster initiative alone¹⁹. *The regional strategic institute envisioned for AdvantageWest could take the lead on tracking and reporting economic outcomes, as well as on serving the stewardship function.*

Recommendations for the AdvantageWest cluster effort

To avoid spreading its efforts too thinly on many clusters, the AdvantageWest region should start its cluster implementation strategies in a limited number of focus areas, through a process that is well-documented and adapted over time. Each of these chosen clusters, following the example of Arizona in organizing clusters, could:

1. catalogue the key components of the cluster
2. articulate an achievable vision of what the cluster can become over the next 10-20 years, and
3. identify specific opportunities²⁰ for growing the cluster and realizing greater synergies.

Drawing from the work of Frankie Roman and others, an initial step in choosing the first group of clusters is to plumb the availability and interest of cluster champions. A cluster whose CEOs' attitude is "wait and see" will need either a champion from a similar company or a model with a proven return to companies in another cluster to be

¹⁹ Western Centre, 2002, pp. 11-13.

²⁰ Specific opportunities can be drawn from the menu of ideas offered in the above section of this report.

convinced to spend any time or energy joining a cluster effort. As Chris Beacham²¹ notes, a few of the types of return a firm might see from cluster participation include:

- finding new customers or vendors
- learning about and shaping training curricula to yield required workforce
- learning about new technology applications to increase productivity
- increasing political clout to affect policy and competitiveness

One appeal of a cluster approach is that the particular strategies and required benefits can be determined by the participating firms depending on their markets and interests, not by a recipe that each cluster follows.

Another similar way to launch the effort is to start with clusters where there is likely to be the most immediate return. For example, in a cluster where technology advances are rapid, as in advanced materials or biotechnology, the firms may easily see the benefit of combining their knowledge to compete in a changing market. Alternatively, in a cluster like hospitality where companies are in a position to hire but currently scrambling to find high-quality workers, the returns once a workforce strategy can be developed will be clear. If the region can support cluster strategies that provide tangible benefits to companies' bottom lines, the rollout to other clusters will be much simpler to sell. For example, as Mary Jo Waits reported about Arizona's experience in the optics cluster, one CEO calculated a \$700,000 increase in new business for the \$50,000 he spent on cluster activities (Waits, p. 45).

Considering the current record of more analysis than implementation around clusters, it is important to recognize that ***much of the documented success that North Carolina and other places have had in supporting clusters has come through the active participation of community colleges.*** The hosiery center at Catawba Valley Community College is one oft-cited example of a successful strategy focused on a traditional cluster. The BioWork program at Vance-Granville and the viticulture program at Surry Community College are receiving national attention now for their focus on the emerging clusters of bioprocessing and wine production, respectively. In addition to the OED report on industry cluster resource centers noted earlier, Rosenfeld *et al* detail the establishment of industry-cluster-focused initiatives for community colleges.

As Dr. Michael Porter indicates in his national work on Clusters of Innovation, focusing on clusters without the emphasis on innovation will not gain much. ***The bottom line for the success of cluster implementation – and competitiveness initiatives more broadly -- in the region is changing the culture to one that embraces continuous innovation.*** The corporations, entrepreneurs, educators, governments and service providers within a cluster must understand and demonstrate how the innovative use of existing resources,

²¹ Based in the N.C. Rural Center at the time of writing a white paper about clusters; as of March 2004 serving as Assistant Secretary of Policy at the N.C. Department of Commerce.

as well as the creation of new processes, products and markets, is what drives economic growth – not just pulling company CEOs together in a cluster council. As former IBM head Lou Gerstner noted at the 2003 Emerging Issues Forum: “Culture is not part of the game. It is the game. Culture is what people do without being told.”

This culture change will be particularly difficult in the parts of the region that are reeling from the loss of traditional manufacturing and farming jobs and only just starting to think about how to participate in the new economy. Rosenfeld’s work with the European Union and others on cluster strategies for “less-favoured regions” is insightful and highly applicable to the AdvantageWest region. It should be required reading for CEOs and other rural leaders. Similarly, serving clusters in rural areas may require the aggregation of limited local resources into regional networks, such as a multi-county hub²².

If the vision task force can help seed the development of a few new actively engaged clusters and support existing ones in innovative ways, the success in terms of job creation, productivity and profitability will be all the proof that other employers, workers and intermediaries need to embrace similar cultural change in their own organizations. If the region does not have some demonstrable successes in the next few years as models, however, this culture change will continue to be slow and impede the next such initiative.

3.3 Demonstration Project Ideas under each Goal from the Vision Plan

This section of the report is a compilation of various ideas from prior studies, polls, and task force retreats, organized by the particular goals of the Vision Plan. The purpose is to spur the process of creative thinking about particular action items or demonstration projects that could be a starting point towards that goal. The vision task force could develop a one-year action plan by starting with a subset of these ideas, tweaking them, and adding others.

Goal 1: Grow and support several “clusters of innovation” around regional niches with education, infrastructure, services, and technology transfer

A: Implement innovative best practices

Action Items:

- Adapt cluster-based principles from successful examples in other areas; e.g., recreation equipment and specialty foods in Minnesota and Ohio²³ (NGA: Rural).

²² See *Feasibility of Mini-Hubs for the Research Triangle Region*, Luger 2003 (www.oed.unc.edu) and the five-county initiative to develop a hub in the Kerr-Tar region (www.kerrtarhub.org).

²³ See also the best practices bibliography at the end of this report.

- Invite the director of the SBTDC to an Advantage West event to discuss the types of companies that are currently driving economic growth and what they need to compete (NCEDA).
- Support the formation and operation of industry-driven networks that can innovate together, articulate workforce needs to higher education, and speak with one voice to state and federal government (NGA: Rural).
- Research and adapt best practices for retooling small business and entrepreneurship training programs for the 21st century (regional poll).

B: Develop education curricula for clusters

Action Items:

- Coordinate region-wide support for individual institutions, e.g. WCU and UNCA, when they are negotiating with the General Assembly and the UNC Board of Governors to establish engineering and other programs requested by local companies (EDAC).
- Develop and market the capacity of community colleges and universities to conduct workforce training, provide technology access, and support R&D for dynamic rural clusters (NGA: Rural).

C: Attract and retain star faculty and related talent

Action Items:

- Promote the attraction and retention of creative people as an ED strategy with the same importance as attracting star companies (Richard Florida).
- Use the region's new designation as a heritage area and quality of place, environment, and culture as the key elements in a comprehensive internal and external public relations campaign for the region (suggested in regional poll).

D: Develop regional infrastructure to support clusters

Action Items:

- Identify transportation corridors as the main focus for future planned development (Western Piedmont CEDS).
- Build a region of attractive downtowns and highlight them in regional marketing efforts to both businesses and tourists (regional poll).
- Use technology such as online networks to connect rural businesses to information and financial resources (NGA: Rural).

E: Support innovators and entrepreneurs within target clusters

Action Items:

- Get input on the Vision Plan from entrepreneurs in the region (EDAC).

- Develop a unified plan for seeking funding and tapping underutilized funds at the federal level, e.g. FHA, USDA Rural Development (EDAC; federal reps Taylor & Ballenger at May 2003 meeting)
- Establish incubators and regional venture capital to fund ten businesses per year at \$10,000 each in every county (regional poll; NGA: New Economy).
- Develop community capacity to identify and encourage local entrepreneurs through specialized training programs (NGA: Rural).
- Establish entrepreneur support networks including pro bono services, resource materials, and joint marketing (prior studies).
- Educate local entrepreneurs on how to capitalize on intellectual property and promote their business plans (regional poll).

Goal 2: Institutionalize capacity for strategic thinking, research, policy development, collaboration and leadership on the regional economy

A: Strategize across local boundaries/sectors

Action Items:

- Continue to include representatives from educational institutions in economic development planning (Federal reps at May 2003 task force meeting).
- Find partner regions elsewhere in the state to build political coalitions (prior studies).
- Explore the shared interests of neighboring states in developing regional economic development strategies (May 2003 task force meeting).
- Educate citizens and local officials about the benefits of cooperating with their neighboring jurisdictions (regional poll).
- Coordinate better the broad range of efforts at establishing high-speed Internet in the region (regional poll).

B: Change state policy impeding competitiveness

Action Items:

- Identify state policy barriers to the region's competitiveness²⁴ (task force retreat).
- Develop collaborative strategies and coalitions to influence state policy (task force retreat).
- Meet with the entire WNC legislative delegation to get their ideas and support for [implementing] Vision Plan. (EDAC)

²⁴ As a starting point, recall the policy barriers identified by AdvantageWest's EDAC (see Section 2.4): escalating health care and worker compensation costs; lack of tax incentives for R&D and small businesses; lack of incentives for existing industry; lack of focus on innovation within companies; problems with "No Child Left Behind" in K-12 education.

- Revisit the state's policy on how to spend the Small Cities portions of the Community Development Block Grant (EDAC).

C: Establish leadership development program

Action Items:

- Integrate a leadership development component into the regional think tank (August 2003 task force retreat).
- Develop programs to build awareness with community leaders about the new economy and the industries (and their workforce requirements) that are most promising for WNC (EDAC).
- Increase representation of regional leaders on boards, commissions, government appointments, etc. (May 2003 task force meeting).

D: Think strategically about workforce development

Action Items:

- Get input from the workforce development boards about the Vision Plan (EDAC).
- Support local economic developers in matching job training and job creation (EDAC).
- Educate workers about the importance of small businesses and entrepreneurs to the economy and the limited and highly technical nature of manufacturing opportunities (regional poll).
- Consider the implications of both unemployment and underemployment in workforce development (May 2003 task force meeting)
- Develop a system to track positions held relative to skill levels to measure degree of underemployment (prior studies).
- Conduct a regional survey of employers to determine what certification and other programs they would support with a job offer guarantee (prior studies).

E: Think strategically about infrastructure planning

Action Items:

- Develop an infrastructure plan with a focus on the needs of industries in the target clusters (EDAC).
- Conduct more intensive lobbying of DOT to get/keep priority road projects (regional poll).
- Develop more affordable housing (regional poll).

F: Align public services with needs of businesses & citizens and measure results

Action Items:

- Treat citizens as customers; re-engineer government to be accountable and performance-oriented (NGA: new economy).
- Streamline taxes and regulations (NGA: new economy).
- Establish a single point of contact for economic development in each county (prior studies).
- Establish benchmarks and report progress against benchmarks at least annually (task force retreat).

Goal 3: Change the culture of educational institutions (K-12, community colleges, universities) and the expectations and skills of workers to meet the needs of growing companies in clusters of innovation.

A: Work with state-level boards to set policy that helps competitiveness

Action Items:

- Create faculty positions that focus on continuing education and industry needs-based training and are not tied to course credits (December 2003 task force meeting).
- Revise the Umstead Act to assist educational institutions in becoming more entrepreneurial, using Michigan as best practice example (December 2003 task force meeting).
- Organize a team of business advocates to discuss the implementation of the Vision Plan with the UNC board of governors and community college board (AdvantageWest EDAC).
- Reciprocate with neighbor states to extend in-state tuition status to bordering counties, e.g. Georgia allows residents of Clay and Cherokee counties to pay in-state tuition (December 2003 task force meeting).

B: Work with General Assembly to increase budget flexibility for community colleges and UNC campusus

Action Items:

- Grant community colleges the autonomy to develop their own fee schedules with caps (August 2003 task force retreat).
- Create a pool of innovation money for higher education institutions. As part of the application process, they must demonstrate how their proposed use of the money will lead to jobs (December 2003 task force meeting).

C: Change the culture within the region's educational institutions

Action Items:

- Lobby for increased flexibility and incentives for higher education institutions to develop new approaches to workforce development (EDAC).
- Recruit members of the economic development community, such as EDAC, to facilitate communication between emerging industries and higher education institutions.
- Build a stronger education partnership with good schools from all over the nation, e.g. Greenville Tech in Greenville, SC (EDAC).
- Support education institutions in phasing out marginal programs that are not achieving stated program goals (December 2003 task force meeting).

D: Conduct an ongoing public relations campaign to inform expectations of workers and students

Action Items:

- Solicit the leadership of AdvantageWest and the participation of Western Carolina Industries and local industry associations in public relations and public education efforts (EDAC)
- Educate workers about the need for shifting from a local to a global perspective in order to participate in the new economy (EDAC)
- Conduct outreach with students and workers to help them understand where the best employment opportunities currently exist and potential areas of job growth, e.g. WCU's freshman get curricula mapped to jobs (December 2003 task force meeting).

Goal 4: Establish "Tier 2" level of broadband Internet service for the entire AdvantageWest region by 2009.

Action Items:

- Join forces with Congressman Taylor's broadband initiative to help workers train for technology jobs and pursue advanced degrees without leaving their communities (EDAC).
- Increase demand by helping business owners understand how high-speed Internet access will make their businesses more competitive; provide current Internet users with e-commerce training (regional poll).
- Establish a Learning and Innovation (LIN) Network that provides programs and facilities required to foster technology-based economic development; promote the development of a "high-end" technology park associated with the LIN Network (Western Piedmont CEDS).

- Work with MCNC to deploy “grid” computing to support research and advanced manufacturing in western NC (emerging issues forum; NCEDA).
- Work with a select group of IT professionals to develop infrastructure for an on-line market for quality arts and crafts made in the region (Northwest CEDS).
- Create a regional ED web portal for ED directors, local officials, and interested community stakeholders for posting community news and events, discussion and stakeholder input, and dissemination of information, such as relevant reports, data, and ideas (Northwest CEDS).
- Install WI-FI networks on community college and high school campuses (Northwest CEDS).
- Invite student teams to help design technology infrastructure for area schools (Northwest CEDS).

3.4 Using this Report

This report is written as a companion document to the Five-Year Vision Plan for the Economy of the AdvantageWest region (2004-2009). It can be used as the baseline analysis report for that five-year planning horizon. It is also intended to be a tool for additional leaders who join the implementation effort in future months and years but were not participants in the vision task force deliberations or the analyses completed in 2003-04. The AdvantageWest vision task force welcomes other partners to the effort to bring about a variety of economic, social and political changes that will benefit the citizens of western North Carolina for many years to come.

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