



Initiative for Collaborative Government



Partnering for Mission Results

RESEARCH
REPORT

Williamson County, Tennessee **RUSSELL COUNTY, VIRGINIA** Northeast Pennsylvania Ann Arbor, Michigan
Russell County, Virginia Ann Arbor, Michigan Northeast Pennsylvania Williamson County, Tennessee Ann Arbor, Michigan
Virginia **ANN ARBOR, MICHIGAN** Williamson County, Tennessee Northeast Pennsylvania Russell County, Virg
Williamson County, Tennessee Northeast Pennsylvania Ann Arbor, Michigan Russell County, Virginia Northeast Pennsylv
east Pennsylvania Ann Arbor, Michigan Russell County, Virginia **WILLIAMSON COUNTY, TENNESSEE** No
Tennessee Russell County, Virginia Ann Arbor, Michigan Northeast Pennsylvania Williamson County, Tennessee Russel
County, Tennessee **NORTHEAST PENNSYLVANIA** Russell County, Virginia Ann Arbor, Michigan Williamson
Northeast Pennsylvania Russell County, Virginia Williamson County, Tennessee Ann Arbor, Michigan Northeast Pennsylv

Creating Jobs in America: Case Studies in Local Economic Development

Darrene L. Hackler

Associate Professor of Government and Politics
Department of Public and International Affairs
George Mason University

August 2008

About the CGI Initiative for Collaborative Government

The CGI Initiative for Collaborative Government is a joint public policy project of CGI in partnership with leading academic institutions. It was launched in January 2008. The initiative's mission is to analyze models of government's collaboration with the private and nonprofit sectors in order to identify best practices in using collaboration to achieve mission results.

Government today partners with the private and nonprofit sectors to accomplish a broad range of mission-related and administrative functions. The question is not whether collaboration will occur, but rather how agencies will collaborate most effectively while retaining strategic alignment, control, and accountability. The CGI Initiative for Collaborative Government is focused on helping the government answer this challenge.

To this end, the initiative published two 2008 research papers with George Mason University, the founding partner with CGI. The initiative expanded later in 2008 to include research in partnership with the Johns Hopkins Center for Civil Society Studies and the University of Maryland Center for Public Policy and Private Enterprise.

The CGI Initiative published three reports in 2008 with an additional five projects planned for publication in 2009. In addition, in 2008, the CGI Initiative hosted a series of three seminars entitled: "Collaborative Government: An Effective Tool for Government Executives." These events provided public sector, private sector, and nonprofit leaders a forum for discussing mission challenges and potential collaborative solutions. A full listing of the CGI Initiative's 2009 research and events agenda and access to published 2008 reports and the executive summaries of seminar discussions is available at www.collaborativegov.org.

To find out more about the initiative:

CGI Initiative for Collaborative Government

12601 Fair Lakes Circle, Suite 729
Fairfax, VA 22033

Phone: (703) 227-4959

E-mail: info@collaborativegov.org

Website: www.collaborativegov.org

Creating Jobs in America: Case Studies in Local Economic Development

Darrene L. Hackler

Associate Professor of Government and Politics
Department of Public and International Affairs
George Mason University

Reproduction of this publication is permitted with appropriate citation of the “CGI Initiative for Collaborative Government” and the authors. The publication cannot be reproduced for commercial purposes. Entire contents © 2008 by CGI Group Inc. All rights reserved.

TABLE OF CONTENTS

FOREWORD	v
PART I UNDERSTANDING JOB CREATION IN THE UNITED STATES	1
What’s Driving Local Economic Development and Job Creation in the United States?.....	3
Driver One: Taking Advantage of ‘On-Shoring’	3
Driver Two: Diversifying the Economic Base	5
Driver Three: Working Collaboratively as a Region	6
Localities in Economic Development Transition.....	7
Stimulating Job Creation: Recommendations for Federal, State, Local, and Regional Governments.....	9
Federal Recommendations.....	10
State Recommendations.....	12
Local and Regional Recommendations	13
Intergovernmental Solutions to Local Problems	14
PART II CASE STUDIES: ON-SHORING.....	17
Russell County, Virginia: Repositioning to Attract 21st-Century Industry	19
Rural Employment Challenges	19
Bringing Jobs to Russell County	20
Key Success Factors	24
Key Findings	28
Northeast Pennsylvania: Transforming into Wall Street West.....	31
Economic Condition of the Region.....	32
Bringing Opportunity to Northeast Pennsylvania: WIRED	33
Regional Attractiveness	34
WSW Governance Structure.....	36
Key Success Factors	36

Key Findings 40

PART III CASE STUDIES: INDUSTRIAL DIVERSIFICATION..... 45

Williamson County, Tennessee: Moving to Biotechnology and Bioscience..... 47

 Middle Tennessee Economy 48

 Local Economic Development in a Supportive Regional Context..... 49

 Exploiting Opportunity or Diversification at a Cost? 50

 Key Success Factors 52

 Key Findings 55

Ann Arbor, Michigan: Seeking a Comeback..... 59

 The Dual Economies of Michigan and Ann Arbor 59

 Fighting Job Loss and Working for Recovery 62

 Key Success Factors 62

 Key Findings 66

ACKNOWLEDGMENTS 71

AUTHOR PROFILE 73

FOREWORD

The CGI Initiative for Collaborative Government and George Mason University are pleased to present this report, “Creating Jobs in America: Case Studies in Local Economic Development,” by Darrene L. Hackler, Associate Professor at George Mason University.

In 2008, leaders in the U.S. face the twin challenges of stimulating jobs in economically hard-hit communities and increasing the talent and economic competitiveness of the workforce. Americans, particularly in rural communities, are struggling today with ever-deepening job losses in the agricultural, manufacturing, mining, and automotive industries. At the same time, workers in rural and economically depressed communities need to transform their skills in order to possess the expertise required for high-skill jobs that growing, innovative industries in the U.S. require.

In addition to the skills gap, many communities must also overcome a broadband connectivity gap. Once workers are trained with the right skills, they must be able to connect to the modern marketplace via broadband. Overcoming the challenges of education and connectivity will enable the U.S. to grow domestic information technology jobs to respond to U.S. security concerns as well as provide other high-wage opportunities that can generate economic stimulus to challenged areas.

Today, the opportunity exists to retain high-wage, high-skill, high-demand jobs in the U.S. by locating these jobs in rural and other smaller metropolitan areas that have competitive cost structures, trained workforces, and sufficient broadband access. This report presents four case studies

of how communities throughout the U.S. are making this happen. One case study describes how CGI invested in a U.S.-based technology center to foster a rural economic transformation. CGI’s Southwest Virginia Center of Excellence in Lebanon, Virginia (Russell County) is a model of how a public-private effort can work to revitalize an economically depressed community while protecting sensitive data and technology. Opening in 2007, this facility is projected to generate in excess of \$65 million in economic activity in the region by 2010.

In addition to Russell County, Virginia, the report presents three other case studies. In Northeast Pennsylvania, nine counties worked closely with the Commonwealth of Pennsylvania to obtain a U.S. Department of Labor WIRED grant to create Wall Street West, which is preparing the region to attract data-backup facilities that support New York City’s financial services sector. In Williamson County, Tennessee, the community is diversifying its economic base by recruiting biotechnology and bioscience industries to the region. In Ann Arbor, Michigan, state and local partnerships were created to grow the internal talent and diversify the regional economy of Ann Arbor and Washtenaw County.

Lessons learned in the case studies provide a clear road map of how infrastructure and workforce development can be successfully developed in other locations in the U.S. to cultivate innovative industries and create jobs. With appropriate support from federal, state, and local policy makers—and the active involvement of private sector partners—information technology, life

sciences, and other high-wage jobs can be created in many communities, providing the opportunity to revitalize those areas and achieve national security objectives.

This study by GMU's Darrene Hackler highlights examples of successful regional economic development. CGI has also commissioned a report by Dr. Lester Salamon, director of the Center for Civil Society Studies at Johns Hopkins University, to analyze the specific tools of government that can be applied to expand this kind of economic development in communities across the U.S. Dr. Salamon's report, included in *Securing America's Future: Tools for Achieving U.S. Technology Independence and Job Growth*, poses recommendations to establish a National Technology Initiative. One important recommendation in Dr. Salamon's report is for government leaders to support the creation of local organizations to serve as network managers and packagers for local information technology center job growth initiatives. This report by GMU's Hackler provides excellent examples of local organizing forces that can be used as models for

Dr. Salamon's recommendation.

Taken together, these reports are published to provide public officials practical, actionable advice on the economic development and information technology challenges facing the U.S. We hope that they will provide government leaders across the nation with useful recommendations they can act on to strengthen the nation's economy and technology capabilities.

Andrew McLaughlin

Director, CGI Initiative for Collaborative Government
Executive Consultant, CGI Federal
andrew.mclauchlin@collaborativegov.org

Paul Posner

Founding Partner, CGI Initiative for Collaborative Government
Professor and Director, Masters of Public Administration Program
Department of Public and International Affairs
George Mason University
paul.posner@collaborativegov.org

PART I
UNDERSTANDING
JOB CREATION IN THE
UNITED STATES

What's Driving Local Economic Development and Job Creation in the United States?

The local economic development context is evolving. Localities face greater constraints in today's global marketplace. At the same time, attributes of the new economy—from the dominance of technology and innovation to flexible labor markets—create opportunities to address these issues, because global linkages and interconnections allow localities to transcend the traditional borders of their jurisdictions (McGrew 1990).

Globalization shifts greater authority to the local and the regional level (Lawrence 1996). Consequently, local economic development policies and strategies must address how localities can generate exogenous and endogenous economic growth in terms of jobs and tax revenues. Achieving a competitive position vis-à-vis other localities and regions is a priority but should be balanced with concern for sustainable development into the future, avoiding a race to the bottom.

This report examines the evolving local economic development context from the perspectives of four localities to understand how government can accomplish the attraction of industry and creation of jobs within a global economy. The table on page four lists the case studies presented in this report.

The case study localities vary in size, geographical location, and economic viability, and each one is at a different stage in its development process in terms of the accomplishment of its goals. Nonetheless, their economic development efforts suggest that the four localities are faced with similar challenges, from developing workforce

talent to navigating federal and state roles in supporting locals. The analysis of their efforts uncovers three particular drivers of local economic development that focus on the attraction and growth of industries and jobs. These are:

- U.S. companies seek lower-cost locations outside of traditional urban centers, suggesting that “on-shoring”—that is, low-cost domestic outsourcing—can be an alternative to “off-shoring” as well as serve as an economic development opportunity for localities in rural or smaller metropolitan areas.
- Localities seek to diversify their economic base through the attraction of innovative industries and the creation of comprehensive industrial clusters.
- Localities seek to work collaboratively and compete as regions, which increases their effectiveness in attracting and growing new business.

Although each of the drivers infers diverse local economic development strategies and policies, they are not mutually exclusive, as several of the case studies demonstrate.

Driver One: Taking Advantage of ‘On-Shoring’

The concept of on-shoring emerged over the past decade as a local economic development response that could recapture some of the development lost

CASE STUDY OVERVIEW

Strategies	Case Studies
On-shoring	<ul style="list-style-type: none"> - Russell County (Lebanon), VA: CGI opened the Southwest Virginia Center of Excellence, housing over 230 software developers, analysts, and consultants with estimates of over 300 jobs by the end of 2008. Northrop Grumman opened the Southwest Enterprise Solutions Center, with over 50 network technicians, database administrators, and help desk personnel with plans to grow to 400 employees. - Northeast, PA: Wall Street West (WSW) is a not-for-profit workforce and economic development partnership funded by a U.S. Department of Labor Workforce Innovation in Regional Economic Development (WIRED) grant and the Commonwealth of Pennsylvania. WSW is readying the nine-county Northeast Pennsylvania region to attract the data-backup facilities of New York’s financial services sector. The initiative will generate an estimated 1,000 jobs and training of 1,500 during the WIRED grant period.
Industrial Diversification	<ul style="list-style-type: none"> - Williamson County (Franklin), TN: The Nashville region is known for its health care and recording industries. Williamson County sought biotechnology to diversify and build a cluster related to health care. BioMimetic Therapeutics (BMTI) is an anchor tenant of the Cool Springs Life Sciences Center, a research and development campus designed to accommodate biotechnology and bioscience firms. With 85 employees and plans for 500 more, BMTI develops drug-device combination products for the repair of orthopedic injuries and biologically enhanced therapies. - Ann Arbor, MI: The region is known for its auto industry. However, its decline has prompted diversification strategies: supporting entrepreneurs in high-growth industries as well as attracting these companies. Barracuda Networks (software engineering), Aernnova Engineering (aerospace), and Metabasis (biopharmaceuticals) are examples of these efforts.

to overseas competition. The following provides an overview of these trends.

Defining ‘Off-Shoring’

The mid-1990s saw a surge of companies in the U.S. shifting portions of their enterprises to other countries through off-shoring, whether companies were restructuring current business or production processes or reallocating total services output between domestic and overseas operations (National Academy of Public Administration 2006b). The primary motivator was the reduced cost of operations—in particular, low wages in the developing world—as well as being close to global markets that firms desired to enter. Two specific factors enabled companies to act on this advantage:

- The economic recession of 1990–1991 that resulted in a push to find low-cost options, and

- Technological advances that made data transfer and communication over large distances more feasible and less expensive.

Off-shoring was first used to relocate “low-level” positions to developing areas. Within the information technology (IT) industry, high-end software application functions and other IT-related activities are now frequently outsourced due to tight U.S. supply in these positions resulting in increased wages. Consequently, the evolution of off-shoring affects various occupations within the American workforce, making jobs that were once thought to be safe vulnerable (Conscient Partners 2007). Those occupations predicted to have a higher risk for off-shoring include “computer operators and data-entry clerks, business and financial support, computer and math professionals, paralegals and legal assistants, and diagnostic support services

and medical transcriptionists” (National Academy of Public Administration 2006a 54).

Even though the off-shoring trend provides financial incentives to American businesses, it is not without its drawbacks:

- Initial training and setup costs remain high as companies work to develop a skilled workforce in areas where secondary education is lacking.
- Given growing privacy concerns in information and technology work, many U.S. companies have struggled with lax privacy regulations in foreign countries, poor data security, and the federal government’s requirement that work be performed in the U.S. for certain projects.
- Off-shoring has had political consequences. The practice is often blamed for a decline in jobs in the U.S., and companies contributing to this trend face negative public opinion, and possible regulatory constraints, that could cancel out the benefit of low-cost labor.

The ‘On-Shoring’ Alternative

In response to the difficulties associated with off-shoring, localities seeking new growth opportunities presented companies seeking new low-cost locations with the alternative of “on-shoring.” On-shoring is the process by which firms outsource or relocate a portion of their operations to a lower-cost area, whether rural or a smaller metropolitan area, within the U.S. instead of a foreign country.

The types of jobs that are most suitable for on-shoring are similar to off-shoring—positions that do not require face-to-face interaction with clients and that have duties that can be reduced to a simple set of instructions (Bardhan and Kroll 2003). In addition, due to growing security and data privacy concerns, other IT-related jobs are a strong possibility: “computer systems design, data processing and computer programming, management, scientific and consulting services,

legal services, accounting and other business process services, and industries such as aerospace, information technology, electronics manufacturing, health care information and biotechnology/pharmaceuticals” (Mayer and Provo 2007 3).

Although wages for American workers cannot compete with the cost-saving salaries of workers in India and China, companies that choose on-shoring do not need to accommodate language barriers, foreign laws, or the loss of control over quality, data privacy, and security that can arise when operations are in other countries (Berger 2005). The decision to keep operations within the U.S. can also be viewed as a positive action by U.S. companies in a political climate hostile to jobs moving overseas. Localities in rural and smaller metropolitan areas are starting to utilize these advantages to build their economic development strategies.

Driver Two: Diversifying the Economic Base

Economic and demographic forces have required localities to rethink their methods and means of economic development. In a purely economic view of the world, the past 50 years have brought great economic restructuring to local, regional, and national markets. The days of manufacturing plants and jobs dominating the U.S. economic landscape are long past. The decline of the manufacturing of automobiles, steel, and apparel in the U.S. has been met with the rise of services and knowledge sectors. Instead, the “post-industrial” economy is reliant on new service and administrative centers—like “high-tech” or headquarters of companies—financial and advanced corporate services, as well as government and “third” sector institutions in education, health care, and other nonprofits (Mollenkopf 1983). Amplifying these changes is that the underlying basis of competition has been altered with the globalization of markets and trade.

The changing nature of the economy has generated demographic responses that deeply affect many localities. Internal migration patterns have favored suburbs through the decentralization of jobs and population, and various regions of the U.S. like the “sun belt” of the South and West have benefited to the detriment of the “rust belt” of the Northeast and Midwest. In addition, new flows of immigration from South America and Southeast Asia have created economic opportunities for many localities.

Finally, local governments have become the locus of power in economic development policy over time. Declining federal funds and intergovernmental transfers have resulted in federal and state governments being much less involved in the actual development and financial support of local policies (Clarke and Gaile 1998; Bingham 2003).

In this post-federal period, economic development is primarily a local responsibility. This reality has fostered the policy science of economic development in which one school of thought stresses that a more sustainable, and perhaps successful, local economy is one that is diversified through industry clustering (Porter 1998; Mills, Reynolds et al. 2008). Clusters are geographic concentrations of firms with interconnections based on the supply of and demand for similar input and outputs; these interdependencies can create agglomeration economies and allow regions to be more resilient to economic shocks impacting one industry.

Faced with these trends, whether confronting a declining economy, reclaiming a previous position, or establishing a niche, localities are seeking to diversify their economic industrial base. In general, their strategies tend to target innovative industries that have a growing importance in the global economy. Diversification strategies attempt to connect existing firms and to understand their industrial trends and needs, with the goal of seeding growth of a formidable industrial cluster.

Driver Three: Working Collaboratively as a Region

The third driver of local economic development provides insight into the organizational structure that many localities utilize to further their efforts—principally, collaborating with other localities as a region. The evolution of regionalism unfolds from the progressive movement’s desire for good politics, efficiency, and accountability. The movement assumed that the consolidation of governments would result in better planning and coordination of housing, transportation, parks, and other municipal issues (Hamilton, Miller et al. 2004). The rationale has altered over time, to the extent that many proponents of regionalism now view it as a way to maintain economic competitiveness as globalization confronts local economies (Barnes and Ledebur 1998; Clarke and Gaile 1998; Dreier, Mollenkopf et al. 2002).

Arguments for regional collaboration fall on a continuum from formal structures of regional governments, like the seven-county Met Council in Minneapolis and St. Paul, Minnesota, to a regional governance process created through ad hoc committees and boards that brings together local officials and other stakeholders.

Whether formal or informal structures are successful is not the focus of the driver. Most local governments recognize that their policies have impacts on surrounding localities, that labor markets spread across regions, and that interdependencies exist among localities for physical infrastructure (from roads and airports to telecommunications networks). This has created space for localities to collaborate, with some localities venturing into the customarily competitive arena of economic development. The localities analyzed for this report provide some evidence that working collaboratively and competing as a region increases effectiveness in attracting and growing new business.

Localities in Economic Development Transition

The remainder of the report analyzes the current dynamics of local economic development from the perspective of four localities and their efforts to attract industry and create jobs within a global economy. The table on page 4 identifies these localities and provides summary information relevant to each case.

The next section of Part I offers policy recommendations to public officials at the local, state, and federal levels of government in the hopes of facilitating better economic development outcomes in rural and metropolitan America.

Parts II and III of the report contain the case studies, which:

- Outline the economic dilemmas each locality faces.
- Examine local characteristics and the policies and intergovernmental coordination utilized in the pursuit of economic development.
- Suggest key success factors in creating their strategies.
- Identify key findings that can guide future economic development policy in the locality and elsewhere.

The case studies suggest a number of necessary components that localities need in order to grow jobs and create a sustainable future economy.

References

- Bardhan, A., and C. Kroll (2003). *The New Wave of Outsourcing*. Berkeley, Fisher Center for Real Estate & Urban Economics, University of California, Berkeley.
- Barnes, W. R., and L. C. Ledebur (1998). *The New Regional Economies*. Thousand Oaks, Sage.
- Berger, S. (2005). *How We Compete: What Companies around the World Are Doing to Make It in Today's Global Economy*. New York, Currency Doubleday.
- Bingham, R. D. (2003). Economic Development Policies. *Cities, Politics, and Policy*. J. P. Pelissero. Washington, DC, CQ Press: 237–253.
- Clarke, S. E., and G. L. Gaile (1998). *The Work of Cities*. Minneapolis, University of Minnesota Press.
- Conscient Partners (2007). *Lower Cost Domestic Sourcing: A Niche Opportunity for the US*. Washington, DC, Information Technology Association of America.
- Dreier, P., J. Mollenkopf, et al. (2002). *Place Matters: Metropolitanities for the Twenty-First Century*. Lawrence, KS, University Press of Kansas.
- Hamilton, D. K., D. Y. Miller, et al. (2004). "Exploring the Horizontal and Vertical Dimensions of the Governing of Metropolitan Regions." *Urban Affairs Review* 40(2): 147–182.
- Lawrence, R. Z. (1996). *Regionalism, Multilateralism, and Deeper Integration*. Washington, DC, Brookings.
- Mayer, H., and J. Provo (2007). *Farmshoring in Virginia: Domestic Outsourcing Strategies for Linking Urban and Rural Economies in the Commonwealth of Virginia*. *Economic Development Studio at Virginia Tech*. Blacksburg, VA, Virginia Tech.
- McGrew, A. (1990). *A Global Society. Modernity and Its Futures*. S. Hall, D. Held, and A. McGrew. Cambridge, Polity Press.
- Mills, K. G., E. B. Reynolds, et al. (2008). *Clusters and Competitiveness: A New Federal Role for Stimulating Regional Economies*. *The Blueprint for American Prosperity*. Metropolitan Policy Program. Washington, DC, Brookings.
- Mollenkopf, J. (1983). *The Contested City*. Princeton, Princeton University Press.

National Academy of Public Administration (2006a). *Off-Shoring: An Elusive Phenomenon*. Washington, DC, National Academy of Public Administration.

National Academy of Public Administration (2006b). *Off-Shoring: How Big Is It?* Washington, DC, National Academy of Public Administration.

Porter, M. E. (1998). "Clusters and the New Economics of Competition." *Harvard Business Review* 76(6): 77–90.

Stimulating Job Creation: Recommendations for Federal, State, Local, and Regional Governments

A recent study from a panel of National Academy of Public Administration (NAPA) experts uncovered that the trend of services moving off-shore is actually much smaller than popular perceptions would suggest. In fact, most of the global effect in industries found to be the most likely to off-shore is due to business restructuring—expanding services in foreign companies to meet foreign market needs. Instead of off-shoring, the majority of U.S. businesses were more likely to outsource services—contracting services to both domestic and foreign firms (National Academy of Public Administration 2007).

Thus the focus on how to address off-shoring at the federal, state, and local levels may not be as important as creatively thinking about how localities can gain an edge in the outsourcing trend and diversify economic bases into growing sectors of the global economy. The economic development case studies presented in Parts II and III of this report indicate that strategies are varied and dependent on the local context of the municipality, as well as support from federal and state institutions.

Perhaps most relevant is the need for a collective effort to foster collaboration and cooperation, creating a new forum for intergovernmental exchange. The days of large intergovernmental transfers are long over, as are the days when the White House Advisory Commission on Intergovernmental Relations addressed the question of which level of government was most appropriate to solve a public problem and provided insights into the roles of each level of government.

However, as the nature of competition is altered through global pressures and industrial restructuring, the interdependence of all levels of government now seems essential to enabling and arming municipalities for this new landscape. A communications network must exist for both the pushing down of federal and state policy decisions and the pushing up of local concerns and needs. Recent efforts by local government membership organizations like the National League of Cities and the National Association of Counties are calling for a new communication protocol. And with economic development and job creation becoming a larger concern for most municipalities, it cannot be all one-way. As Greenblatt suggests, locals and states need to cease the seeking of favors from the “feds” and instead build a new political relationship around sharing the credit for all opportunities. This will require enlisting intergovernmental partners early in the process so that both the problems and the proposed programs to solve the problems can be shared—authorizing, not preempting, states and locals with powers to deal with these issues (Greenblatt 2008).

The local and state officials involved in each of these economic development case studies suggest the need for a new intergovernmental model, in addition to an understanding and building of sound regional and local-state partnerships.

The following provides specific recommendations to policy makers at each level of government to set the stage for the future of economic development in rural and metropolitan America.

Federal Recommendations

Over the past decade, we have developed a better understanding of the impact of off-shoring for U.S. industry and jobs. In fact, one of the recommendations from NAPA actually encourages an accounting of off-shoring activity in the U.S. economy to be able to better understand the economic effects of off-shoring. However, what is lacking from these analyses is disaggregation of the results for the levels of government feeling the effects of these activities. The case studies in Parts II and III are an attempt to shed light on exactly these issues. What are the necessary components that localities need in order to grow jobs and create a sustainable economy?

To this end, the federal government figures into a critical space to foster local economic development in localities, whether directly targeting an on-shoring strategy or attempting to strengthen and diversify their industrial economic base.

Based on this research, four recommendations emerge for the federal government:

- Work with state and local governments in determining ways to diversify economic bases through investments in human capital and support of innovative industries with large research and development expenditures.
- Provide technical assistance grants for economic development to rural and smaller metropolitan areas that will assist in the development of sound strategies that match local strengths to industry sectors.
- Create more comprehensive and holistic federal programs that link both economic and workforce development, utilizing the expertise of multiple federal agencies.
- Institutionalize a collaborative exchange among educational institutions and industry as part of the federal grants process.

Recommendation One: The federal government should work closely with state and local governments to develop new approaches to human capital development and innovation.

The Williamson County case study suggests that localities have the entrepreneurial drive to diversify their industries in the direction of growth and innovative industries. The fostering of the biotechnology industry and the talent to support the industry are large challenges. The organizing capacity of federal policy makers and regional stakeholders are essential to its success in fostering homegrown entrepreneurs and talent given global competition. The global economy has not only resulted in the shift of manufacturing and production, but the innovative portion of our industries—research and development (R&D)—has also transferred. “The share of U.S. corporate R&D sites declined from 59 to 52% within the United States, while it increased from 8 to 18% in China and India” (Atkinson and Wial 2008, 2).

The U.S. Congress passed the America COMPETES Act (21st Century Competitiveness Act of 2007) to address this issue to some extent. However, the act does not directly involve state and local governments. A recent recommendation from the Brookings Institution and the Information Technology of Innovation Foundation also calls for a new federal role in stimulating innovation. A proposed National Innovation Foundation (NIF) would concentrate its efforts on firms directly, with funding going to state innovation investment programs. Although there is recognition that local governments are essential to the promotion of regional innovation, the state is given a gatekeeper role. To some extent, both types of legislative policies fail to recognize that over the past two decades local economic development has been forced to rely less on federal and state dollars and become more independent; yet, local governments increasingly also need assistance in attracting growth industries.

Localities and regions can and should be the targets of strategic federal action—the “necessary glue” to collaborative economic development around innovation involving partners from industry, education, and nonprofits. The strength of the U.S. economy is dependent on the cumulative effect of local and regional economic development efforts.

The federal government should target and leverage local and regional efforts that seek to diversify and strengthen local economies by channeling investment into human capital and supporting innovative industries with significant research and development expenditures.

Recommendation Two: The federal government should fund technical assistance for local economic development strategies.

Most of the communities in this report faced economic pressures to develop strategies to overcome the constraints of their “old economy” industries. Although Russell County, Northeast Pennsylvania, and Ann Arbor have found funds and mechanisms to support their efforts, all had to determine what type of “new economy” industry would be most suitable for their region.

The federal government through the Departments of Commerce and Labor should provide technical assistance grants to rural and smaller metropolitan areas to assist with this analysis. Such grants could take a similar form as the Economic Development Administration’s Comprehensive Economic Development Strategy, which provides planning investment assistance. Localities could use the grants to develop sound strategies that would create local “asset and resource maps,” identify desired industries to nurture and recruit, and address the gaps between assets and desires. The granting process could encourage prioritization of industries and jobs most likely to be off-shored or generate innovative economic foundations. Recipient localities should also have flexibility in

identifying and planning for programs that may not fall under the granting organization’s purview.

Recommendation Three: The federal government should link its workforce and economic development efforts.

Each of the case studies highlights the critical intersection of economic development and workforce development. But all too often, the interdependence of these two policy arenas was ignored, whether due to granting and funding requirements or the separation of functions due to federal legislation such as the Workforce Investment Act of 1998 (Workforce Investment Act of 1998), which created Workforce Investment Boards. As indicated in most of the case studies, in practice, localities cannot separately address the two issues. The federal government should create comprehensive federal programs that link both economic and workforce development and utilize the expertise of multiple federal agencies.

The Department of Labor’s WIRED grant program was an experiment, and future funding of this initiative remains in question. Instead of innovations like WIRED arriving and leaving, as most single-agency pilot programs have a tendency to do, a cross-agency initiative may be necessary to link economic and workforce development and to overcome the isolated effects of pilot programs.

The Departments of Commerce, Labor, Housing and Urban Development, and Agriculture have programs that attempt to bring better jobs and opportunities to their respective geographical or spatial constituencies. The overlapping goals of these programs may be better served with the creation of “communities of practice” on economic and workforce development, enlisting policy makers with similar interests but divergent backgrounds. The localities for which these programs are intended will have greater opportunities to see the connections among

disparate programs and to understand the necessity of collaboration to reach goals.

Recommendation Four: The federal government should create a collaborative exchange between education and industry.

A final federal recommendation suggests fostering cooperation through the creation of requirements that education and industry stakeholders are participants in federal grants for workforce development. All of the cases stress the importance of having representatives from all levels of education and industry at the table. In each of the cases, localities or regions were confronted with the need to understand the needs of new industry, from current skills to future development of expertise. The counties of Williamson, Russell, and the Northeast Pennsylvania WIRED region enlisted their targeted industries in the development of curriculum and training programs. In addition, all were concerned with creating a stable future workforce and educational programs embedded with experiential learning-based principles—from internships to school-to-work programs. Federal education and workforce grants should institutionalize the collaborative efforts of education and industry. However, the flow of information should not just be in one direction—industry telling education what is needed; a mutual education-industry exchange would encourage discoveries in the substantive field to filter back to industry, fostering applied knowledge and innovation.

State Recommendations

State governments have a direct interest in seeing stronger local economic development strategies. As the federal government's role in local economic development decreased, states filled some of the gaps. The level of discourse among state and local governments has greater importance as a result of this increased responsibility and recognition of global economic conditions. States, thus, play a fundamental role in this process. In relation to

federal recommendation four, states could also require collaboration among education and industry stakeholders for state workforce development grants. Beyond this, three recommendations emerge for state government:

- Encourage and provide incentives for regional collaboration on economic and workforce development, working with other states where appropriate.
- Ensure that economic development has a single point of contact at the state level and that a regional equivalent of this role also exists.
- Provide venture funding for targeted growth industries with local administration.

Recommendation Five: State governments should encourage regional collaboration.

Academics have long professed the importance of regional collaboration in economic and workforce development. The national economy is not so much a collection of state economies as it is regional economies (Barnes and Ledebur 1998). And often these regional economies cross state borders, as the metropolitan areas of Washington, DC or St. Louis, Missouri, and Illinois. In addition, states should be sensitive to structural matters within their own borders; for example, in the case of Pennsylvania, the many municipal jurisdictions and non-overlapping school districts and community college districts contributed to a level of political fragmentation that affected the economic and workforce development efforts under the WIRED grant.

States could work to overcome such structural hurdles by adapting and merging accountability and responsibility among functions in the same economic region or economy. The altering of these structural lines could create a stronger environment for jurisdictions to work together. In addition, state actions that facilitate and provide incentives for

collaboration will have more success than state regulations enforcing collaboration.

Recommendation Six: State governments should create a single point of contact for economic development.

Three of the states from the case studies supported local economic development efforts through the creation of a single point of contact for their activities. Although Virginia, Michigan, and Pennsylvania chose to position the key services differently, the organization or individual was influential in securing funding and companies for their strategies. Virginia chose to embed the project manager within the Department of Business Assistance. In Michigan, the team approach provided this function with a state (Michigan Economic Development Corporation) and local economic development representative that varied depending on the industry or expertise required. And in Pennsylvania, the state provided the services directly through the Governor's Action Team as well as appointing the powers to a separate organization created for the WIRED grant, Wall Street West. A single point of contact was a resource for industry as well as related economic development, education, and local government stakeholders.

Recommendation Seven: State governments should provide public venture funding.

Beyond state-level assistance and coordination of local economic development efforts to gain federal funding, as in the case of Northeast Pennsylvania and WIRED, states could also become more entrepreneurial in the dispersion of funds to support targeted industries. Michigan has created a number of publicly funded venture capital funds for innovative industries and placed the administration of those funds within local economic development authorities like Ann Arbor Spark.

Williamson County encountered hurdles with traditional venture and angel capital support of its

new targeted industry, biotechnology. Accordingly, state assistance may provide the vital support to a nascent industry as well as enabling achievement of economic diversification in innovative sectors. Public venture funds could require state and local coordination to ensure regional assets and resources are adequate or could be enhanced to satisfy industry needs for their processes and products.

Local and Regional Recommendations

Local and regional stakeholders in economic development include more than just representatives from local government and economic development organizations. The case studies highlight the importance of thinking about economic development across a collection of actors: government, education, and business, along with economic and workforce development. With these actors in mind, three recommendations emerge for local and regional entities:

- Create organizational structures focused on regional collaboration in economic development.
- Consider public-private economic development organizations.
- Perform advanced strategic planning with regional assessments.

Recommendation Eight: Local governments should focus on regional collaboration.

Local economic development efforts are often rife with competition that can create independent approaches to the design of strategies and attraction of firms. However, most of the cases show that when faced with economic restructuring, the pulling together of regional actors and resources can enhance results and pave the way for further collaborative actions.

Specific issues in economic development seem to require a more regional approach: physical infrastructure, particularly telecommunications networks, and workforce development to build the requisite labor pool and future human capital. The employment effects of most economic development successes are spread across a region, not held in just the locality gaining the physical business location.

As discussed in the state recommendations section, the breaking of traditional barriers that follow jurisdictional lines of government or educational service regions facilitates greater coordination. Regions that collaborate are also more likely to understand and develop regional industry clusters—geographic concentrations of firms that interconnect due to inputs and outputs in a horizontal or vertical manner. Collaborative economic development lays the foundation for collaborative interactions among firms, which can lead to greater rates of innovation and higher wage employment options (Mills, Reynolds et al. 2008).

Recommendation Nine: Local governments should consider the creation of public-private economic development organizations.

A particular form of economic development organization may be appropriate and enhance regional collaboration. The state of Michigan selected a public-private structure for its state-level economic development efforts. The evolution of this structure is found in local economic development authorities like Ann Arbor Spark. Beyond traditional governmental and business roles, these organizations consider education and nonprofit representatives as natural and essential participants in the economic development process. The membership structure creates a routinized and safe environment for collaboration.

Recommendation Ten: Local governments should plan for the future of their region.

Local economic development targeting of industries necessarily involves strategic planning. The cases indicate that the timing of the planning process and the appropriate stakeholders involved in the planning processes are in need of revision. In terms of timing, reaction to opportunities often leads to ill-prepared workforce issues and overuse of local government financial incentives. Localities seeking change or focusing on new industrial directions should enter into advanced planning, including regional assessments and the establishment of a framework for future evaluation and revision of these strategies. These steps require professional development of economic development policy makers to build leadership capacity to sustain planning efforts as well as the inclusion of outside facilitation from other levels of government and economic-development-relevant actors. Advanced strategic planning is difficult to leverage before opportunities arise, but if completed, the vision for the future will be based on community (public and private) ideas and needs, not constructed by emerging economic opportunities that are often short term in nature. In addition, the planning process should recognize the need for sustainability of the efforts in the future, creating a cycle of planning that evaluates, improves, and refocuses economic development strategies.

Intergovernmental Solutions to Local Problems

The above sets of recommendations focus on distinct levels of government, yet the institutions involved suggest a great deal of interdependence embedded in the economic development process. The collective recommendations underscore the importance of developing an intergovernmental forum on economic development. Economic development strategic planning activities should include a role for state liaisons from labor, industry, and economic development agencies to enable a communication of priorities from both local

and state government priorities as well as the harnessing of available resources and funding streams.

The national economy is contingent upon the aggregated success of regional and local economies, elevating the need for coordination and communication.

A stronger intergovernmental system can help locals and states build political relationships with federal agencies and policy makers and create better solutions to local problems that have national implications. The recommendations of this research provide guidance on altering inter-jurisdictional economic development competitions with “zero sum game” results and “races to the bottom.” An economic development system with intergovernmental structure is less parochial, offers greater flexibility to time horizons and local context, and recognizes that multiple stakeholders from a variety of public, private, and nonprofit sectors should be at the table.

References

- 21st Century Competitiveness Act of 2007, Public Law 110-69, 110th Congress. (August 8, 2007).
- Atkinson, R., and H. Wial (2008). *Boosting Productivity, Innovation, and Growth through a National Innovation Foundation*. Washington, DC, Brookings-ITIF.
- Barnes, W. R., and L. C. Ledebur (1998). *The New Regional Economies*. Thousand Oaks, Sage.
- Greenblatt, A. (2008). Recipe for Respect. *Governing*: 22–26.
- Mills, K. G., E. B. Reynolds, et al. (2008). Clusters and Competitiveness: A New Federal Role for Stimulating Regional Economies. *The Blueprint for American Prosperity*. Metropolitan Policy Program. Washington, DC, Brookings.
- National Academy of Public Administration (2007). *Off-shoring: New Challenges and Opportunities in an Expanding Global Economy*. Washington, DC, National Academy of Public Administration.
- Workforce Investment Act of 1998, Public Law 105-220, 105th Congress. (August 7, 1998).

PART II
CASE STUDIES:
ON-SHORING

Russell County, Virginia: Repositioning to Attract 21st-Century Industry

Russell County is a small rural county of 30,000 located in Southwest Virginia. Until recently, the region was more known for its coal-mining and agriculture sectors than for information technology jobs. However, in the autumn of 2005, Russell County received an economic facelift that, at full buildout, will provide 750 IT jobs over the next decade. The economic and political forces that provided such economic development potential to Russell County are the focus of this case study examining on-shoring. In detailing the relationships that emerged to make this site selection possible, the case study seeks to highlight reproducible strategy and policy expertise.

Rural Employment Challenges

As with most rural areas, Russell County and the surrounding region are experiencing the harsh realities of a global economy. From 1993 to 2004, the region saw a 20% loss in jobs. The industry

hit hardest was coal mining, losing 29.4% of its workforce to unemployment (Chmura Economics & Analytics 2004). Since three of the top 20 firms in the region produced coal exclusively, the sudden drop in employment was devastating. However, the problems were not isolated to coal mining. Manufacturing and tobacco production also showed sharp declines. As a result, job growth in the coalfield region slowed to 0.1% compared to 1.8% growth in the Commonwealth of Virginia.

Unemployment was not the only factor challenging the region. Workers who retained their jobs also faced worsening circumstances. In 2004, the average annual salary in Russell County was \$25,749 compared to \$37,052 statewide. Salary increases failed to keep pace with inflation, leaving even advancing employees with less than they had a decade before. While the cost of living remained lower in Russell County than in Virginia on average, the county experienced a net loss

At A Glance: Russell County, Virginia	
The Initiative	Three Virginia government entities (Russell County, Virginia; the City of Lebanon, Virginia; the Commonwealth of Virginia) worked closely to attract two corporations to relocate technology jobs on-shore in Lebanon, Virginia, located in Southwestern Virginia.
The Result of the Initiative	Over 350 information technology jobs have been created in Southwestern Virginia, with an expectation that nearly 400 jobs will be added by the end of 2010.
Key Lessons from the Initiative	<p>The initiative succeeded because of:</p> <ul style="list-style-type: none"> - A high degree of collaboration between government units and the private sector; - Much advanced planning on the part of state, local, and regional government entities; and - The astute combination of resources from a variety of government and non-government sources.

of jobs and slow salary growth. As a result, the median age of the population rose sharply as younger adults left the area to find work and livable wages. Although the “brain drain” is not just being experienced in rural America, its lasting effect results in populations skewed to the very young and the very old, with few middle-age individuals, on which many economies rely for work and innovation. The economic forecast for the region was dour, and the previous decade’s decline was not just a temporary slump but a growing trend likely to worsen in subsequent years.

The effects of economic restructuring over the past two decades required a complete rethinking of the coalfield region’s well-being and longevity. Under these pressures, local and state government officials and economic development organizations began to craft a vision for Russell County in the new century. They identified that occupations in professional, scientific, and technical services were growing quickly in Virginia and that these positions were less volatile than the industries previously described. However, Southwest Virginia was not home to the industries with these occupations. Although technical services had emerged as one of the top three industries in the state, it failed to make the list of top 20 employment fields in Russell County. Further evidence of the region’s lack of workforce preparation was the inadequate number of four-year college graduates (9.4%), far below the state average (29.5%), and a lack of local training facilities. Government agencies at the local and state level focused on these industries as an opportunity to improve the economic climate and diverge from the dismal forecast.

Bringing Jobs to Russell County

On December 12, 2007, Russell County and the town of Lebanon, Virginia, saw the grand opening of two major IT facilities that serve as a stepping-stone to securing the economic future of the region (see the Timeline). Although CGI had opened

CGI SOUTHWEST VIRGINIA CENTER OF EXCELLENCE

Located in Lebanon, Virginia, CGI’s Southwest Virginia Center of Excellence supports a wide range of the company’s global clients from different sectors.

CGI selected Southwest Virginia for its geographic proximity to its clients; its access to a large talent pool of qualified resources from local universities, colleges, and technical institutes; and the strong business incentives and collaboration among state and local government agencies, industrial and economic development organizations, academia, and local businesses. Staffing at the center is ahead of CGI’s plan to add 300 jobs by the end of 2008.

When it began operations in the fall of 2005, the center operated in temporary space provided by the Russell County Industrial Development Authority. In December 2007, the center moved into its new 42,000-square-foot software engineering and development facility.

its doors in the autumn of 2005, CGI officially moved into its new Southwest Virginia Center of Excellence (SWVA Center) in January 2006.

A software development and systems integration facility, the SWVA Center is currently providing over 230 of an expected 300 IT jobs in the region. In addition, Northrop Grumman opened its Southwest Enterprise Solutions Center, which serves as a call center and backup data center facility to provide disaster recovery for the Virginia Information Technology Agency and other customers. This center currently employs 50 and will eventually be home to over 400 jobs for network technicians, database administrators, and help desk personnel. Both new facilities are located in the Russell Regional Business Technology Park and are the product of intergovernmental efforts over the past decade to stem the region’s decline from the losses in the coal-mining and agriculture sectors.

The official seed of this on-shoring example began with Governor Mark Warner’s announcement in October 2005 that CGI and Northrop Grumman would locate a portion of their operations in Russell County, which is closer to West Virginia, Tennessee, and Kentucky than to Virginia’s major economic hub in Northern Virginia, just outside of

RUSSELL COUNTY TIMELINE

Date	Milestone
Late 1990s	Russell County IT Project drafted, specifies economic development initiatives
Aug 1998	Federal Workforce Investment Act passed providing federal funding for state investment in technology
2000	114 acres purchased for Russell Regional Business Technology Park
2003	Russell Regional Business Technology Park completed
Fall 2004	Tobacco Commission provides four grants totaling \$10.8 million for broadband infrastructure
Nov 2004	Southwest Virginia Workforce Investment Board releases Workforce Investment Business Plan for Lebanon, Virginia
Jan - Feb 2005	Governor Warner brings grants to develop and install broadband in Russell County
Oct 2005	- CGI and Northrop Grumman announce their decisions to locate in Russell County, Governor Warner and Secretary of Commerce and Trade Schewel speak - CGI moves into temporary space
Nov 2005	Secretary of Commerce and Trade Schewel appoints strategic IT Taskforce and IT Project Manager
Jan 2006	- CGI Southwest Virginia Center of Excellence established - CGI hires first regional employees - CGI begins official operations
Feb 2006	Fast Track Program developed
Aug 2006	First Southwest Virginia Community College (SVCC) Fast Track Program cohort begins
Sep 2006	Return to Roots website launched
Apr 2007	First SVCC Fast Track Program cohort graduates
Spring 2007	Regional Preparedness Action Plan for Southwest Virginia released
Nov 2007	CGI's permanent Russell County Location construction completed
Dec 12, 2007	CGI Southwest Virginia Center of Excellence and Northrop Grumman Southwest Enterprise Solutions Center site dedication ceremony, comments by Governor Kaine and former Governor Warner

Washington, DC. In fact, most residents profess that it is faster to drive to Atlanta’s Hartsfield-Jackson Airport than to Washington-Dulles in Northern Virginia, even though both are about 360 miles in distance.

In bringing what will eventually be approximately 750 IT jobs to Russell County, state and local officials faced many hurdles to prepare the region for this type of expansion. How the area secured the necessary components that CGI and Northrop Grumman considered key to their selection of the region demonstrates the importance of both intangible and tangible location factors. The

process and coordination to ready this region in terms of advanced telecommunications infrastructure and workforce development indicate that a high level of collaboration and coordination are essential to the region’s success.

On-Shoring Potential in Russell County

Indeed, Russell County and the region boast a low cost of living—12.4% less than the national average and 15.3% less than the state average—which was highlighted as a major factor in the off-shoring versus on-shoring debate. Russell County average salaries are less than the Northern Virginia average, where CGI previously housed

the development of its federal enterprise resource planning (ERP) application, Momentum. Now the SWVA Center is responsible for the development and shipment of new releases of Momentum to its federal clients, and cost savings are definitely present.

The employment opportunities that the two companies bring to the county will pay well above the average salary for the region—\$27,611 in 2006. In fact, an economic impact study performed for CGI in 2005 suggested that at full capacity with 300 employees, CGI's total impact on the local economy in 2010 would be \$68.5 million, including \$46.4 million in direct spending or revenue for CGI. In addition, there is an estimated \$5.8 million indirect impact from increased revenues and jobs added in supporting industries like telecommunications, employment services, computer system design services, and building services, to name a few. Finally, there is an associated \$16.3 million induced impact mainly generated from jobs created in response to increased consumer spending at hospitals, restaurants, and grocery stores, as well as housing-related expenses (Chmura Economics & Analytics 2005). Whether or not the project achieves these estimates, current perspectives from both the state and local governments, as well as CGI, indicate that progress is noticeable and ahead of schedule according to the state's performance requirements.

Two of the decision criteria that CGI used to select its expansion location were:

- Existing workforce talent and the promise of future workforce talent
- Intergovernmental and community collaboration

Both were critical factors that Russell County possessed to attract corporations like CGI. The level of regional collaboration and state

agency leadership provided the backbone to the initiation, enabling the implementation of physical infrastructure as well as workforce development critical to CGI's SWVA Center of Excellence. The facts behind this economic development experiment suggest that overseas locations are not the only way that companies facing increasing cost structures can respond to the need to become more competitive. In fact, the niche of security concerns and the need for long-term workforce management considerations highlight the unique advantage that on-shoring, or domestic sourcing, in a rural area can provide. The partnership also cultivates high-growth business and jobs and diversification not only in Russell County, but also in the surrounding economies of Wise, Tazewell, Washington, Buchanan, and Dickenson Counties.

Regional Advantages

Russell County has a number of advantages. In comparison to averages in Virginia, Russell County has a low cost of living, a reasonable housing stock, a friendly business climate, and quality-of-life amenities common in bucolic rural settings. Most also claim that the central location of Russell County in the region is significant in terms of access to labor and transportation infrastructure. However, two major investments by Russell County, the region, and the state were necessary in making Russell County more attractive than other potential site locations:

- Investment in fiber-optic broadband infrastructure
- Investment in land and buildings

Broadband

For IT companies, broadband availability and capacity were essential location factors. Although the Cumberland Plateau fiber-optic backbone serving the Russell Regional Business Technology Park first became available in May of 2005, telecommunications planning had been in the

process since the end of the 1990s as part of Russell County's vision of how to attract 21st century economic development. The county had participated with other counties in the region to conduct a Regional Telecommunications Study (Russell County 2007). Under the guidance of the Cumberland Plateau Planning District Commission, the region began to seek federal and state funds to finance the deployment of the type of network that many IT companies require before selecting a location.

The region secured \$1.6 million in federal funds from the U.S. Department of Commerce's Economic Development Administration. In addition, the tobacco settlement with the states brought additional funding. One of the priorities of this money was the deployment of telecommunications infrastructure in rural Virginia. With an additional grant of \$710,660 from the Virginia Tobacco Indemnification and Community Revitalization Commission, Russell County's telecommunications network became possible. However, the effort was regional in nature. The fiber-optic backbone that serves the town of Lebanon and Russell County is the result of cooperative efforts between Bristol Virginia Utilities (BVU) and the Cumberland Plateau Planning District Commission. BVU constructed the fiber-optic backbone, extending its line in Abingdon to Lebanon in Russell County and running through the heart of the Business Technology Park. The result was a 51-mile fiber backbone of multiple 2.488 Gbps OC-48 compliant self-healing resilient packet rings. Beyond capacity, the network is a more secure fiber-optic network because it backs up to Atlanta and St. Louis rather than to the Washington, DC grid that serves much of Virginia.

Local Government Investment in Land and Buildings

The majority of the physical infrastructure challenge of the deal to attract corporations to Russell County landed squarely on the shoulders of local officials. The Russell County Industrial

Development Authority and Board of Supervisors were responsible for the assembly of land and all building issues associated with the temporary and permanent CGI facilities. Given that CGI started operations in late 2005, the final negotiation required that the county provide temporary space within 90 days. However, even before this hurdle could be overcome, local officials were partnership-oriented and entrepreneurial in meeting CGI's needs. In October of 2005, CGI's expansion team began work in temporary space owned by the Virginia Coalfield Economic Development Association in the town of Lebanon. Once CGI outgrew this space, it moved into offices at Abingdon's small business incubator. Their presence in the incubator required flexibility on the part of Abingdon economic development officials given that CGI was technically not a small business.

Two key actions reflected the entrepreneurial spirit of Russell County. First, the Russell County Industrial Development Authority and Board of Supervisors borrowed and leased, with an option to purchase, an old, abandoned 101,000-square-foot shopping center to meet the temporary space requirement of 30,000 square feet to hold 150 CGI employees. This action resulted in a long-term asset for the county, since the redeveloped shopping center now houses Russell County government offices, the Technology Development Center of the University of Virginia's College at Wise, a conference center, warehousing space, and other rentable small office space.

Second, Russell County turned to Lebanon for financial assistance regarding creating a more permanent facility. Virginia state law limits local county government borrowing to 10% of its assessed land value unless the county holds a referendum to approve the additional borrowing. However, Lebanon fell under different borrowing guidelines and, in a gesture of collaboration, borrowed the money and gave the funds to

the Industrial Development Authority. The final 42,000-square-foot permanent facility was the result of this \$4 million bond and CGI's own investment. However, the 10.35 acres of land on which the facility sits are under a different agreement and are actually part of the incentive package CGI received. At the end of 10 years, the land is granted to CGI if they meet all performance requirements (total jobs, salary, and benefit targets). In addition, the facility is located within a Technology Zone, which results in a tax rebate of 50% of Lebanon's and Russell County's real estate tax and 100% of the machine and tool tax. The combination of this investment has provided a "new economy" opportunity, enhancing the economic footing of a region suffering from the effects of the global economy's economic restructuring. And it is investment that is essential to this case.

Key Success Factors

Factor One: Matchmaking Role of the State

The commitment of Virginia's resources and expertise to Russell County was evident from the beginning. Governor Warner and Secretary of Commerce and Trade Michael Schewel had targeted the area for revitalization due to the coal-mining economic losses it had suffered, pledging grants and funds from various sources like the Governor's Opportunity Fund, Tobacco Region Opportunity Fund, Virginia Coalfield Regional Opportunity Fund, and others.

This matchmaker role cannot be overlooked. In fact, Virginia remains one of a few states that are proactive in this role, with the Distributed Services Initiative housed within the Virginia Economic Development Partnership. The initiative focuses mainly on IT firms in the high-cost area of Northern Virginia and identifies those considering locating some portion of their business overseas. The coordinated outreach seeks to educate these businesses on the possibilities of relocating to low-

SOUTHWEST VIRGINIA WORKFORCE INVESTMENT BOARD www.wiaone.com

The Southwest Virginia Workforce Investment Board is responsible for conducting oversight of the employment, training, and youth activities in the region under Title I of the Workforce Investment Act. Members, who are appointed by local elected officials, include representatives from business, education, organized labor, community-based organizations, economic development authorities, and partner organizations of the One-Stop system.

The Workforce Investment Boards oversee the Virginia Workforce Centers, which provide information and services in a single location, known as the One-Stop system. These full-service centers provide information and resources for employment such as job training, education, and career development. The One-Stop delivery system brings together all the various entities responsible for administering workforce investment, educational, and other human resource programs into a single service delivery system. Southwest Virginia's One-Stop Comprehensive Centers are located in Bluefield and North Tazewell.

Another key component of the Workforce Investment Board program is youth services, which provide eligible youth between the ages of 14 and 21 with assistance in achieving academic and employment success, including opportunities to improve educational and skill competencies, connect to employers, and receive mentoring.

The Southwest Workforce Investment area (Area One) includes the counties of Buchanan, Dickenson, Russell, Tazewell, Lee, Scott, and Wise, and the City of Norton.

cost areas within the state. To generate locations for these businesses, the initiative recruited several rural communities to participate in community assessments to identify their strengths and likelihood of becoming a location that a Northern Virginia firm would consider before going overseas. From this process, communities develop more focused and professional presentations that display their advantages and strengths. The initiative readies Virginia for not only intrastate but also interstate site location requests while focusing on the revitalization of rural communities. Russell County is a success story for the initiative.

Factor Two: Coordination and Regional Collaboration

The state government’s matchmaking role evolved into coordinator once the announcements were made. The facilitation of the Russell County-CGI-Northrop Grumman relationship by the state was a critical factor in this on-shoring case.

The scope of this large project required a wider focus than just Russell County’s small local economy; the workforce initiative would only be feasible if it was truly a regional project. The state recognized that coordination of the region’s effort and a comprehensive plan was essential to its success. Consequently, Secretary Schewel authorized and appointed a CGI–Northrop Grumman project manager, a Department of Business Assistance employee, to act as the liaison and single point of contact for CGI, Northrop Grumman, local and state officials, and other community stakeholders from education, workforce development, and business. The critical nature of this position required the expertise of the project manager to go beyond the usual responsibilities of designing workforce recruitment and training strategies. The project manager needed to facilitate and coordinate multiple advisory teams in order to create a collaborative regional approach. Most participants familiar with the negotiations indicated that the project could not have survived without the key role of project manager.

The second step in creating the collaborative structure was the governor’s appointments to a Strategic IT Taskforce that, with the project manager’s assistance, would serve as the governance structure for the planning and implementation of the expansions. The Strategic IT Taskforce possessed expertise to handle a variety of issues, including members with backgrounds in education, housing, transportation, communication, public relations, marketing, financing, and community and rural development. The Strategic IT Taskforce created advisory teams to address the issues of workforce development, communications, and public relations for the region, as well as strategic planning for regional preparedness.

Factor Three: Emphasis on Workforce Development

Although Russell County’s current situation and prospects for the future have turned for the better, the new economic growth brings substantial challenges with it, particularly to those concerned about and charged with the region’s workforce development and readiness. Consequently, a primary task of the state-appointed project manager was to coordinate a regional workforce advisory team that cooperated with existing workforce development professionals and groups like the Southwest Virginia Workforce Investment Board. Although the team’s first step was to conduct a labor market analysis, the team adopted a three-pronged approach focusing on recruiting from outside of the area, growing their own workforce through educational programming and human capital investment, and seeking to attract residents who left because of the lack of jobs and opportunity in the area. The latter “brain drain” initiative resulted in the Return to Roots program and Website (www.returntoroots.org), launched in September of 2006, which serves as a skilled labor portal for businesses and job seekers. At this point in time, the database includes 33,000 alumni who

RETURN TO ROOTS
returntoroots.org

Return to Roots is a campaign to promote job opportunities and the quality of life of Southwest Virginia in order to entice high school and college alumni who have left the area to return, bringing needed talent.

Community leaders in the region joined together and secured a grant from the Tobacco Commission to launch Return to Roots. The initiative reaches out to former residents of the area and to employers through its website, direct mail campaigns, and the media. Initially, the program targeted nine coalfield counties in Southwest Virginia, but since has expanded to include 17 counties in the region, including Russell County.

At the Return to Roots website, job searchers can post their resume, employers can advertise job openings, and users can connect to information about regional colleges and universities and attractions in Southwest Virginia. Also featured are the stories of former residents who have recently returned to the area.

left the area, 1,000 registered job seekers, and 250 businesses. However, it became evident that the key long-term effort was to develop the workforce from within.

Community College Initiatives

Two specific factors amplified the workforce development challenge:

- The sheer number of jobs compared to qualified individuals
- The timeframe to fill these vacancies

The workforce advisory team engaged the superintendent of county schools, local university and community college leaders, and others to develop training strategies. As part of the process, each institution suggested existing courses in an attempt to standardize the curriculum and identify holes; however, Southwest Virginia Community College (SVCC) faculty from the IT department took it a step further. They developed an online software development program that a student could complete in 34 weeks while earning 42 college credits. The advisory team worked with CGI leadership and human resource representatives to modify the program to fit their needs during the spring of 2006.

The “Fast Track” program included an introductory course on design and database concepts, with progression through programming courses on UNIX, C++1, Java, and SQL, among others. The program targeted students who had previously completed two- or four-year degrees, had a pre-calculus math attainment level, had basic computer skills, had passed a Berger aptitude assessment designed for non-programmers, and were highly motivated. CGI guaranteed all participants an interview, which included three separate levels to assess technical, behavioral, and leadership skills. To help prepare the students, CGI participated in mock interviews.

The first SVCC cohort began in August 2006. SVCC has had three Fast Track cohorts finish the program as of February 2008. Mountain Empire and Virginia Highlands Community Colleges have also adopted the Fast Track program. Mountain Empire has only one cohort that has graduated, but two other cohorts have begun and will finish in 2008. Virginia Highlands also has graduated their first cohort, with the second graduating in April of 2008 and the third to begin soon. A measure of the Fast Track curriculum’s success is that over 64% of the graduates are either working for CGI or in the IT industry, with most of the others interviewing for positions.

Consequently, the collaborative efforts of the region’s educational institutions and their interaction with CGI have created new employment opportunities for their students and those in the area looking for new careers but requiring training to be employable. This collaboration continued past curriculum development. The colleges also developed a successful proposal to the Tobacco Commission for \$597,000 to fund scholarships to students in the Fast Track program. The fruits of these workforce development efforts have had positive results for their traditional two-year college students. In the fall of 2004, SVCC reported having only 15 students majoring in IT, but at the start of the 2007 school year, they boasted 128 IT majors, with the IT curriculum offered in both regular and accelerated formats. Both Mountain Empire and Virginia Highlands Community Colleges report similar trends—all of which is good news for workforce development officials looking to the future jobs at both CGI and Northrop Grumman and as a way to attract further IT industry to the region.

Public School Initiatives

The public school system became an educational partner by integrating IT into the curriculum at Lebanon High School with the creation of the Cisco and Oracle Academies. In addition, the school

PATHWAYS ACADEMY

In January of 2008, Russell County's Pathways Academy was one of six proposals to be awarded grants to establish programs focused on preparing Virginia's students for careers in science and technology. Each of the Governor's Career and Technical Academies received a \$20,000 planning grant, to be followed by \$100,000 to implement the program once the plan is approved by state education officials.

Each academy bases its program on the specific local economic and employment needs of the surrounding area. The Pathways Academy will emphasize education in science, technology, engineering, and math, and provide hands-on instruction in science and math for middle school students in Russell County.

Pathways is being developed through a partnership that includes area public schools, community colleges and universities, local economic development authorities, and area businesses including CGI.

system developed a dual-enrollment program, where a junior in a local high school can start taking IT courses and enter college with 12 to 15 credits toward an IT degree. Also of note is a recently received Governor's Career and Technical Academy award that provides a \$20,000 planning grant, followed by a \$100,000 implementation award to a partnership of all of the region's educational institutions, CGI, and other employers. The funds will create the Pathways Academy in Russell County, which will focus on science, technology, engineering, and mathematics, as well as include hands-on instruction in science and mathematics for middle school students. The academy will also provide dual-enrollment classes, currently offered at the University of Virginia's College at Wise Technology Development Center in Lebanon, to students in Russell, Dickenson, Tazewell, Scott, and Lee Counties.

All of these efforts are attempts to create a pipeline of appropriately skilled employees. However, the challenge of the timeline for filling CGI's needs has resulted in recruitment from other regional universities, such as Virginia Tech, Radford University, and East Tennessee State University.

Communication Outreach to Recruit Workers

An advisory team also focused on a communications strategy to assist with workforce recruitment issues. The development of Southwest Virginia Online (<http://swvaonline.org>) served to brand the region and provide information—cost of living, employment opportunities, local taxes, and local events—for those relocating as well as visiting the area. Both Southwest Virginia Online and Return to Roots, mentioned earlier, are alternate methods of creating an electronic presence and focus to meet the socioeconomic effects of this large economic development project.

Factor Four: Strategic Planning

A final advisory team coordinated by the state focused on regional preparedness and strategic planning to coordinate the different facets of this economic development venture. The team's major output was a coordination document for the Regional Preparedness Action Plan for Southwest Virginia (Russell County Development Group 2007) released in the spring of 2007. The comprehensive report addressed the broader community needs to prepare for economic expansion. The report identified issues and topics that would be facing the region as it prepared for full capacities of both new employers and other development that would accompany this new growth. It also detailed the process and strategy that could be used to address various growth issues. The Strategic IT Taskforce categorized this information into five priority groups:

- Taking immediate actionable steps to implement the plan and collect necessary census and economic impact data
- Accommodating urgent growth needs regarding land use, housing, child care, and wellness and fitness, and creating a citizen participation process for the implementation

- Facilitating growth in a sustainable manner through improvements in health care, lodging, and IT
- Continuing to meet needs of infrastructure, education, and consumer-oriented industries
- Transitioning to examine long-term planning for economic, social, and physical environments

The implementation of the plan relies on a series of “Ready Teams” to cover issues such as process; statistics; land use and infrastructure; hotel, lodging, and new business development; and entertainment leisure and branding. Although each team is volunteer-based, the membership has expertise and interest in the specific issue. Currently, approximately 140 volunteers work on these teams. Much of their work is related to data collection, in order to understand the demand and perceptions of the community or verify the need. Some of the current actions include the Wellness, Fitness, and Recreation Team’s survey of the community to determine the level of demand for a fitness facility. The team has also approached local companies about whether they would contribute given that health insurance rates can be lower for employees that regularly work out. The Child Care Ready Team is examining how to expand choices and coordinate with providers and the school system to create partnerships to develop a common early learning curriculum. Finally, the Hotel/Lodging and New Business Development Ready Team has been part of the process to secure a new Fairfield Inn (Marriott) for the area, with construction starting in March 2008.

Key Findings

The level of coordination that the state provided in a project manager and the participation of the regional and local community suggest that collaboration remains a key ingredient in the current and future economic development of this rural area.

Finding One: Regional collaboration is essential.

The economic development potential from this example of on-shoring cannot be understated. The growth in jobs and salaries are evident; however, the long-term impact on the economy, from the potential to attract other business opportunities and even clusters to educational and demographic changes, are forecasts at this point that are yet to be demonstrated. What is known is that the state’s role in targeting Russell County for revitalization and its central regional location were only the beginning of the story.

The level of regional collaboration is obvious from physical infrastructure to workforce development to the seeding of future human capital. The opportunity inflated new life into the community. Each of the key success factors suggests the need for flexibility when faced with an opportunity that accompanies significant challenges. The breaking of traditional barriers along jurisdictional lines of government and educational service regions were commonplace. The success of Russell County and Lebanon relied heavily on the participation and commitment of many Southwest Virginia communities. The employment effect is spread across a number of these communities because many chose not to relocate and commute, yet the conveyed sentiment is that this is only the beginning. With further planning and continued collaboration, the region will be able to restructure its economy and provide new skills and opportunities for its population.

Finding Two: Advanced planning is necessary, and efforts must continue.

If one factor arises that needed improvement, it was the level of advanced planning. That is, communities recognizing the need for economic change and looking for opportunities must understand how the paradigm of local economic development has changed. It is no longer only

about structural infrastructure such as buildings and industrial parks. Today, it is about the advanced infrastructure fueling those structures—for example, fiber-optic broadband capacity and the human capital of the workforce. Focusing on these and other unique aspects of the location are keys to understanding the potential for economic change. These are commonly identified through the type of regional assessment discussed earlier.

However, it is the timing of such assessments that may give a region an upper hand in recruitment as well as ensuring that opportunities are actually opportunities with achievable results. Advanced strategic planning is difficult to leverage before opportunities arise, but if completed, the vision for the future will be based on community ideas and needs and not constructed by emerging economic opportunities.

Finding Three: A successful outcome depends on combining resources from a variety of sources.

Russell County's position in today's economy is better than where it found itself only three years ago, and the road ahead seems to indicate that it has dodged the decline that was likely to worsen in the years ahead. However, the improved outlook for the county and the region could not have been possible without various streams of funding and investment. The combination of federal and state funds was necessary for the region to build the requisite advanced telecommunications infrastructure to attract IT industry.

The local governments of Russell County and the town of Lebanon shared the burden in order to secure the land and facilities in the regional business park. Yet beyond the amount of the monies and level of government supplying the funding, the combining of resources to create a myriad of federal, state, and local financial funds—from grants to financial incentives—for workforce development, scholarships, broadband, land, and

facilities is critical. However, the trend of a “one-stop shop” for business assistance is the business of economic development in today's environment, and Russell County is just one example of the success that combining resources from multiple sources can have.

References

Bardhan, A., and C. Kroll (2003). *The New Wave of Outsourcing*. Berkeley, Fisher Center for Real Estate & Urban Economics, University of California, Berkeley.

Berger, S. (2005). *How We Compete: What Companies Around the World Are Doing to Make it in Today's Global Economy*. New York, Currency Doubleday.

Chmura Economics & Analytics (2005). *The Economic Impact of CGI-AMS Southwest Virginia Expansion*. Richmond, VA, Chmura Economics & Analytics.

Chmura Economics & Analytics (2004). *Southwest Virginia Workforce Investment Board 2004 Demand Plan*.

Conscient Partners (2007). *Lower Cost Domestic Sourcing: A Niche Opportunity for the US*. Washington, DC, Information Technology Association of America.

Mayer, H., and J. Provo (2007). *Farmshoring In Virginia: Domestic Outsourcing Strategies for Linking Urban and Rural Economies in the Commonwealth of Virginia*. Economic Development Studio at Virginia Tech. Blacksburg, VA, Virginia Tech.

National Academy of Public Administration (2006). *Off-Shoring: An Elusive Phenomenon*. Washington, DC, National Academy of Public Administration.

National Academy of Public Administration (2006). *Off-Shoring: How Big Is It?* Washington, DC, National Academy of Public Administration.

Russell County (2007). "Russell County Information Technology Project." *Community Economic Development Awards*. Retrieved January 29, 2008, from <http://www.goveda.org/About/ceda/CEDA-RussellCounty-Narrative.pdf>.

Russell County Development Group (2007). *The Preparedness Action Plan for Southwest Virginia*. Russell County, Russell County Development Group.

Northeast Pennsylvania: Transforming into Wall Street West

Northeast Pennsylvania encompasses a geographically, culturally, and economically diverse set of counties. From the rural northern counties, to those that border the eastern suburbs of New York City and New Jersey, to the southern industrial counties, the region’s nine counties have been more likely to be competitors than collaborators. However, in early 2006 the U.S. Department of Labor announced that Northeast Pennsylvania had successfully secured one of its Workforce Innovation in Regional Economic Development (WIRED) grants.

With assistance from the Commonwealth of Pennsylvania—mainly from Governor Edward G. Rendell’s office and the state’s Department of Labor and Industry—the often-competing authorities for workforce development and

economic development sought to integrate both workforce and economic development within their nine-county region—Berks, Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, and Wayne. The grant application envisioned a strategy to become a new home for financial services and their back-office functions seeking locations in close proximity but, for security reasons, far enough away from New York City. The WIRED grant presented this region with the opportunity to unify regional actors, assets, and businesses to develop workforce talent to meet the changing needs of a global economy.

The process and steps that this WIRED region is following—most notably the Wall Street West (WSW) initiative—is somewhat uncharted territory, but common in that it is seeking to find

At A Glance: Northeast Pennsylvania	
The Initiative	Nine counties in Northeast Pennsylvania with the assistance of the Commonwealth of Pennsylvania secured a \$15 million Workforce Innovation in Regional Economic Development (WIRED) grant from the U.S. Department of Labor to create and support the region’s strategy to become Wall Street West.
The Result of the Initiative	Wall Street West, the grantee, has dispersed funds as innovation investments to support Workforce Investment Boards and educational institutions in the creation of programs that will ready the region’s workforce for financial sector jobs. In addition, a private telecommunications firm, Level 3, is partnering with the region to build a fiber-optic network suitable to satisfy data-backup and back-office needs of targeted employers.
Key Lessons from the Initiative	The initiative is moving toward success because of: <ul style="list-style-type: none"> - Wall Street West’s support of regional cooperation among multiple competitive localities; - Federal programs’ recognition of the importance of supporting both workforce and economic development for comprehensive regional development; and - Collaboration among state and local government units with the private sector.

an approach that will enable it to recover from the decline of previous decades and carve out a more diversified and secure economic future.

Economic Condition of the Region

Economic development plans designed to revitalize Northeast Pennsylvania are not new to the region. In 1964 the Economic Development Council of Northeast Pennsylvania (ENDCP) was established to address the impact of the loss in coal-mining jobs. The council served a region of 21 counties including all nine counties currently serviced by WSW. These counties were known as the anthracite belt, named for the anthracite coal specific to the region (Dublin 2005). Anthracite coal was in high demand during World War II, but demand declined sharply after the war. Coal-mining employment decreased to 17,000 jobs in the region in 1961 and to a mere 2,000 jobs by 1974 (Dublin 2005). In comparison, at the end of World War II, coal mining accounted for 35,000 jobs in Scranton alone. By 1967, coal mining had declined and only 300 Scranton jobs remained. This sudden change throughout the region spurred an aggressive effort led by the ENDCP to transition the counties from coal mining to manufacturing (Grossman 1993).

In 1993, a report produced by the Regional Development Districts and the ENDCP found the transitioning efforts from coal mining to traditional manufacturing had not all been positive. The region still struggled with vast unemployment and underdevelopment of human resources. The average manufacturing job in Scranton and Wilkes-Barre paid just 75% of the average wage in Pennsylvania (Grossman 1993). The region also suffered significant economic blight caused by the pollution from coal mining and flooding, which hindered new industry development. The report estimated the cost of cleaning acid drainage alone to be \$2 billion. For the region to continue to grow, the organizations recommended initiatives

WALL STREET WEST www.wallstreetwest.org

Wall Street West is a partnership of more than two dozen Northeast Pennsylvania regional and statewide economic development agencies, technology investment groups, workforce development organizations, educational and research institutions, and private-sector experts. With a strategic location in Northeast Pennsylvania, the program is a federal- and state-funded initiative to develop a total backup solution for New York City financial institutions in the event of a disaster.

Wall Street West is helping to preserve the sanctity of the U.S. financial system: It is the only program of its kind addressing all the recommendations outlined in an interagency paper from the Securities and Exchange Commission, Federal Reserve, and the Office of the Comptroller that calls on major financial firms to have backup operations outside of New York's power and water infrastructure. With much of the nine-county region just a 90-minute drive from Manhattan, Northeast Pennsylvania is still close enough to allow for synchronous data transmission and easy employee access.

to develop education programs to meet industry needs. The recommendations, however, focused almost exclusively on continued efforts to attract manufacturing jobs without knowing the following decade would produce devastating losses in that sector (Grossman 1993).

Throughout the 1990s, employment grew overall in rural Pennsylvania, but manufacturing saw the largest decline in employment and dwindled to just 18% of jobs statewide. By the year 2000, less than one in five jobs were in manufacturing because of a transfer of manufacturing overseas and an increase in individual productivity. Tobacco, leather, and apparel manufacturing, the industries originally pursued by the EDCNP, failed to make the list of top 10 employment sub-sectors by the year 2000 and accounted for just 25,000 jobs in rural Pennsylvania. The region transitioned its workforce, and by 2000 the largest provider of jobs was the service sector. However, the growth of the service sector contributed significantly to the region's economic decline as service sector jobs produced lower salaries than other sectors (College of Agricultural Sciences 2002).

NORTHEAST PENNSYLVANIA TIMELINE

Date	Milestone
Apr 2003	U.S. Security and Exchange Commission releases interagency paper titled “Sound Practices to Strengthen the Resilience of the U.S. Financial System”
Jul 2005	Governor Rendell announces Job Ready PA package committing \$91 million in state funds to workforce investment. A Job Ready PA report is also released by the Pennsylvania Department of Education.
Jan 2006, first week	Governor Rendell files application for WIRED Grant with consultation from Ben Franklin Technology Partners and Wall Street West
Jan 2006, fourth week	Northeast Pennsylvania approved to receive a WIRED Grant
Feb 2006	WIRED Grant announced in Pennsylvania and Executive Committee of Wall Street West formally established
Apr 2007	- SECCAS LLC establishes secondary data center in Northeast Pennsylvania - \$500,000 approved for distribution to five core Workforce Investment Boards and matched by each board
Jun 2007	Governor Rendell makes official announcement of partnership with Level 3 in New York City
Sep 2007	SECCAS LLC secondary data center becomes fully operational
Oct 2007	First round of Innovation Investments approved
Oct 23, 2007	Wall Street West releases Gap Analysis
Jan 2008	Second round of Innovation Investments approved

From 1990 to 2001, all but two counties in the Northeast Pennsylvania region showed slow growth in employment, and the region overall had the slowest growth in the state and continued to lose jobs statewide. In three years, Pennsylvania lost over 20,000 jobs in computer manufacturing, apparel manufacturing, and machinery manufacturing. It was clear that Northeast Pennsylvania needed a new economic development strategy to address the slow growth and loss of manufacturing jobs (Fuller 2005).

Bringing Opportunity to Northeast Pennsylvania: WIRED

On February 1, 2006, the U.S. Department of Labor announced its first generation¹ of recipients of WIRED grants, distributing \$195 million evenly among 13 regions nationwide. Northeast Pennsylvania received \$15 million over three years for workforce development (U.S. Department of Labor 2006a). The WIRED program originated from

Labor’s Employee Training Administration (ETA), the agency responsible for the U.S. workforce investment and job training system. However, the majority of ETA’s programs did not connect job training directly to the future needs of a region’s economy. The WIRED grants were an experiment, deviating from traditional, program-focused workforce development and, instead, attempting to integrate both workforce and economic development within one region. In addition, the unique grants were focused on developing workforce talent to meet the changing needs of a global economy. The grants provided initial funds to regions affected by global trade with the intent of catalyzing new economic development through workforce development and creating sustainable high-paying and high-skilled job opportunities for workers in the recipient regions.

ETA’s solicitation for the WIRED grants went directly to the states. Governors’ offices from competing states submitted applications for the

WORKFORCE INNOVATION IN REGIONAL ECONOMIC DEVELOPMENT (WIRED) www.doleta.gov/wired

WIRED is a federal grant program administered by the Employment and Training Administration of the U.S. Department of Labor. Its aim is to encourage innovative approaches to developing a highly skilled workforce by integrating workforce development and economic development efforts. The grants support regional initiatives that bring together traditional workforce and economic development organizations with regional business leaders and educators representing primary schools through universities. In the first round of grants, awarded in February of 2006, 13 regions received a total of \$195 million; Pennsylvania received a \$15 million grant for its Wall Street West initiative.

WIRED grants indicating “how the region will undergo transformation through the implementation of new efforts designed to drive integration among workforce, economic development and education systems; innovation in addressing challenges; and utilizing and building upon existing structures, resources and legislatively funded programs” (U.S. Department of Labor 2006b). One of the major criteria for selection was that the areas included strong indicators of a strategic partnership among leaders throughout the region, a demonstrable need for workforce development due to economic restructuring and labor market conditions, and a clear plan for implementing change.

Although the Northeast Pennsylvania region certainly satisfied the economic criteria for the WIRED grant, Northeast Pennsylvania’s proximity to New York City emerged as a critical opportunity. Following the terrorist attacks of September 11, 2001, the security of U.S. financial data and the economic system moved to the forefront of national public policy. On April 7, 2003, an interagency paper titled “Sound Practices to Strengthen the Resilience of the U.S. Financial System,” prepared by the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency, and the Securities and Exchange Commission, detailed three new business objectives for U.S. financial firms to

increase security and provided recommendations that specified steps that financial firms should take to secure their data in the event of another terrorist attack (U.S. Securities and Exchange Commission 2003).

To prevent economic catastrophe in the event of a service disruption, the paper recommended: “Firms that play significant roles in critical financial markets should maintain sufficient geographically dispersed resources, including staff, equipment, and data, to recover clearing and settlement activities within the business day on which a disruption occurs” (U.S. Securities and Exchange Commission 2003). Essential to this objective was fiber-optic networks that could support synchronous, nearly instantaneous (less than five milliseconds), or at least low-latency data-transmission backup capacity along diverse routes that connected New York City’s financial district to an off-site location. The off-site location needed to be at least 50 miles from the city to provide protection, but no more than 125 miles, given the limitations of the technology to support such synchronous data backup (Office of U.S. Representative Paul E. Kanjorski 2003).

Although several potential sites met this distance criterion, Northeast Pennsylvania was uniquely qualified because it also sits on a separate power grid from New York City, unlike New Jersey or Connecticut. This fact became particularly relevant during the 2003 New York City blackout. Hence, Northeast Pennsylvania existed in a sweet spot geographically to address both concerns.

Regional Attractiveness

Beyond location, the Northeast Pennsylvania region boasts several attractive features for companies looking to build secondary sites and for their potential employees. First, and most simply, the cost of doing business is less. The region boasts 58 industrial parks, and rented real estate space is \$30.25 per square foot cheaper

than in New York City. For a 100,000-square-foot building, which many data-backup centers require, this produces a savings of \$15,125,000 over five years (Office of U.S. Representative Paul E. Kanjorski 2003). Another large expenditure for such data centers is electricity. The largest supplier of electricity in the region is PPL Electric Utilities, and their default service is 19% less than the average electricity service in New York and New Jersey (Office of U.S. Representative Paul E. Kanjorski 2003). It is particularly attractive that these lower electricity outlays can be found on a separate power grid. Since the WIRED grant in 2006, WSW has attracted one new company to the region, SECCAS, which provides “e-messaging compliance solutions to public and financial services companies” (SECCAS 2008). Because of their high electricity usage, Northeast Pennsylvania’s low utility costs were an appealing factor.

The region’s distance from New York City along with its transportation network is also important to the financial services sector. Although a new rail line to connect Northeast Pennsylvania to New York City is proposed, for now several interstate highways and two major airports provide easy access into the city and beyond. This is particularly important for transplanted employees, and in case of an emergency, the region can be reached in a two- to three-hour window of time. Northeast Pennsylvania’s location seemed to present a unique opportunity to the region, bolstering its ability to attract the data-backup facilities of New York’s financial services sector. However, Northeast Pennsylvania’s positive geographical attributes did not match the preparation and development of its workforce. Consequently, Northeast Pennsylvania was a perfect candidate for the WIRED grant.

Organizing Regional Collaboration: Wall Street West

In 2005, one year prior to receiving the WIRED grant, the Wall Street West initiative evolved out

LEVEL 3 COMMUNICATIONS www.level3.com

Level 3 Communications, Inc., is a leading global provider of fiber-based communications services. Headquartered in Broomfield, Colorado, Level 3 operates one of the largest communications and Internet backbones in the world. Customers include organizations with large bandwidth and advanced communications requirements such as telecom carriers and Internet service providers. In June of 2007, Level 3 was selected to be the network provider for Wall Street West. Level 3 has committed \$8 million to build a fiber-optic network from New York to Northeast Pennsylvania once one or two major financial services firms have announced their intention to locate in the region.

of a coalition of economic development agencies, technology investment groups, workforce development agencies, education institutions, and private sector experts brought together and tasked with finding new opportunities for regional economic growth (Wall Street West 2007c). After receiving the \$15 million WIRED grant, Governor Rendell matched the amount with another \$15 million in state funds, which was one of the deciding factors in Northeast Pennsylvania’s selection for the WIRED grant. WSW combined these monies with an additional \$1 million from the U.S. Department of Commerce and an \$8 million commitment from Level 3 Communications to build the fiber-optic network suitable to achieve both business needs and the recommendations of the Securities and Exchange Commission paper. At the present, Level 3 has not yet deployed the network and is waiting for a commitment from one or two major firms to locate in the region to assure a return on their investment before building the network.

The combined federal, state, and private commitments total \$39 million, and WSW serves as the coordinating organization to redesign the region as a data-backup and back-office services provider for the financial sector of the New York City greater metropolitan area (Wall Street West 2007c).

BEN FRANKLIN TECHNOLOGY PARTNERS www.nep.benfranklin.org

For 25 years, Ben Franklin Technology Partners has helped start-ups in Pennsylvania become sustainable businesses. The state-funded economic development initiative focuses on technology-driven start-ups in such areas as IT, the life sciences, and communications, providing them with support services, management advice, networking opportunities, and connections to seed and growth capital. BFTP operates on a regional level in four centers across the state. Headquartered on the campus of Lehigh University, the BFTP of Northeast Pennsylvania was a partner in writing the proposal for the WIRED grant to fund the Wall Street West initiative and administers the grant for the state.

The history of WSW is not complete without recognizing the role of Ben Franklin Technology Partners (BFTP). For a region to nurture new businesses, it must provide physical support in the form of buildings and infrastructure, as well as financial support with loans and seed money. BFTP first created business incubators² in 1983 and has since helped over 80 Pennsylvania companies achieve sustainability. BFTP plays an integral role in helping Northeast Pennsylvania make the most of WIRED's opportunities (Ben Franklin Technology Partners 2007); it administers the WIRED grant for the state and also provides financial support for the work of WSW's director of outreach and network development. The financial role is a result of the WIRED monies being restricted to workforce development activities. Consequently, economic development activities of the WSW are funded through BFTP.

WSW Governance Structure

The center of WSW is the Executive Committee, composed of the coalition of founders, which cooperates across divergent interests to determine the best use of the WIRED and matching funds. In addition, several supporting committees exist. The Human Capital Committee, coordinated by the WSW project manager for workforce development, allocates the money for training initiatives based on the goals established by the Executive Committee

and the findings of their Gap Analysis (described below). The Human Capital Committee works most closely with education and training facilities and Workforce Investment Boards to develop new programs for use at college and high school institutions.

The second major supporting committee, the Industrial and Community Engagement Committee, engages local economic development agencies and is headed by the WSW project manager for outreach. The committee's main charge is to advertise the Northeast Pennsylvania region to New York City businesses to encourage consideration and possible relocation of data-backup functions to the region. This serves as a mechanism to unify previously competing counties and facilitate regional collaboration in economic development.

Additionally, WSW has two committees in charge of communicating with actors outside the main coalition of actors. The Legislative Affairs Committee functions as a liaison between regional stakeholders and state government officials, keeping them abreast of the use of WIRED and supporting funds. The Leadership Advisory Group functions as a liaison between economic development agencies and internal banking individuals to leverage relations in New York City.

Key Success Factors

Factor One: Federal and State Government Support

The opportunity the WIRED grant provides for the region starts with recognition from multiple levels of government. First, the federal government, specifically the Department of Labor, recognized that it is essential to integrate workforce development with a purpose and link it to a region's economic development strategy. To support this innovative grant program, the ETA gave both external and internal support. Externally, the ETA

reached out to the Department of Commerce, resulting in an additional \$1 million in funding to the region. Internally, the ETA provided more than the traditional grant-monitoring function. ETA designated liaisons, often senior executive staff, to each region, who functioned as advisors and improved communication between WSW and the Department of Labor. In 2006 the liaisons' main task was to advise the WSW Executive Committee and supporting committees in producing an implementation plan that would describe how and for what the grant monies would be used. With each passing year the role of the liaisons decreases, but a key charge is to ensure WSW has developed a sustainability plan to ensure the efforts funded by WIRED continue and in the long term are successful. In the name of sustainability and in recognition of the challenge WSW was taking, the ETA extended the period of performance an additional year, for a total of four years, but with no additional monies. Finally, the ETA also recognized that truly transforming Northeast Pennsylvania's workforce and attracting new businesses will require much more effort than the original WIRED grant. Thus, the ETA helps recipient regions find additional federal grants after the WIRED commitment is fulfilled.

At the state level, the state's commitment of matching funds was one reason Northeast Pennsylvania was awarded the WIRED grant. However, beyond the original commitment of \$15 million, state agency collaboration and involvement has been limited. Currently, representatives from the state Department of Labor and Industry and the state Department of Community and Economic Development serve on the WSW Executive Committee and liaise between those departments and the Governor's Office. The role, as conceived by these representatives, is one of providing the bigger picture to planning and future strategy, with the hopes that WSW lays the groundwork for the future of regional collaboration for workforce and economic development.

The state's support of WSW was also evident in the securing of SECCAS to the region. The company reported that an attractive element of the region was the dual efforts of WSW and the Governor's Action Team serving as a single point of contact. The partnership assisted in site selection for SECCAS' new secondary site that will provide backup and redundant operations for its headquarters in New York City as well as serve as its main litigation-readiness (e-discovery) operations. As a measure of this recruitment success, the first two SECCAS positions filled in the region were a technology specialist and software programmer, both high-wage positions earning upwards of \$75,000, much higher than the median family income of \$49,371 (U.S. Census Bureau 2000a). The company plans to employ 10 similar positions in the next three years.

Factor Two: Workforce Development

Although Northeast Pennsylvania's receipt of the WIRED grant provided an opportunity for real economic change and growth, it also resulted in substantial challenges to the region's workforce development and readiness.

Gap Analysis

One of the first tasks of the WSW Human Capital Committee was to produce a Gap Analysis to assess the region's assets and resources to understand how WIRED and supporting money could best be directed. Completed in 2007, the analysis examined the available workforce and training capabilities of Northeast Pennsylvania and evaluated its ability to respond to changing labor demands. With the region's focus on developing and supporting the financial services industry, the analysis studied three major segments of the industry: credit intermediation, securities, and insurance. Although each segment demonstrated progress, credit intermediation grew the fastest by far, with 49.1% growth since 2001. However, when considering the coming decade, the securities

sector was predicted to experience the most growth, with an estimated 15.8% growth (Moran Stahl & Boyer and E. M. Pemrick & Co. 2007).

With more and more bank transactions available online or via ATMs, jobs in financial services have shifted from face-to-face service positions to those requiring technical expertise. This results in fewer jobs available for high school graduates and more jobs available to college graduates. The analysis found both a lack of awareness of these career opportunities in the region as well as a lack of focus to steer high school students toward continuing education in these fields. While the number of higher learning centers in Northeast Pennsylvania is an asset, the analysis pointed out that the lack of collaboration among schools created a dispersed rather than singular pool of graduates from which employers could recruit (Moran Stahl & Boyer and E. M. Pemrick & Co. 2007).

A review of 2000 U.S. Census and state data suggested further troubles for the region's goal of producing more employable graduates. While the regional high school graduation rate was 84%, only 18% of the population had a bachelor's degree (U.S. Census Bureau 2000b). This disparity creates a populace in need of associate degree and certification programs to be employable. A survey produced by the Pennsylvania Department of Education titled "Job Ready PA" found only half of the statewide school districts meet the algebra standards, just over one third meet the geometry standards, and only one fifth meet algebra II standards. These state statistics do not bode well for a region trying to develop a workforce where new jobs require strong mathematical skills (Pennsylvania Department of Education 2005).

The Gap Analysis suggested that the central workforce challenge is to retain sophisticated graduates in the region and make sure they are aware of and adequately trained for the careers available. General recommendations called for the development of academic skills at the high school

level, including more computer and integrated applications.

At the secondary and college levels, there was a call for more collaboration with local industry through internship and mentoring programs. Overall, these findings and recommendations serve to inform the WSW Executive Committee and Human Capital Committee of programmatic priorities, assist in the development of the implementation plan, and result in the disbursement of WIRED monies in the form of Innovation Investments.

Thus far, WSW has solicited and disbursed over \$1 million in WIRED monies to 15 workforce development organizations to support their work in education, training, and economic development in the financial services industry (Wall Street West 2007a; Wall Street West 2007b).

Workforce Investment Boards and Educational Partnerships

One way to bridge industry and education in the WSW initiative was through the work of Workforce Investment Boards (WIBs). Each county in Northeast Pennsylvania has a WIB as a result of the Workforce Investment Act of 1998 (Workforce Investment Act). WIBs strategize to increase economic opportunity in their respective counties. Methods include the development of career training programs intended to attract new employers and mentor existing employers on how to better develop their employees.

When the WIRED grant for Northeast Pennsylvania was first announced, five of the WIBs developed a memorandum of understanding that detailed the "retooling of the workforce" in the region based on independent labor market analysis. The memorandum requested \$500,000 to be split evenly among the five county WIBs, which they each promised to match with pre-existing funding. Each WIB received their initial money from

WSW and later applied individually for Innovation Investment grants. In the spring of 2008, WSW awarded the five core WIBs an additional \$1 million.

In developing the region's workforce to fit WSW goals, the WIBs were faced with a common chicken-and-egg scenario. To attract new firms to the region, WSW needs to demonstrate a prepared employee base. However, institutions are unlikely to invest in the necessary skills-development programs and students are unlikely to enroll in them without the promise of jobs. Using a portion of the WIRED grant to construct new education programs allows economic development agencies to sell new businesses on the region's changing workforce. Lehigh County WIB received one of the first Innovation Investments from the WIRED grant and has taken the lead in developing an accelerated graduate program at Lehigh University. The \$100,000 received from the first round of Innovation Investments has since been matched with donated IBM computers and university facilities to develop a lab simulating the financial services industry on Wall Street.

The program will be implemented in the region in three incremental phases. The first phase is a pilot program at Lehigh University, for which the university is currently reviewing applicants for its first cohort. This pilot accelerated graduate program is designed to attract ambitious, intelligent students with college experience who have an interest in working in the financial services industry. The second phase involves exporting the program to community colleges in the region with the hope of finding additional grant money to duplicate the original lab. The third phase is the introduction of the appropriate content to secondary schools.

Lehigh University is not the only institution developing a new program to encourage workforce development in financial services. Community colleges throughout the region have begun new certification and associate degree programs for

LEHIGH VALLEY WORKFORCE INVESTMENT BOARD
www.lvwib.org

As part of the Workforce Investment Act of 1998, state governors were required to establish Workforce Investment Boards in local areas throughout their state to focus on workforce development. These boards, appointed by local elected officials, include a majority of representatives from private businesses in the region, in addition to representatives from area educational institutions, labor organizations, and community-based groups. The Lehigh Valley Workforce Investment Board covers the region in East-Central Pennsylvania that includes the cities of Allentown, Bethlehem, and Easton. Among its strategic goals, the LVWIB seeks to identify sustainable growth industries in the region and the skill requirements they need, and to align the education of students from the primary level through higher education with the skills required for 21st century jobs in the region.

employers already in the region. The Berks County WIB, for example, is using \$200,000 from the WIRED funding to provide high school graduates with monies for career training in financial services at community colleges. The money is provided to help students achieve associate degrees, helping students pay application fees, tuition, lab fees, testing, and books.

The use of education programs and uniform curricula is not limited to training workers with particular skill sets but is also key to overcoming a fractured mentality among traditionally competitive municipalities. Because colleges attract students from across the region and beyond, they are often more willing to embrace regional collaboration than municipality-specific public schools. Working together with WIBs, universities and community colleges can play a leadership role in transforming the region by developing common objectives across county and school district lines. Encouraging collaboration through uniform education programs is one way that WIRED is encouraging regional cooperation and development rather than inter-county competition.

Factor Three: Sustainability

WSW has been relatively conservative in the disbursement of WIRED monies even though it is

beginning its third year of the initial grant period. In fact, the ETA granted a one-year extension to WSW due to the size and scope of the initiative.

The first two years of the grant were operational, process, and research oriented, focused on developing guiding principles and evaluation criteria that embedded regional collaboration. Both the Gap Analysis and sequential development of an implementation plan laid out metrics for success and responsibility that continue to guide the initiative and its partners. And in the fall of 2007 and spring of 2008, the first and second large disbursements of Innovation Investments signaled that WSW was moving in the direction of its goal to ready the workforce for the financial sector. However, the later start has limited its impact in comparison to other WIRED regions. Nevertheless, the creation of workforce curriculum is beginning, and from a larger economic development viewpoint, WSW is successful.

The recent downturn in the economy and resulting impact on the financial sector demonstrates the importance of WSW's current strategy and long-term goals. As the initiative has grown, WSW understands that its goal of becoming a data-backup and back-office support services region may also appeal to other industries like health care, retail, legal, and professional services. One of WSW's first recruits suggests this, given that SECCAS is not a strict financial sector company, but one whose e-mail messaging compliance products satisfy an array of industries' needs. In 2010, WSW should have expended the WIRED grant monies for financial services workforce development in the Northeast Pennsylvania region. From their inception, WIRED grants were intended to be seed money with recipient regions in charge of subsequent growth. In March of 2008, the Executive Committee of WSW engaged in a special session focusing on sustainability planning. With the assistance of an outside facilitator, the organization intends 2008 to be the year that

consensus is achieved, taking account of all views and ideas for how the effort can be sustained, from monies to creating a stronger foundation for collaboration among workforce and economic development.

Sustainability of the WSW initiative necessarily involves three major factors:

- Creation of a mechanism that enables economic development actors to engage business and industry in the region, New York City, and New Jersey
- Communication of the skill set and training needs and desires of the private sector to workforce development actors
- Workforce development organizations communicating and working with colleges, community colleges, high schools, and other educational and training institutions to nurture the initiative

Through the enhancement of such communication mechanisms, a foundation for collaboration will emerge. In addition, the WSW will have a need for outside funding. The regional coalition of WSW, the Pennsylvania Departments of Labor and Industry, Education, and Community and Economic Development are also exploring new sources of funding post WIRED.

Key Findings

Since receiving the WIRED grant, the Northeast Pennsylvania region has achieved impressive development and unprecedented collaboration among numerous actors in the nine-county region. Looking forward, many predict Northeast Pennsylvania will be a WIRED success story, emerging as a first-generation recipient with a sustainability plan to continue the region's development long after the expiration of federal funding. However, transitioning from competitors to collaborators with the pursuit of a common goal

has not been, nor does it continue to be, an easy task for Northeast Pennsylvania, regardless of the effect that WSW has had in leading the effort. Although it is understandable that regionalism takes time to develop among counties that have not previously collaborated, several factors contributed unnecessarily to intra-regional conflict, starting with the local government structure in Pennsylvania.

Finding One: The political structure of a state may encourage competition among localities and discourage regional cooperation.

Pennsylvania has 2,566 separate municipalities for a population of 12 million people. In addition, the supporting educational structure replicates this, with Pennsylvania being one of only eight states without state-mandated high school curriculum requirements and 501 independently organized school districts (Pennsylvania Department of Education 2005). Even post-secondary education is distributed, given no statewide community college system. The state structure results in the nine counties in the WIRED region having 337 municipalities and 51 school districts. The region is also split into two distinct congressional districts, represented by U.S. Representative Charlie Dent (R) and U.S. Representative Paul E. Kanjorski (D).

This political structure sets a tone in much of the interaction regarding economic and workforce development. Each municipality and county has traditionally competed with each other for jobs and new businesses. Many refer to the cultural artifact that people often think of towns competing to be better and being less willing to commute to other counties for work—an opinion somewhat supported in lower “commute time to work” statistics for these counties in comparison to those for the state.

Within the three distinct areas of the WIRED region—the rural northern counties, the counties that border the eastern suburbs of New York City and New Jersey, and the southern industrial counties—some counties have worked to

overcome these structural influences. Over the past two decades, Bethlehem, Allentown, and Easton have begun collaborating as the Lehigh Valley. Many saw this collaboration driven by the private sector and community leaders seeking to harness the economic power of those counties into one unified market. Although symbolic, the airport was even renamed, from Allentown-Bethlehem-Easton to the Lehigh Valley International Airport.

The WIRED grant and the work of WSW is attempting to unify the region, a difficult task due to the lack of structures that would naturally encourage such collaboration. From a workforce development perspective, a rethinking of high school education is needed to better steer graduates toward financial sector positions. The original collaboration of the five core WIBs to develop education programs is promising, but the collaboration was not extended to the Pennsylvania Department of Education, which decreases the likelihood of developing a unified curriculum in high schools and community colleges. WIBs need to play a role in advising on state curriculum. Similarly, economic development actors need to understand the effectiveness of working together. Most saw the announcement of the WIRED grant as a pot of money for counties to fight over rather than an opportunity for mutual benefits across the region. The role of WSW is to coordinate these efforts; however, overcoming historically territorial strategies remains a difficult hurdle.

Finding Two: Federal programs need to fund both workforce and economic development together to effectively support regional development.

The intent of the WIRED grants is to spur economic development through investing in workforce development. However, as previously mentioned, the best results occur when these two components occur in tandem. Because the WIRED grants are funded by the Department of Labor, their monies are restricted to workforce development almost

exclusively. This underemphasizes economic development and infrastructure development. By many accounts, economic development agencies are the most hesitant to forgo acquisitive competitiveness and develop a regional mentality while educational institutions often form the vanguard of regionalism. Even lacking state structure to support this, the educational institutions of the WIRED region collaborate more because of the existence of the WIBs and the focus of the WIRED grant on workforce development rather than economic development.

For regional collaboration on economic development, a broader coalition of federal agencies could design a more comprehensive development grant program that better supports all aspects of regional development to provide the carrot and stick that may lead to a decrease in the naturally competitive tendencies.

Finding Three: Collaborative structures are essential.

Overall, WSW is a project of immense size and scope, and a first-generation federal program linking regional workforce and economic development. The focus of the WIRED grant on workforce development is consequential to the region's long-term success in attracting businesses with needs for data-backup and back-office services. Developing the supporting labor pool and cohesive economic development strategy will enable the region to start small and build a reputation.

To do so, WSW's role as project manager is essential to the effort. In addition, the support from state-level organizations must remain. For example, the Governor's Action Team was vital as the coordinator for the recruitment of SECCAS and other companies to the region. The state's organizational and monetary support of the WIRED grant was also consequential: appointing liaisons from relevant state departments to serve

on WSW committees, providing matching funds, and facilitating the partnership with Level 3 Communications.

Although a partnership exists for the fiber network, the region's intended success—as a location that has low-latency data-backup possibilities for firms—requires the fiber network to be built. The current partnership with Level 3 allows for delay until Level 3 can ensure a return on its investment. However, until this materializes, companies needing this option will look elsewhere or locate only functions that can be supported by the existing metropolitan fiber networks. Municipalities may be called upon to do more. For example, as firms further automate, the region could further develop technical infrastructure in congruence with its workforce development. Technical investments, such as municipal wireless, could extend access in some of the region's depressed downtown areas. To the extent possible under the WIRED grant, WSW's support through Innovation Investment awards or other funding of such municipal actions may also facilitate greater local partnerships and foster greater tendencies toward collaboration.

Although the proximate location of Northeast Pennsylvania was a key factor, the securing of the WIRED monies also seems to indicate that the area is in the right place at the right time. It is now the responsibility of regional and state stakeholders in collaboration to exploit this opportunity in a sustainable manner.

Endnotes

¹ There are three generations of WIRED Grant recipients. The first generation was announced on February 1, 2006, and included the regions of Coastal Maine, Northeast Pennsylvania, Upstate New York, Piedmont Triad North Carolina, Central Michigan, Western Michigan, Florida Panhandle, Western Alabama & Eastern Mississippi, North Central Indiana, Greater Kansas City, Denver Metro Region, Central & Eastern Montana, and the California Coast. Each region in the first generation received \$15 million U.S. Department of Labor, http://www.doleta.gov/usworkforce/whatsnew/eta_default.cfm?id=1347.

The second generation was announced in January of 2007. Each recipient region received \$5 million. The second generation included the regions of Central-Eastern Puerto Rico, Southwestern Connecticut, Northern New Jersey, Delaware Valley, Appalachian Ohio, Southeast Michigan, Tennessee Valley, Southwest Indiana, Southeastern Wisconsin, Arkansas Delta, Rio South Texas Region, Wasatch Range, and Northern California.

The third generation was announced on February 13, 2007, and included the regions of Southern Arizona, South-Central Idaho, South-Central Kansas, Central Kentucky, Southeastern Mississippi, Southeast Missouri, Minnesota Triangle, Central New Jersey, Greater Albuquerque (NM), North Oregon, Southeastern Virginia, Pacific Mountain Washington, and South Central & South West Wisconsin. Each region in the third generation received \$5 million. A complete listing of recipient regions can be found at <http://www.doleta.gov/wired/regions/>.

² These incubators assist nascent companies by providing support services, management advice, connections to investors and venture capitalists, networking opportunities, and introductions to a business community that shares office amenities.

References

- Ben Franklin Technology Partners. (2007). "Ben Franklin Technology Partners." Retrieved March 1, 2008, from http://www.nep.benfranklin.org/cwo/Services__Resources/Infrastructure_Initiatives/?id=2&id2=46.
- College of Agricultural Sciences (2002). *Pennsylvania's Rural Economy—An Analysis of Recent Trends*. University Park, Pennsylvania State University.
- Dublin, T. (2005). *The Face of Decline: The Pennsylvania Anthracite Region in the Twentieth Century*. Ithaca, Cornell University Press.
- Fuller, T., M. Shields, and S. Smith. (2005). *Road to 2005—The Economy: Jobs, Income, Population, and Forecasts*. University Park, Pennsylvania State University.
- Grossman, H. J. (1993). "A Case Study of Northeast Pennsylvania." *Growth and Change* 4(4): 4–9.
- Moran Stahl & Boyer and E. M. Pemrick & Co. (2007). *Wall Street West Workforce and Workforce Development System Gap Analysis*.
- Office of U.S. Representative Paul E. Kanjorski (2003). *Penn's Northeast: A Viable Option to Strengthen the Resilience of the U.S. Financial System*. Pittston, PA.
- Pennsylvania Department of Education (2005). *Job Ready Pennsylvania*.
- SECCAS. (2008). "SECCAS." Retrieved February 3, 2008, from www.seccas.com.
- U.S. Census Bureau. (2000a). "Summary File 3: Dp-3: Profile of Selected Economic Characteristics." 2008.
- U.S. Census Bureau. (2000b). "Summary File 3: Dp-2: Profile of Selected Social Characteristics." 2008.
- U.S. Department of Labor. (2006a). "Department Announces 13 Workforce Innovation in Regional Economic Development (WIRED) Grants." Retrieved April 15, 2008, from http://www.doleta.gov/usworkforce/whatsnew/eta_default.cfm?id=1347.
- U.S. Department of Labor. (2006b). "Workforce Innovation in Regional Economic Development Selected Regions." Retrieved March 10, 2008, from <http://www.doleta.gov/pdf/WIRED%20Fact%20Sheet.pdf>.

U.S. Securities and Exchange Commission. (2003).

"Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System." Retrieved March 1, 2008, from [http:// www.sec.gov/news/studies/34-47638.htm](http://www.sec.gov/news/studies/34-47638.htm).

Wall Street West. (2007a). "Innovation Investments Round 1." Retrieved February 18, 2008, from <http://wallstreetwest.org/default.aspx?pageid=277>.

Wall Street West. (2007b). "Innovation Investments Round 2." Retrieved February 12, 2008, from <http://wallstreetwest.org/default.aspx?pageid=279>.

Wall Street West. (2007c). "Wall Street West." from [http:// wallstreetwest.org](http://wallstreetwest.org).

PART III
CASE STUDIES:
INDUSTRIAL
DIVERSIFICATION

Williamson County, Tennessee: Moving to Biotechnology and Bioscience

Williamson County finds itself only 20 miles from the heart of Nashville’s thriving health care and music sectors in Davidson County—from hospitals and health care providers to artists and recording studios reliant on the Grand Ole Opry’s reputation. Although Williamson County has a fair share of businesses in the health care sector, it is its recent economic development strategy and accomplishments that may diversify its industry and create a comprehensive industrial cluster that embraces innovative growth industries. Williamson is home to the Cool Springs Life Sciences Center (CSLSC), a 10-acre research and development campus designed to accommodate biotechnology and bioscience firms. With three buildings in its plans, it will host a dedicated laboratory and biotech manufacturing facilities, as well as the Vanderbilt University business incubator.

One of the first firms attracted to Williamson County as a consequence of its expanded economic development activities was BioMimetic Therapeutics (BMTI). BMTI is primarily known for its “development and commercialization of drug-device combination products for the repair of orthopedic injuries to bone, cartilage, ligaments and tendons” (BioMimetic Therapeutics Inc. 2008). The success and future promise of BMTI, currently housed in the first operational building of CSLSC, enticed further funding from both the state of Tennessee and Williamson County to assist with the building of a second and larger biotech manufacturing facility (Cool Springs Life Sciences Center 2007). Both facilities are the first in the region to be designated GMP-grade (good manufacturing processes) facilities, which means that they meet strict U.S. Food and Drug Administration and European Union regulations

At A Glance: Williamson County, Tennessee	
The Initiative	Williamson County sought to diversify its economic base in its recruitment of biotechnology and bioscience industries to the area.
The Result of the Initiative	Williamson County recruited BioMimetic Therapeutics (BMTI) and worked together with the company to develop Cool Springs Life Sciences Center, a research and development campus for biotechnology and bioscience firms. Over 85 jobs in biotechnology have been created, and, with assistance from Tennessee, the building of a state-of-the-art biotechnology manufacturing facility is expected to generate 400 new jobs in the next decade.
Key Lessons from the Initiative	<p>The initiative is gaining success because of:</p> <ul style="list-style-type: none"> - The participation of biotechnology firms and nonprofits in state and regional educational initiatives that encourage educational institutions and industry to exchange information about current and future workforce needs in science and technology; and - Economic development that is focused on research-and-development-intensive industries to bolster the county’s economic industrial diversification goals.

for pharmaceutical production. More strategically, the second facility will allow BMTI to expand the transfer of its research and development ideas to marketable products. The company currently has 85 employees, but the expansion is expected to generate 100 new jobs in the next two years and 400 in the next decade—an estimated 10-year regional economic impact of \$766 million (Cool Springs Life Sciences Center 2008a; Cool Springs Life Sciences Center 2008b).

Williamson County's economic development experiment with biotech is just one of the many choices of innovative industries that it could have targeted. Given the local context and industries, biotech seemed to be a natural partner to health care services already firmly planted in the region. The local strategy also fits well with recent interests of U.S. Sixth District Congressman Bart Gordon, who represents the region commonly known as "middle Tennessee"—east of the Tennessee River's western crossing of the state and west of the time zone line splitting Eastern from Central time. As the current chair of the U.S. House Committee on Science and Technology, Representative Gordon is challenging middle Tennessee to achieve what other innovative regions in the state (Knoxville and Memphis) have already done. In particular, he suggests that the Tennessee Valley Corridor (TVC, www.tennvalleycorridor.org), a science

and technology nonprofit economic development organization, should be a model to follow since it has assisted East Tennessee. The effort would require middle Tennessee to identify the region's assets that can assist with transferring current expertise in research to the next and critical stage of commercialization.

Middle Tennessee Economy

From World War II until the late 20th century, middle Tennessee was known primarily for heavy manufacturing. Its two most populated counties, Williamson and Davidson, attracted major manufacturing firms, making the region a central national manufacturing hub. At the apex of manufacturing in the 1960s, Williamson County housed manufacturing plants of CPS, APCOM, Pelican, and Essex Group. By the 1980s, industry diversified and manufacturing began to be eclipsed by a growing service sector, which included health care services (Tennessee Encyclopedia of History and Culture 2002).

The change in industry and new job opportunities brought a population boom to the region. Throughout the 1990s, Williamson County was the fastest growing county in all of Tennessee, increasing its population by 56.3% to 126,638 in the year 2000. Davidson County also enjoyed a surge in population, as did all of its adjacent counties, but to a lesser extent. As population and job opportunities grew in the region, so did income levels. Incomes in Davidson and Williamson Counties grew throughout the last two decades and outpaced national growth. By 2006, the average household income grew to \$92,181, demonstrably larger than the state average at \$49,804 (U.S. Census Bureau 2006). As incomes grew, so did the price of housing. From 1990 to 2000, the average cost of a home climbed from \$131,276 to \$207,309 (U.S. Census Bureau 2000; Tennessee Encyclopedia of History and Culture 2002).

COOL SPRINGS LIFE SCIENCES CENTER www.cslsc.com

Located 15 miles south of Nashville in Williamson County, the Cool Springs Life Sciences Center is a 10-acre research and development campus focused on the life sciences. The center, founded by local life-sciences entrepreneurs, is planned to provide space where biotechnology and bioscience start-ups can share laboratory research, product development, and manufacturing facilities, including a GMP (good manufacturing practices) center for high-tech science operations. Financed with private and public funds, the campus will eventually include three buildings. Tenants in the first building include BioMimetic Therapeutics and the Williamson County Economic Development Office. In March of 2008, ground was broken for the third planned building.

WILLIAMSON COUNTY TIMELINE

Date	Milestone
1990	Partnership 2000 created as a public/private economic development initiative for the Nashville region
2000	- Cumberland Emerging Technologies founded - Partnership 2000 becomes Partnership 2010
2001	BioMimetic Therapeutics, Inc. moves to Williamson County
2004	Cool Springs Life Sciences Center opens
2006	Mind2Marketplace created
May 2006	BioMimetic Therapeutics goes public
Apr 2008	Ground-breaking for second GMP manufacturing facility at Cool Springs Life Sciences Center

The rapid growth in middle Tennessee can largely be accredited to the development of the health care industry. The growth of the health care industry has been largely concentrated in Davidson County around the epicenter of Nashville. In just five years the number of health care and related establishments grew from 1,407 in 2001 to 1,566 in 2006. Williamson County has the next highest number of health care providers, with 302 establishments in 2001 growing to 412 in 2006, but this is still less than one fifth of the providers in Davidson County. In Nashville alone there are over 350 different health care companies. Twenty-one of those are the headquarters for larger, national, and even international health care service providers. One of the largest health care headquarters in Nashville is HCA Management Services, L.C., which manages 273 hospitals and outpatient surgery facilities in the U.S., United Kingdom, and Switzerland. Three of those facilities—Centennial, Skyline, and Southern Hills Medical Center—are located in Nashville (Bureau of Labor Statistics 2007). Nashville is also home to Baptist Hospital, the largest not-for-profit medical center in the U.S. (Baptist Hospital 2008). The largest health care provider in the area, however, is Vanderbilt University Medical Center. This giant facility sits on several acres of land in Nashville and is one of the largest hospital and research centers in the country (Cortright and Mayer 2002).

Local Economic Development in a Supportive Regional Context

The Nashville region’s strength in headquarters, specifically in health care and hospitals, is the result of loose yet collaborative partnerships in economic development that have been in effect over the past two decades. However, after losing multiple new business prospects to other competitive regions such as Charlotte, local officials and regional chambers of commerce formulized a regional partnership. The result was Partnership 2000, now renamed Partnership 2010. The initiative is public-private funded, with less than 10% coming from government sources. Given its predominantly private funding, the Nashville Area Chamber of Commerce is the home of Partnership 2010, and the chamber’s members from its region—the northern 10 counties of middle Tennessee—are the main participants (Nashville Chamber of Commerce 2008). The partnership’s central focus is business recruitment, and beyond its joint marketing function, the chamber assumes the role of project manager. It coordinates all business location requests, presenting the region’s aggregate demographics and capabilities with the purpose of securing middle Tennessee a coveted position on a company’s “short list” of possible locations. Although member counties are aware of new business location requests, the chamber

PARTNERSHIP 2010 **www.nashvillechamber.com**

A public-private economic development initiative of the Nashville Area Chamber of Commerce, Partnership 2010 provides assistance and resources for targeted businesses seeking to relocate to or looking to expand in the middle Tennessee area. In addition, the partnership conducts national marketing campaigns to showcase and promote the benefits of the area, which encompasses the 10 counties surrounding Nashville.

Area businesses support the partnership as investors. The Economic Development Department of Partnership 2010 has a staff of seven dedicated to recruiting new businesses and providing guidance to existing firms wanting to expand. Karl Dean, the mayor of Nashville, and Jack Bovender, CEO of HCA Inc., are currently the co-chairs of Partnership 2010.

is the point of contact to every extent possible until the area is short-listed. Subsequently, the chamber delivers the possible business relocation opportunities to the counties' own economic development authorities or chambers of commerce so that the locals can interact and develop incentive packages directly with the interested businesses.

The normal, highly competitive environment of business attraction was overcome to some extent by the Partnership 2010 initiative because of its proactive and nurturing role. The partnership creates frequent communication within the network of member counties via a committee structure. Organized around business recruitment, existing business, and marketing events, members have regular contact through meetings, policy issue discussions and panels, and various trade trips to develop markets abroad and across the U.S. In addition, the partnership's public and private investors retool and develop a new strategy every five years. From this process, ad hoc, targeted taskforces are created to address both established and emerging economic development issues that the area is facing. For example, as a result of a strategic planning session, the partnership created a taskforce to examine how the region could support entrepreneurs in innovative industries.

The members of these taskforces bring a host of expertise to the table with the intent of creating strategies to improve the partnership's role in economic development.

Exploiting Opportunity or Diversification at a Cost?

With the presence of Partnership 2010, the Nashville region's environment of economic development is both more coordinated and collaborative than that found in many regions in the U.S. However, even in a successful region, communities are turning to new growth opportunities. As discussed earlier, the region heavily depends on the health care sector; yet, Partnership 2010 also targets other industries, such as advanced manufacturing, digital music, music and entertainment business, logistics, warehousing, and wholesale trade. Williamson County sought to recruit beyond these stalwart industries.

Williamson's decision to go beyond the confines of the traditionally service-oriented health care sector into bioscience and biotech leveraged the research and development assets of Vanderbilt University Medical Center and emulated another emerging biotech venture in the region, the Cumberland Emerging Technologies (CET) initiative. Although the Partnership 2010 initiative and investors, such as the Nashville Capital Network, recognized biotech ventures as natural spillovers of the health care sector, the lack of knowledge and saturated regional expertise in biotech resulted in no formal coordination or attention to this industry. In regard to capital investment, the return on investment calculation is more complicated for biotech and bioscience companies: "funding for research activities are often tied to researchers' successful attainment of designated milestones...and some research reaches a dead end" before the pursuit of development, regulatory, and commercialization processes can proceed (Cortright and Mayer 2002,

23). In comparison, the health care investments are fairly traditional. The result is that biotech and bioscience companies in the region are receiving little venture capital and angel investment in comparison to traditional health care companies.

Although it is understandable that a level of risk averseness exists and that it is always easier to “grow what you know,” the existing economic development organizations may be missing a grand opportunity, which is exactly what economic development officials in Williamson County thought. As the baby-boomer generation ages, a larger percentage of the population will be senior citizens and life expectancies are increasing. Life sciences will be delivering what the health care services sector will need to treat this population, and less of it will depend on traditional health care delivery mechanisms. The emerging industries of biotech and bioscience will enable a personalized medicine experience, utilizing technologies for preventative maintenance, diagnosis, and treatment of diseases.

Beyond these forecasts, Williamson County foresaw a natural extension of the regional health care services sector, which should provide linkages to a built-in customer base and large procurers of medical devices. In addition, the types of jobs in medical research and development and production pay almost one and a half times the average annual wage for the Nashville-Davidson- Murfreesboro metropolitan statistical area (U.S. Department of Labor Bureau of Labor Statistics Occupational Employment Statistics 2007).¹ However, the region was coming late to the party, even in comparison with newcomers like San Diego, Seattle, and Raleigh-Durham. In fact, Memphis, on the southwestern border of Tennessee, even had an advantage (Memphis Bioworks 2008). Nonetheless, Williamson County remained resolute.

Biotech Comes to Williamson County

As of 1980, manufacturing industries accounted for over 20% of Williamson County’s economic activity. As of July 2007, this base had shrunk to around 7%, from a combination of the consolidation of some plants, others going out of business, and some going off-shore. In an entrepreneurial move, economic development officials decided to explore the recruitment of businesses in the biotech and life science industry, yet they recognized that they were not going to be a main location competitor. Thus, they focused on pharmaceutical and biotech companies that were more likely to consider new locations outside of the norm because they were acquiring another company or creating a new division. In addition, they targeted entrepreneurs attempting to take the next step with their laboratory discoveries. The county utilized approximately 350 acres of undeveloped land to market as a location ready to create a state-of-the-art research, development, and manufacturing facility that could cater to the special needs of biotech. In 1997 and 2001, the county had been on the verge of deals, but encountered difficulties in securing the land for development or, in the case of the latter, the financing for the project fell through following the 9/11 terrorist attacks.

In 2001, Williamson County’s luck changed as an entrepreneur sought to extend his business. Dr. Samuel Lynch of Harvard University and his colleagues developed the technology for the rhPDGF protein, found to be one of the principal wound-healing stimulators in the body in 1985, and created BioMimetic Therapeutics.

BIOMIMETIC THERAPEUTICS, INC.
www.biomimetics.com

BioMimetic Therapeutics develops and commercializes drug-device combination products for the healing of musculoskeletal injuries and disease, including orthopedic, spine, and sports injuries. Dr. Samuel Lynch is president and CEO of the company, which has a staff of about 85 employees. In July 2005, BMTI relocated its headquarters to the Cool Springs Life Sciences Center in Williamson County, Tennessee.

In 2001, BMTI incorporated, propelling it through its first round of Series A funding, and signed agreements with Chiron Corporation, ZymoGenetics, Inc., and Harvard Medical School. BMTI sought to fill a niche because although the two individual components of their products were manufactured in the U.S., the final kits were manufactured in the United Kingdom. For BMTI to realize its product development goals, it needed to manufacture these kits in the U.S. The business' growth prompted the need for a relocation to satisfy both its research and development as well as manufacturing needs, and Williamson County was ready for a company desiring enough land for manufacturing facilities.

BMTI secured 10 acres of property in Williamson County, and both the company and the county worked together to formalize the use of this property as a 140,000-square-foot life-sciences-focused research and development campus. BMTI and Williamson County economic development officials convinced the state of Tennessee's Department of Economic and Community Development that the construction of a first-of-its-kind biotech manufacturing facility in middle Tennessee was worth the injection of \$800,000 toward total infrastructure-related improvements.

The first building on the Cool Springs Life Sciences Center campus opened in 2004, housing 32,000 square feet of biomedical research laboratories, GMP manufacturing space, and administrative space, but it was the recent support from multiple levels of government for the second GMP manufacturing facility that demonstrated increased awareness and support of biotech in the region. The state pledged \$5 million for a 44,000-square-foot facility that will be the largest GMP in middle Tennessee. Williamson County followed suit, offering a property tax abatement of \$500,000, and the City of Franklin (the municipality in which CSLSC is located) also offered a property tax abatement of approximately \$150,000. BMTI went public in May of 2006 and currently has more than

85 employees; with construction of the second manufacturing facility under way, BMTI plans to grow 100 new jobs in the next two years.

Key Success Factors

Factor One: Growing the Talent to Support Biotech and Bioscience

Embedded in any economic development strategy is the concern that the workforce talent is available. The entrepreneurial move of BMTI and Williamson County encountered two challenges as it addressed the workforce issues.

- First, although the prevalent health care sector attracted an abundance of workers in terms of numbers, their skill profile, underlying talent and expertise, and educational background were not a perfect fit to support the industry. However, as an emerging new industry, BMTI and the other small biotech-related businesses in the region did not immediately require a large influx of talent, and thus long-term development of the workforce was central in their desires.
- Second, the long-term strategy presented the actors another challenge. The small industry needed to sway and attract outside talent to the region as well as introduce the industry to a new generation of regional talent, convincing youth that an educational and career path in biotech and biosciences would be as secure as one in traditional health care. The efforts of actors from multiple levels of government and the private sector became essential in order to address workforce development around a biotech extension of the region's health care cluster.

Factor Two: Congressional Leadership and Regional Cooperation

The call of Congressman Gordon for a coordinated regional effort around science and technology

transfer laid the groundwork for workforce issues. The Congressman's main goal was to improve the success of converting technology-based ideas and concepts into marketable products, which in turn would create jobs and expand economic development opportunities in middle Tennessee.

The result of his efforts was the 2006 creation of Mind2Marketplace (M2M), an organization with its main goal of establishing "strategic connections between people and/or organizations with marketable ideas and the final marketplace" in three primary industries: biotech, aviation/aerospace, and distribution (road and electronic) (Mind2Marketplace 2008).

The regional organization seeks to create foundational networks in middle Tennessee and has strategic partnerships with the Oak Ridge National Laboratory in Oak Ridge, Tennessee, and NASA's Marshall Space Flight Center in Huntsville, Alabama, to facilitate the development, testing, and commercialization process. M2M relies on the Rutherford County Chamber of Commerce for staffing and a grant from the Oak Ridge National Laboratory until the organization becomes a

self-funding membership organization. In its early stages, M2M's efforts in biotech have created institutional support for the emerging industry and opportunity to grow not only its product but its presence in the region from a workforce development perspective.

Factor Three: Taking Advantage of Tennessee's Educational Reform

Beyond federal-level prompting, Tennessee's recent educational reform offered prime opportunities for the biotech industry to present its educational needs. Under Governor Phil Bredesen's leadership, the state joined the 29-state American Diploma Project Network (Horn 2007; Achieve Inc. 2008), which is a coalition of governors and private sector leaders seeking to increase the rigor of high school curriculums.

The Governor's Office, the Tennessee Chamber of Commerce, and the Tennessee Business Roundtable surveyed private sector stakeholders—from CEOs to floor managers—to determine the types of skills new hires need in math, science, and language arts. In addition, the process brought together representatives from higher education, business, and pre-kindergarten through 12th grade to design the new curriculum. The newly revised standards affect pre-kindergarten to four-year universities and create communication pathways for industry representation and outreach, providing a venue through which industry can articulate desired workforce skills and competencies and universities can transfer advances in a disciplinary field to applications in industry. The biotech and bioscience industry statewide participated in these discussions, with middle Tennessee having representation from BMTI, CET, the Tennessee Biotech Association, and a nonprofit started by BMTI, Bridging Innovations Originating in Tennessee (BioTN).

For middle Tennessee to grow its biotech industry, the biggest hurdle is talent, and the lack of this

MIND2MARKETPLACE
www.mind2marketplace.com

A regional organization for middle Tennessee, Mind2Marketplace's mission is to bring the best ideas in technology to market, resulting in high-tech job creation for the region. M2M covers a 40-county area in the middle of the state and includes partners at the Oak Ridge National Laboratory and NASA's Marshall Space Flight Center. Two of its primary industry areas of focus are biotechnology and aviation and aerospace.

The organization had its origins in a challenge from Tennessee Congressman Bart Gordon, chair of the House Committee on Science and Technology, who called for a coordinated effort to support the development and testing of technology-based ideas for the marketplace. As a result, a group of academic professionals, businesspeople, educators, and representatives from chambers of commerce and governments in the area began meeting to plan how to work together. Oak Ridge National Laboratory awarded a grant to the group for the development stage, and in 2007 Mind2Marketplace was launched.

BIOTN: BRIDGING INNOVATIONS ORIGINATING IN TENNESSEE biotn.org

A nonprofit foundation, BioTN was founded by executives of BioMimetic Therapeutics to help bridge the science and technology skills gap between industry and education in Tennessee. BioTN's initiatives aim to promote interest in the science and technology fields among young people and to improve education in these areas with training for both students and teachers.

By bringing together schools from primary through high school, colleges and universities, and businesses, BioTN seeks to generate interest in careers in science and technology through innovative hands-on programs, as well as opportunities to retrain adult workers for job opportunities in these fields. Started with private money, the foundation secures continuing funding through grants.

type of workforce requires small biotech companies like BMTI to be proactive. BMTI through BioTN sought the advancement of science, technology, engineering, and math in multiple education venues in order to prepare the local talent. BioTN's collaboration with the Tennessee Board of Regents² (TBR) Technology Center and Tennessee Department of Education, with input from industry, was one such example. Their efforts developed a one-year certificate program in biomedical assistance. The program is a dual-credit (high school and college credit) certificate for high school and adult learners interested in positions in the biomedical industry. In addition, the certificate curriculum provides seamless transition to two- and four-year college degree programs in the Nashville region so attendees can continue their education to earn a degree. Consequently, the effort has included the coordination of degree programs from TBR universities in middle Tennessee, such as Tennessee State University, Middle Tennessee State University, and Columbia State.

The TBR approved the program in March of 2008, and the certificate program will be piloted in the fall semester of 2008 at Independence High School in Williamson County. The 900-hour certificate curriculum includes three units:

- Biomedical science information and workplace skills
- Content in life sciences as well as laboratory skills and instrumentation
- Experiential training or internships at biomedical companies to attain workplace learning and experience

Once the certificate is fully launched, an estimated 100 students in the region will enroll in the program, with hopes of an even greater effect if the certificate is accepted by TBR universities and colleges in other regions.

Factor Four: Grassroots Efforts

As previously mentioned, the activities of nonprofits like BioTN and its partnerships with the Tennessee Biotech Association cannot be underestimated. Although it is active in the development of its current workforce, BioTN also addresses the cultivation of a future workforce through its consortium of pre-kindergarten to 12th grade schools, higher education institutions, and business. These efforts attempt to educate youth and educators about the opportunities in science and technology fields with a diversity of activities.

BioTN hosts local exhibits, such as the "Life Sciences: Solutions for Life" exhibit at the Williamson County Fair, which provided interactive stations for youth that encouraged participation in science with a fun and game-like experience; the exhibit also provided opportunity to promote scientific professional opportunities to both youth and parents. BioTN was also Tennessee's host, along with the Tennessee Biotech Association, for a national science competition—the Sanofi Aventis BioGENEius Challenge, an industry-supported annual competition for high school students in biotech research.

Further curriculum-related activities for BioTN, beyond their role in creating the biomedical

assistance certificate, include serving on advisory boards and partnering with universities and colleges on the development and submission of grants to improve basic and applied science curriculums. One such effort sought to bring recent graduates from science fields into the high school classroom to enhance both student and faculty understanding of biological sciences. The main goal of BioTN's education-related activities is the channeling of youth into science-related jobs. Consequently, BioTN is seeking industry partnerships to provide experiential learning that showcases job opportunities for current students and recent graduates in the sciences. These types of collaboration among the private, nonprofit, and industry associations and the strong lead of organizations like BioTN are necessary for middle Tennessee to build the foundational workforce for the emerging industry and to support the immediate expansion at BMTI.

Key Findings

Williamson County's biotech endeavor is young, but the growth thus far is not inconsequential. Overall, collaboration was a key factor in the Williamson County experience of developing the biotech industry as a spinoff from Nashville's health care sector. However, the collaborative players were propelled by unlikely candidates. The Nashville Area Chamber of Commerce provides structure to Nashville's regional collaboration in economic development; yet, their role is more coordination-oriented, as it pushes most economic development strategy and negotiations down to the local level. Williamson County's entrepreneurial venture into biotech removes it from the main endeavors of the Nashville Chamber and Partnership 2010. Although Williamson County branched out of the traditional sectors, it relied on the communication networks that existed as a result of the regional collaborative model for economic development activity. The promotion of biotech as an opportunity for the region presented an alternative partnership model

for the recruitment of new industry that contained two essential elements:

- The county's ability to convince the state of the opportunity
- The proactive participation of BMTI and BioTN, as well as CET and the Tennessee Biotech Association

Finding One: Mutual education-industry exchange must be institutionalized.

The main challenge with growing biotech in this region was and remains workforce development. In this venue, the issue needed expertise and guidance from the private sector and the support and flexibility of educational institutions in the area. However, defining which of those should lead the process continues to be a struggle. The Williamson County case indicates that state and local government play critical roles in structuring grants, initiatives, and programs such that they promote the exchange between the educational and private sectors. In workforce development, the educational institutions will deliver the programs, yet industry must be part of the design of these programs, detailing trends and required labor skills. However, the exchange also goes the other direction, because educational-institution-supported research should have a structure that allows the passage of this information to industry in usable formats. Consequently, federal and state educational grants should prioritize such collaborative efforts, requiring the application of experiential-based principles and measurable deliverables of its impact and effectiveness. At this point in time, neither the federal- nor state-level grants encourage application-based learning experiences. The built-in assessment of the biomedical assistance certificate is a test of mutual collaboration as well as experiential learning. For the growth of new industry, such a workforce development model seems highly relevant.

Finding Two: Economic diversification based on research and development should be supported.

Williamson County's stake in the biotech industry also faces hurdles with regard to the flow of capital investment. Entrepreneurs and new businesses require substantial investment to support the transfer of research and development ideas and concepts in biotech into marketable products. Beyond the development of an incubator space like the CSLSC, local economic development organizations need to foster new relationships with private investor institutions. In general, the modus operandi for local economic development organizations is the creation of more jobs, and opportunities emerge from the private sector's increased investment in a specific industry. The investment community, however, is logically concerned with whether an investment is the right one, at the right time, and whether it has been successful in the past. They evaluate their investments in specific industries or companies by their returns on those investments. Consequently, the private sector doesn't see economic development as a direct responsibility; its objective is to develop an environment where entrepreneurs are profitable, and the outcome of such investment is successful economic development. Thus, from the view of venture capitalists and angel investors, economic development organizations should support venture funds, but not vice versa.

This points to a problem in the Nashville region because it suggests that private investors pick the winners. The economic development community in the Nashville region has a close relationship with its investor community; however, the focus is on health care and other industries in which investors have expertise and confidence. In the case of biotech, the youth of the industry creates a risk-averse situation. The investors are not as supportive of it because it is unlike traditional health care services, and consequently they

lack expertise with evaluating its potential. Yet, Williamson County and the biotech potential in the region desire an opportunity.

Both sides of this economic development philosophy have valid points. Investment for the sake of investing is not smart policy. Economic development organizations as well as the biotech scientists and entrepreneurs in the region can facilitate this process by exploiting the investment-economic development networks that exist for health care and become an educator of the investment community. Improved communication between the private sector, investors, and local economic development organizations can harness private sector investment in a mutual setting where private investors can learn from economic development expertise.

Williamson County's development of biotech reflects its desire to extend past Nashville's traditional industries into one that will possibly lead to further opportunities. The collective support of state, local, and nonprofit players has enabled this strategy to grow. However, without the continued, strong presence of BMTI and its associated nonprofit, BioTN, the likelihood of CSLSC coming to fruition is questionable. For biotech to really grow its roots in the region, the education of its private investment community, from venture capital to angel investors, about biotech is essential. However, the state can also play a role in filling this gap, as is evident in other states—from Michigan's state-funded venture capital funds to California's proposed 2008 legislation that would allow biotech and life science companies to spread deductions from incurred net operating losses over 20 years instead of the current 10 years, effectively lowering taxes once companies start to turn profits (Gardner and Peterson 2008; Sibley 2008).

The local investment community is not the only entity that is able to support counties like Williamson that desire to diversify their economic base through securing an industry that is research-

and-development-based with potential for long-term benefit given the aging demographic of the U.S. The 2007 passage of the America COMPETES Act (America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act) (Public Law No: 110-69 2007) is an attempt to support the culture of innovation and research that the U.S. has built. The act seeks to increase research investment; strengthen educational opportunities in science, technology, engineering, and mathematics from elementary through graduate school; and develop an innovation infrastructure.

For many years, the U.S. has been recognized as having a large comparative advantage in research and development. However, experts claim that some of this is moving overseas. The impact that the act can have on maintaining the national advantage could assist local regions with promoting such industry. The investment of localities in research-and-development-intensive industries is one way to keep this advantage as well as help tie local economies to business expected to provide long-term growth opportunities. In addition, these opportunities are more likely to produce sustainable economic development from an environmental-impact perspective. Williamson County views its creation of its biotech research and development park as the 21st century equivalent of manufacturing. It enables Williamson County to maintain a balance between preserving its culture and natural surroundings while diversifying its economic base.

Endnotes

¹ Figures were calculated using the Bureau of Labor Statistics May 2007 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates for the Nashville-Davidson-Murfreesboro MSA. For May 2007, the MSA's mean annual wage for all occupations was \$37,970; the average annual wage for life science occupations was \$55,122, calculated for life sciences occupation codes only, 19-1021 through 19-1099 (http://www.bls.gov/oes/current/oes_34980.htm#b00-0000).

² TBR is one of two public higher education systems in the state. TBR governs six universities and 13 community colleges. The second public higher education system is the University of Tennessee system, which is responsible for four universities and a health sciences center.

References

- Achieve Inc. (2008). "Achieve.org." Retrieved May 1, 2008, from <http://www.tnchamber.org/insider/June07.pdf>.
- Baptist Hospital. (2008). "Baptist Hospital." Retrieved May 30, 2008, from <http://www.baptisthospital.com>.
- BioMimetic Therapeutics Inc. (2008). "BioMimetic Therapeutics, Inc." Retrieved April 20, 2008, from <http://www.biomimetics.com/>.
- BioTN. (2008). "BioTN Mission." Retrieved May 1, 2008, from <http://www.biotn.org/Mission.htm>.
- Bureau of Labor Statistics. (2007). "Total Number of Establishments, Healthcare and Social Services; Cheatham, Davidson, Dickson, Hickman, Maury, Rutherford, and Williamson Counties." Retrieved May 1, 2008, from [http://data.bls.gov/PDQ/servlet/SurveyOutputServlet;jsessionid=f0301d16bacc\\$3F\\$3F\\$2](http://data.bls.gov/PDQ/servlet/SurveyOutputServlet;jsessionid=f0301d16bacc$3F$3F$2).
- Cool Springs Life Sciences Center. (2007). "Building C Fact Sheet." Retrieved April 17, 2008, from <http://cslsc.com/BuildingCFactsheet.pdf>.
- Cool Springs Life Sciences Center. (2008a). "Building C Groundbreaking." Retrieved April 17, 2008, from <http://www.cslsc.com/BldgCgroundbreaking.htm>.
- Cool Springs Life Sciences Center. (2008b). "Cool Springs Life Sciences Center." Retrieved May 1, 2008, from <http://www.cslsc.com/overview.htm>.
- Cortright, J., and H. Mayer (2002). *Signs of Life: The Growth of Biotechnology Centers in the U.S.* Washington, DC, The Brookings Institution Center on Urban and Metropolitan Policy.
- Gardner, M., and J. Peterson. (2008). "Life sciences boost needed." Retrieved May 14, 2008, from <http://www.paloaltodailynews.com/article/2008-5-14-05-14-08-op-ed>.
- Horn, M. (2007). "Tennessee Joins American Diploma Project; Goal is Increased Rigor in High School Curriculum." Retrieved May 1, 2008, from <http://www.tnchamber.org/insider/June07.pdf>.
- Memphis Bioworks. (2008). "Memphis Bioworks." Retrieved May 1, 2008, from <http://www.memphisbioworks.org/>.
- Mind2Marketplace. (2008). "Mind2Marketplace." Retrieved May 1, 2008, from <http://www.mind-2marketplace.com/>.
- Nashville Chamber of Commerce. (2008). "Nashville Chamber of Commerce." Retrieved May 1, 2008, from <http://www.nashvilleareainfo.com/Default.aspx?Page=RegionalPartners>.
- Public Law No: 110-69 (2007). 21st Century Competitiveness Act of 2007. H9414-9465.
- Sibley, L. (2008). "State bill could ease life science taxes." Retrieved May 1, 2008, from <http://sanjose.bizjournals.com/sanjose/stories/2008/04/07/story3.html?b=1207540800%5E1615105>.
- Tennessee Encyclopedia of History and Culture. (2002). "Williamson County." Retrieved April 26, 2008, from <http://tennesseencyclopedia.net/imagegallery.php?EntryID=W069>.
- U.S. Census Bureau (2000). *Williamson County, Tennessee, Profile of General Demographic Characteristics: 2000.* U.S. Census Bureau, Census 2000.
- U.S. Census Bureau (2006). *American Community Survey: DP-3: Profile of Selected Economic Characteristics.* U.S. Census Bureau. Washington, DC.
- U.S. Department of Labor Bureau of Labor Statistics Occupational Employment Statistics. (2007). "May 2007 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates Nashville-Davidson-Murfreesboro, TN." Retrieved May 9, 2008, from http://www.bls.gov/oes/current/oes_34980.htm#b00-0000.

Ann Arbor, Michigan: Seeking a Comeback

Ann Arbor has long been a haven in the state of Michigan, known for the University of Michigan (U-M) as much as it was associated with Michigan’s primary economic industry, the auto industry. U-M has played a strategic role in Ann Arbor’s economic development for years. And it was cemented firmly in 2005 with the creation of Ann Arbor Spark, a public-private partnership for economic development and its subsequent union with Washtenaw Development Council in 2006. With each previously pursuing regional economic growth separately in the communities of Washtenaw County, the merger of the two organizations is an excellent example of how entrepreneurial state leadership in economic development can lead to regional collaboration.

Washtenaw County have always been somewhat easier than for the rest of Michigan. The city and county have lower unemployment rates, higher median incomes, and a much larger population of college graduates. Isolated to some extent because of U-M’s location, this is a factor that Ann Arbor Spark and other economic development officials in the state are trying to understand. Many have suggested that during the boom of the automotive industry, a percentage of the population, which in most circumstances would have gone to college, chose instead to enter the workforce. Automotive industry and related manufacturing wages and benefits were high relative to the education level of the blue-collar workforce. With the decline of the industry and its lucrative job opportunities, the state workforce’s average education level is a great concern and has long-term implications for the economic well-being of Michigan.

The Dual Economies of Michigan and Ann Arbor

The economic challenges facing Ann Arbor and

At A Glance: Ann Arbor, Michigan	
The Initiative	The creation of public-private economic development organizations, like Ann Arbor Spark and the Michigan Economic Development Corporation, encouraged the full participation of educational institutions and private sector firms in efforts to grow internal talent and diversify the economies of Ann Arbor and Michigan.
The Result of the Initiative	Ann Arbor Spark administers multiple local and state programs as well as public venture funds intended to develop and cultivate entrepreneurs and innovations emerging from local universities, colleges, and companies.
Key Lessons from the Initiative	The initiative is working toward success because of: <ul style="list-style-type: none"> - The financial and business planning support of entrepreneurs in the early stages of development; and - Extensive and open communication among all public-private partners in economic development.

Michigan's Economy

The 1990s was a period of sustained economic growth for Michigan. By the year 2000, labor force participation was at record levels while unemployment was at an all-time low. In just nine years (1991–2000), the unemployment rate statewide went from 9.3% to just 3.6%. The average individual income rose by \$4,500 annually after adjusting for inflation, but Michigan's population grew at half the national rate. The combination of slow population growth and rapid job creation provided employment opportunities for almost anyone who wanted to work (Glazer and Grimes 2002).

A closer examination of demographics in Michigan shows not everyone benefited from the economic boom. Salaries rose sharply for employees with a bachelor's degree, which increased from 21% to 28% during this time; however, workers with a high school diploma or GED actually saw a decline in their real income. The decrease in unemployment and rise in salaries was concentrated among high-wage positions and knowledge-based industries. Statewide averages gave the impression of statewide growth when in actuality much of the state was in sharp decline (Glazer and Grimes 2002).

When a recession came in 2001, sectors that had benefited the least from the economic boom were hit the hardest by the slowdown. Manufacturing, once the sector with the highest employment in Michigan, fell to just one third of the jobs in the state, as the service sector replaced manufacturing as the state's largest employer. Unemployment jumped by 2.3% in 2001 in Michigan compared to only 0.1% nationwide. Much of the rise in unemployment was attributed to the loss of automobile manufacturing as plants either closed or reorganized to employ fewer workers. In contrast, knowledge-based positions, including those in the life sciences, automotive research, and financial services, showed continued growth

through the economic downturn (Glazer and Grimes 2002).

The dichotomy of simultaneous growth and decline in Michigan demonstrated a shift from the industrial age to the information age. Unfortunately for many citizens, the workforce changed less quickly than these conditions. An entrenched manufacturing mentality persists in Michigan because manufacturing, and automobile manufacturing in particular, has been a strong component of the cultural identity for generations. As a result, fewer young people entering the workforce take advantage of the developing science and technology fields (Glazer and Grimes 2002).

As Michigan's economic conditions have improved or worsened, Washtenaw County has consistently maintained lower unemployment and higher personal salaries than the rest of Michigan. After a high of 6.1% in 1991, unemployment dropped to 1.6% by the year 2000 (Washtenaw County Board of Commissioners 2004). By 2006, unemployment in Washtenaw County had risen to 4.6% but was still lower than the 6.9% statewide. The average salary has remained higher, too, at \$51,176 compared with the state average of \$46,677 (FedStats 2008).

Ann Arbor Regional Economy

One reason Washtenaw County's economic conditions have remained better than the state average is because of its county seat, Ann Arbor. Ann Arbor's willingness to embrace new industry and stay ahead of changing economic forces has made it a hub for innovation and technology. U-M is Ann Arbor's largest employer and has had a history of fostering relationships with emerging sectors and bringing innovation to Ann Arbor.

Ann Arbor's residents are typically well educated, professional, and affluent. In 2000 51.2% of residents had a graduate or professional degree and 27.8% had a bachelor's degree. Of the jobs in

ANN ARBOR TIMELINE

Date	Milestone
2002	The cities of Ann Arbor and Ypsilanti receive a SmartZone designation and create business incubator spaces
2003	Ann Arbor declared its own Metropolitan Statistical Area
2005	- Ann Arbor Spark is officially created - Michigan's 21st Century Jobs Fund launched - Toyota Technical Center acquires property from the State of Michigan to build a new reserach and development facility
2006	Spark unites with Washtenaw Development Council
Jan 2007	Pfizer announces closure of its facility by 2008
Sep 2007	Aernnova Aerospace S.A. announces new facility in the Valley Ranch Business Park in Ann Arbor
Jan 2008	Governor Granholm announces Michigan Invests! Fund
2008	Ann Arbor Spark works to develop wet lab incubator in space formerly used by Pfizer
Apr 2008	Toyota Technical Center announces opening of new research and development facility

Ann Arbor, 74% were in management, professional, or related occupations, and 42% of all salaries were at least \$100,000. From 2000 to 2006 the average household income remained higher than the Washtenaw County average and grew from \$85,858 to \$94,514, and the average price of a home rose by almost 50% in the same time period (U.S. Census Bureau 2000).

Although traditional automobile manufacturing is down, automotive research is up, as manufacturers are investing more in designing better cars for less money. Not surprisingly, Ann Arbor is home to over 120 firms engaged in automotive research and design. In 2005 the Toyota Technical Center (TTC) acquired property from the state of Michigan to develop a new research and development facility in York Township, part of Ann Arbor. Initial projections promised 400 new jobs by the year 2010 (Toyota 2008).

On April 1, 2008, TTC announced the opening of the Toyota Research Institute of North America, which plans to spend \$100 million on advanced research activity (Toyota 2005). Ann Arbor is also home to the Michigan Information Technology Center (MITC). MITC houses technology firms

including Internet2 and the Merit Network. It was built next to U-M to provide “a central location that facilitates the co-location of leading edge IT organizations with education and industry-supported services” (MITC 2008).

Both TTC and MITC work closely with U-M, and professors from the university hold high-ranking positions at each company. These projects are just two examples of the many relationships U-M has fostered to bring knowledge-based industries to Ann Arbor. The innovative approach to economic

MICHIGAN INFORMATION TECHNOLOGY CENTER
michitc.org

The establishment of the Michigan Information Technology Center was yet another means of attracting knowledge-based industries to the area around Ann Arbor. Located adjacent to the University of Michigan main campus, the center serves as the state's and the region's IT industry accelerator. It provides a central location for leading-edge IT organizations to locate together, with education and industry-supported services close by. Internet2 and the Merit Network both have space there. The center works closely with University of Michigan faculty.

The MITC Conference Center is a state-of-the-art facility that showcases the advanced-technology industry and serves to promote the marketing of the state and the Ann Arbor region as a center for information technology.

development is the main reason why Ann Arbor consistently has better economic conditions than Washtenaw County and why Washtenaw County fares better than the rest of the state.

Fighting Job Loss and Working for Recovery

The focus of Michigan's economic development agencies is to create jobs with higher educational requirements and promote a foundation that can support a workforce response. For the state, the efforts are central to the Michigan Economic Development Corporation (MEDC) as it also attempts to diversify its industrial base.

Ann Arbor Spark, as a similar but regional authority, also works toward this goal, cultivating workforce talent that the boom tempted out of the traditional higher education and skills attainment path. Ann Arbor, in comparison to the state and other cities like Lansing and Detroit, seems better positioned for this move. Although job loss has

been devastating across the state, Ann Arbor fared better during the recovery from the 2001 recession. Washtenaw County lost 7,800 jobs post-recession between 2002 and 2004; however, it has started to regain some jobs and has done so "about four years before Michigan is expected to experience job growth" (Gopwani 2006). Most admit that Ann Arbor will rise and fall with Detroit, however, Ann Arbor usually has higher upsides and doesn't suffer as much decline.

Key Success Factors

Factor One: Public-Private Economic Development Organizations

Role of the Michigan Economic Development Corporation

In 1999, the state of Michigan altered the way it approached economic development. State legislation (Article VII, Section 28 of the State Constitution, and Act 7, P.A. 1967) provided for the creation of MEDC as a corporate public body, more commonly referred to as a public-private partnership. The legislation created a structure that allowed for intergovernmental relationships and collaboration through a 10-year interlocal agreement. As a separate legal entity, the MEDC stimulates, coordinates, and advances economic development in Michigan through its legal partnerships with over 60 local economic development corporations. As a hybrid of the public and private sector, the MEDC has a 20-member Executive Committee appointed by the governor that sets its strategic direction and a private sector board of directors (MEDC Board) that develops its policies and procedures. Both memberships include businesspeople, local economic developers, and educators. The public-private model works effectively in the sense that it harnesses both public and private resources and intellectual capital, unlike a purely public economic development department, where the public sector is the main contributor.

MICHIGAN ECONOMIC DEVELOPMENT CORPORATION www.michiganadvantage.org

As the lead economic development entity for the state, the Michigan Economic Development Corporation is a public-private partnership working to diversify the state's industrial base. MEDC promotes economic development in the state through its partnerships with over 60 local economic development corporations.

MEDC has an Executive Committee appointed by the governor that sets strategic direction and a private sector board of directors that develops policies and procedures. Both groups are composed of businesspeople, local economic developers, and educators.

MEDC's Michigan Advantage Website (www.michiganadvantage.org) is a one-stop resource for companies considering locating in the state or growing their existing business. It has links to information on starting a business; relocating or expanding; hiring and workforce development training; and taxes, licenses, and permits.

Current initiatives for supporting business growth in the state are targeting the high-growth sectors of alternative energy, the life sciences, homeland security and defense, and advanced manufacturing.

Thus, creating partnerships with local economic development authorities is in the MEDC's DNA, ranging from joint calls on existing businesses for retention purposes to national and international trips to recruit new business to Michigan. This coordination of efforts is dependent on teams composed of both an MEDC and local representative that have not only a long history of relationships and the trust of businesses in the region but also expertise in the industry or issue at hand, such as workforce development, community college education and training, or transportation. The teams work together to assemble incentives and programs, and although presently they have been geographically organized, there is movement to reorganize them by industry and sectors. In addition, the MEDC brings together economic development practitioners from local organizations like Ann Arbor Spark, The Right Place, Inc. in Grand Rapids, Southwest Michigan First in the Kalamazoo region, Battle Creek Unlimited, Lansing Regional Economic Development Team, and Detroit Renaissance to discuss strategy and issues. These local authorities take on similar public-private structures.

Through the state and local partnerships, all levels of economic development authorities collaborate to determine the focus of business development. Currently, the focus is on businesses that rely on engineering, scientific research, and high technology, with key state industry priorities including life sciences, alternative energy, advanced automotive and manufacturing, and defense and homeland security (McCormick 2008). To assist in this effort, the state has a number of attractive policies, in particular two Michigan Economic Growth Authority tax-credit programs and the 21st Century Job Fund. The tax credits, called MEGAs or High-Tech MEGAs, are available to in-state companies that create at least 50 new jobs or to out-of-state companies that create at least 100 new jobs within one year.¹ The purpose of the 21st Century Job Fund², funded by the

state's tobacco settlement, is to help diversify the state's auto-heavy economy into the key industries. Although research and development monies are available, a growing focus of the fund is for market-ready research, supported through capital investment and commercial lending incentives.

Spotlighting Ann Arbor Spark

Ann Arbor Spark officially launched in the spring of 2005 as a result of a partnership of U-M, business, and community leaders. As the name signifies, Ann Arbor Spark's central vision is to "ignite innovation" through the attraction and growth of innovation-based business. Although an MEDC representative served on the initial Ann Arbor Spark board of directors, influencing its structure, Ann Arbor Spark's creation is mainly due to the strong push by U-M President Mary Sue Coleman and the Ann Arbor business community.

ANN ARBOR SPARK
www.annarborspark.org

Ann Arbor Spark is a public-private partnership for regional economic development whose members include university, business, government, and community leaders. Its focus is on promoting the development of innovation-based businesses in the area around Ann Arbor, particularly in the fields of IT and the life sciences. To accomplish this, Ann Arbor Spark provides a variety of services and programs. Its Business Accelerator program offers support to start-ups. Financial support for seed money is available through funds such as the Michigan Pre-Seed Capital Fund. Through its two incubator spaces, Ann Arbor Spark provides office space and support to fledgling tech-related businesses.

In addition to supporting the growth of entrepreneurs, particularly those coming out of the area's universities, the initiative also provides outreach to businesses faced with decline or downsizing and proactively works to retain and expand existing businesses in the area. And on the education front, Ann Arbor Spark provides educational forums and offers businesses connections to employee training programs and recruitment centers at area colleges and universities and through the services of Washtenaw County.

Key investor stakeholders include the University of Michigan, Eastern Michigan University, Pfizer, the City of Ann Arbor, Washtenaw County, and the Michigan Economic Development Corporation.

As mentioned earlier, Michigan's altered economic development approach has filtered down to the local level. However, the public-private partnership was not the only consequence. The new model also encouraged regional collaboration among existing economic development authorities that may have been jurisdictionally separate but were able to see the benefit of thinking less about political boundaries. The merger of Ann Arbor Spark with the Washtenaw Development Council (WDC) in 2006 characterized the structural and organizational effect of the MEDC legislation. The new Ann Arbor Spark provided "seamless resources and advocacy for the acceleration of new business start-ups as well as the successful retention, expansion and attraction of business" (Ann Arbor Spark 2006).

Previous to the merger, WDC put its efforts and monies in traditional economic development activities, mainly the retention of the county's manufacturing-based companies; however, Ann Arbor Spark was more concerned with the creation of innovative business in information technology and the life sciences as well as understanding what foundations and structures entrepreneurs needed. U-M's influence cannot be understated in this process, given its interest in the transfer of U-M technology to the marketplace. Ann Arbor Spark's creation facilitated the responsibility of U-M's Tech Transfer office in that the new organization provided an open network for inventors and possible industry partners (University of Michigan Tech Transfer 2007). The merger resulted in one entity that could facilitate start-ups and companies of all sizes with greater access to resources.

A first step of Ann Arbor Spark was the identification of industry clusters that the area could grow and support. Both an industry and comprehensive labor assessment were necessary to determine:

- In which industries Ann Arbor had a relative strength

- The concentration of workforce and talent in these industries
- The other attractive business factors of the area

This large data collection effort was made easier because Ann Arbor was finally declared its own Metropolitan Statistical Area (MSA) in 2003, separating it out from its previous designation as the Detroit-Ann Arbor-Flint MSA. This not only made smaller geographical analysis possible, but it also demonstrated how different Ann Arbor's clusters were from Detroit and Flint. Overall, the analysis indicated that the assets of the Ann Arbor region were underutilized—from its universities and colleges to its quality of life. Consequently, Ann Arbor Spark crafted efforts to highlight these factors.

Factor Two: Creating a New Space for Entrepreneurs

Ann Arbor Spark's central focus is making the most of the talent and innovation coming from its university, colleges, and spin-offs from local companies. The foundation to ignite innovation and support entrepreneurs exists within a number of programs, which are predominantly organized around the state-declared SmartZones, created to assist high-tech start-up companies with becoming commercially viable through access to early-stage capital for market development (Ann Arbor Spark 2007).³ The state designated Ann Arbor as a SmartZone in 2002 along with Ypsilanti, a small town in Washtenaw County. The SmartZone designation created a tax increment finance (TIF) district, which captured tax dollars to fund entrepreneurs and start-up companies as well as provide initial funds to seed the organization that became Ann Arbor Spark in 2005. Currently, Ann Arbor Spark promotes technology-based clusters through the SmartZone's Business Accelerator program, a pre-seed money capital fund, incubators, and, for life science start-ups, access to

equipment resources from the Michigan Innovation Equipment Depot.⁴

One of the biggest efforts in the past year, and indicative of just how entrepreneurial Ann Arbor Spark is as an organization, has been its response to Pfizer's announcement that it was closing its 177-acre Ann Arbor research and development facility by late 2008. As part of Pfizer's company-wide plan to cut 10,000 jobs, the pullout would result in a loss of 2,410 jobs in Ann Arbor (University of Michigan News Service 2007). Neither Ann Arbor Spark nor the MEDC were passive with the receipt of this disappointing information. With concerns of further employment shock, they organized a series of Pfizer Strategic Working Action Teams (SWATs) to aid displaced Pfizer workers. The SWAT included university leaders (U-M, Wayne State, and Michigan State University), state and community officials, and business leaders who sought to keep the talent in the state and channel these skills into entrepreneurial ventures (University of Michigan News Service 2007; University Research Corridor: Empowering Michigan 2007). To support the effort, the Michigan Department of Labor and Economic Growth committed \$1 million to assist dislocated workers.

Ann Arbor Spark's focus on innovation and entrepreneurship made it a natural leader during the Pfizer challenge. With its programs already providing physical, institutional, and financial support to entrepreneurs, it possessed assets that were easily adaptable to the circumstances. In terms of physical space, Ann Arbor has two incubator spaces—Ann Arbor Spark Central and East Incubators—which provide office space and assistance to new start-ups not yet able to afford traditional office expenses like leases, equipment, and overhead. These incubators are available to tech-related businesses. The vacant Pfizer facility has provided additional opportunities. In particular, this space includes a unique and desired wet lab.

The lab provides the correct building requirements for water and ventilation to create the appropriate conditions for the testing and analysis of chemicals, drugs, or biological materials. U-M secured a lease for 34,400 square feet of the former Pfizer facility to house its pathology department as well as to sub-lease space to Ann Arbor Spark for a wet lab incubator to assist small biotech companies lacking access to such expensive facilities (Ann Arbor News 2007).

Physical space is only part of the equation for developing a sound foundation for entrepreneurs, whether previous Pfizer employees or not. Ann Arbor's Business Accelerator assists entrepreneurs with early-stage business planning and development. For example, an entrepreneur can benefit from the advice of business leaders through "boot camps" and other networking opportunities. Entrepreneurs apply to be admitted to regular boot camps, which are two-day intensive sessions to assist early-stage technology businesses with conceptualization of their business concepts and increase funding opportunities and access to resources. Ann Arbor Spark even recognizes the most promising business with a "Best of Boot Camp" award, usually a cash prize of \$5,000. With the 13th session occurring this spring, these boot camps have produced a number of market-tested successes.⁵ In addition, the Business Accelerator provides funding for technology-based start-up businesses through the Michigan Pre-Seed Capital Fund and lab equipment for life science start-ups through the Michigan Innovation Equipment Depot (University of Michigan News Service 2007). Ann Arbor Spark administers the fund, which is a collaborative equity fund of the state's 12 SmartZones. The fund receives the same returns as a third party investor would from an investment; however, the returns on the investments are seed money for the fund's continuation. In general, the overarching goal of the Business Accelerator is to shorten "the time required to attract capital,

customers, or other resources” (Ann Arbor Spark 2006; Ann Arbor Spark 2007).

The efforts of Ann Arbor Spark and the SWAT team are continuing, and 22 new technology companies have been created by former Pfizer scientists with loans from the state’s 21st Century Jobs Fund. However, even private companies took advantage of Pfizer’s released talent. Upon hearing of the layoffs, Metabasis, a biopharmaceutical company with 125 employees based in La Jolla, California, established a satellite office and secured seven former Pfizer employees that wanted to stay in Ann Arbor. The match enabled Metabasis to secure talent needed for the clinical development of its diabetes and cholesterol products. Although Ann Arbor Spark did not attract Metabasis directly, the organization has reached out to Metabasis to encourage further growth of its satellite office, and its employees support Ann Arbor Spark’s programs where possible.

Banking on Educational Depth

Ann Arbor Spark’s business creation efforts were not only focused on local entrepreneurs. Ann Arbor’s surrounding universities and colleges were a distinct advantage in attracting two recent companies. In its 2007 expansion, Barracuda Networks located a facility outside of the Silicon Valley—the home of its headquarters—in order to overcome its tight labor market and ease recruiting. Barracuda develops and manufactures firewall, e-mail, and Web security appliances, and the Ann Arbor facility develops and supports its e-mail message archiving product. Currently, it employs 25 software engineers and support staff but plans to expand to 60 in the next calendar year. Barracuda is one of a few companies in the area with needs for software engineers; thus, relationships with U-M and Michigan State, particularly the computer science departments, have proven successful and provided opportunities in a field in which many graduates had few local prospects. Again, Barracuda was not a direct

recruitment for Ann Arbor Spark; instead the relationship evolved as a result of U-M’s reference to the organization for assistance. As a primary stakeholder in Ann Arbor Spark, U-M’s facilitation of such relationships is critical to the evolution of the area.

Ann Arbor’s engineering talent and reputation also recently resulted in the attraction of an international company, Aernnova Engineering US, Inc. Aernnova’s initial contact was with U-M because of the reputation of its engineering program; however, U-M facilitated the relationship with Ann Arbor Spark, which then enlisted the MEDC. The collaborative efforts—including a MEGA tax-credit incentive—were successful. The Spanish aerospace company selected Ann Arbor as the location for its first presence in the U.S., which is home to 70% of the world’s aerospace market. The facility will design and optimize composite and metal aerostructures and be a center for new business development. The quality of life, solid university system, and abundant local talent in engineering made the region very attractive to Aernnova, which seriously considered three other locations before selecting Ann Arbor. Aernnova stressed the importance of Ann Arbor Spark being a single point of contact during the selection and negotiation process. Currently, Aernnova faces the reality of retraining its employees in order to transfer automotive specialties into aerospace; this is particularly challenging given the different design approach. The company is paying for all associated employee training, but it is also working with U-M to enhance aerospace and mechanical engineering offerings. For example, the president of Aernnova will serve on the College of Engineering’s technical advisory committee.

Key Findings

Many economic development authorities find that attraction is a predominant strategy. Ann Arbor Spark, like the state itself, has not been

successful in attraction at first glance. Yet, the examples mentioned here and the collaborative force that U-M adds to Ann Arbor Spark's efforts would suggest Ann Arbor is faring well given its entrenched economic base in the automotive industry and that it is not proactive in pure business attraction efforts. The creative approach of Ann Arbor Spark focuses on Ann Arbor's strengths, creating a role for educational and civic leaders and promoting its internal sources of growth—that of its entrepreneurs coming from the university system and industries that are declining or downsizing. Most of the firms highlighted here were not the result of pure attraction efforts, but a spillover from Ann Arbor's unemployed or underemployed workforce with a range of talent, applicable skills, and expertise that mesh well with the efforts to develop business-related life sciences, alternative energy, advanced automotive and manufacturing, and defense and homeland security.

Finding One: The basics of entrepreneurial support must be in place.

The efforts of Ann Arbor Spark and the MEDC to diversify the economies of Ann Arbor and Michigan rely heavily on the development of internal talent. The educational portion is just part of the puzzle for an entrepreneur's business concept to become a marketable service or product. Financial capital is a necessary condition. Michigan notes that only five venture capital funds and three formal networks of "angel investors" are currently investing in Michigan business. In an environment with limited private venture activity, the public sector's role in providing funding support, whether seed or venture capital funds, is consequential to the success of the model of economic development. The Venture Michigan Fund, Capital Access Program, and the 21st Century Jobs Fund are perfect examples.

Governor Jennifer Granholm recently announced a new \$300 million investment fund, "Michigan Invests! Fund," which will be capitalized over the next three years by Michigan pension funds.

Again as with the other funds, the public support is targeting entrepreneurs in high-growth companies. Michigan's efforts in development of entrepreneurs do not go unnoticed given its ranking of six among all states on the Small Survival Index 2007 (Keating 2007).

Michigan's dense network of support cannot be effective without execution at the local level. MEDC recently recognized Ann Arbor Spark for its successful coordination and administration of the entrepreneurial-related programs as well as its administration of Michigan's Pre-Seed Capital Fund. It received the 2008 "Outstanding Diversification Achievement Urban Economic Development Partner Award." From physical to educational to financial, Ann Arbor Spark has had an impact on the local economy. However, as indicated by its founding, Ann Arbor Spark has the support of a solid base of educational and private institutions. Ann Arbor finds itself among a distinguished group of smaller cities, ranking fourth in the number of private equity deals per city (Carlson and Chakrabarti 2007).

Finding Two: Extensive and open communication among all partners is vital.

The reality for Ann Arbor in today's economy is not pleasant, but relative to the state, Ann Arbor enjoys the fruits of a healthy university system, an active business community, and concerned civic leaders. Collaboration of these players with the City of Ann Arbor and Washtenaw County is the fuel for Ann Arbor Spark's existence and success. Ann Arbor Spark's public-private structure is also a conduit for open coordination with the MEDC. The density of these communication networks and the level of communication that traverses these networks are critical factors in Ann Arbor's economic development future. The public-private structure seems to enable Ann Arbor Spark to overcome traditional territorial economic development wars. The diversity of input frames Ann Arbor Spark's plan to diversify its economic base in the wake

of decline and recession. Although Ann Arbor Spark allocates time and funding to attraction and retention efforts, it recognizes and takes advantage of Ann Arbor's local context, developing sound entrepreneurial support programs and facilitating university-spawned start-ups.

Endnotes

¹ MEGAs are for manufacturing, research and development, wholesale trade, and office operations while the High-Tech MEGAs are available to advanced computing, biotechnology, electronic device technology, engineering and laboratory testing related to product development, medical device technology, product research and development, advanced vehicle technology or technology that assists in the assessment or prevention of threats or damage to human health or the environment, tool and die manufacturing, life sciences technology, advanced automotive, manufacturing and materials technology, homeland security and defense technology, and alternative energy technology (<http://ref.themedc.org/cm/attach/A554001C-51A5-4889-8B5E-1CC2F3AF0DA7/MEGATaxCredit.pdf>).

² See <http://www.michiganadvantage.org/Targeted-Initiatives/21st-Century-Jobs-Fund/Default.aspx> for more information.

³ See <http://ref.themedc.org/cm/attach/DA889C19-C8A6-434A-9FE4-F5440B4B7DF7/MISmartZonefactsheet.pdf> for more detail on SmartZones.

⁴ The Michigan Innovation Equipment Depot (MIED) program is the result of a 2006 partnership among Pfizer Global Research and Development, Ann Arbor Spark, MichBio, and Michigan's SmartZones. Pfizer originally donated \$1.3 million in used lab equipment and, after its announced closing, donated another \$4.5 million in surplus lab equipment to MIED. See <http://www.annarborspark.org/business-resources/news-of-note/?search=used%20laboratory%20equipment%20&C=517&l=2128> for more information.

⁵ Among these are: PolyTorx, Menlo Innovations, Airfoil, SensiGen, Biopolymer Innovations, Invia Solutions, ElectroJet, Virtual Reciprocity Ring, Compendia Bioscience, Comstar, Mindworks, and Onsite ERT (<http://www.annarborspark.org/business-resources/launching-yourbusiness/boot-camp/boot-camp-faqs/>).

References

- Ann Arbor News. (2007). "U-M Leasing Pfizer Labs." Retrieved April 20, 2008, from <http://www.annarborpark.org/business-resources/news-of-note/?search=pfizer&C=517&l=1712>.
- Ann Arbor Spark. (2006). Ann Arbor Spark 2006 Annual Report. Ann Arbor, Ann Arbor Spark.
- Ann Arbor Spark. (2007). "Pre-Seed Fund." Retrieved April 20, 2008, from <http://www.annarborpark.org/businessresources/business-growth-expansion/pre-seedfund/>.
- Carlson, C., and P. Chakrabarti (2007). *Venture Capital in New England Secondary Cities*. New England Community Developments. Boston, Federal Reserve Bank of Boston.
- FedStats. (2008). "Washtenaw County, Michigan." From <http://www.fedstats.gov/qf/states/26/26161.html>.
- Glazer, L., and D. Grimes. (2002). *Michigan Workers in the Boom Years: Employment and Employment Earnings 1991-2000*. Institute of Labor and Industrial Relations, University of Michigan.
- Gopwani, J. (2006). Michigan's High-Tech Hope. *Detroit Free Press*. Detroit
- Keating, R. J. (2007). *Small Business Survival Index 2007: Ranking the Policy Environment for Entrepreneurship Across the Nation*. S.B.E. Council. Oakton, VA, Small Business & Entrepreneurship Council 43.
- McCormick, J. (2008). Encouraging young engineers a key to Michigan's Future. *The Detroit News*. Detroit.
- MITC. (2008). "Michigan Information Technology Center." 2008, from <http://www.michitc.org/>.
- The U-M Tech Transfer. (2007). "The U-M Tech Transfer." Retrieved April 20, 2008, from <http://www.annarborpark.org/business-resources/success-stories/u-m-techtransfer/?search=u-m%20tech>.
- Toyota. (2005). "Toyota Technical Center USA, Inc. Signs Purchase Agreement for York Township Property." From <http://www.internetautoguide.com/auto-news/25-int/11645/index.html>.
- Toyota. (2008). "Toyota Establishes Research Institute in North America." From <http://www.toyota.com/about/news/manufacturing/2008/04/01-1-tema.html>.
- U.S. Census Bureau. (2000). Washtenaw County, Michigan, Profile of General Demographic Characteristics: 2000. U.S. Census Bureau, Census 2000.
- University of Michigan News Service. (2007). "Ann Arbor Leaders Create Pfizer Action Teams, Receive \$1 Million." Retrieved April 20, 2008, from <http://www.ns.umich.edu/htdocs/releases/story.php?id=3135>.
- University of Michigan Tech Transfer. (2007). "Tech Transfer, University of Michigan." Retrieved April 20, 2008, from <http://www.techtransfer.umich.edu/>.
- University Research Corridor: Empowering Michigan. (2007). "Universities Key To Economic Turnaround." Retrieved April 20, 2008, from <http://www.urcmich.org/stories/>.
- Washtenaw County Board of Commissioners. (2004). *A Comprehensive Plan For Washtenaw County: A Sense of Place, A Sustainable Future*, Department of Planning and Environment.

ACKNOWLEDGMENTS

The author expresses gratitude to Michael English for his valuable assistance on the project, to Gabriel Hudson for his contribution to background research and supporting documents, and to Mark Abramson for his generous support and guidance as well as his constructive comments and suggestions.

AUTHOR PROFILE

Darrene L. Hackler is currently an associate professor at George Mason University in the Department of Public and International Affairs. She teaches urban politics, economic development, policy analysis, and information technology policy. She is also the director of the Government Honors Program and the advisor of the Urban Suburban Studies minor.

Her research focuses on the political economy of cities as it relates to economic development through telecommunications infrastructure, the technology industry, innovation, and entrepreneurship. Her book, *Cities in the Technology Economy* (ME Sharpe 2006), examines the effects of technology industries and infrastructures on cities and the local policy actions required for effective responses to these challenges.

She is currently working on grants and contracts from The Ewing Marion Kauffman Foundation to examine women entrepreneurship and innovation, the CGI Initiative for Collaborative Government to study current local economic development practices, and a coalition of state and local associations to analyze future transportation



Darrene L. Hackler

policy alternatives. She recently completed a grant for the Small Business Administration that looked at human capital and women entrepreneurship. She was part of the research team that designed an Information and Communication Technology Comprehensive Economic Development Strategy for Orange County, California, under a grant from the Economic Development Administration, U.S. Department of Commerce.

She has work published in *Public Administration Review*, *Urban Affairs Review*, *Journal of Urban Affairs*, *Journal of Urban Technology*, *Canadian Journal of Regional Science*, *American Behavioral Scientist*, *Annals of Cases on Information Technology*, *Innovation Policy in the Knowledge-Based Economy*, and *Cities in the Telecommunications Age: The Fracturing of Geographies*.

Dr. Hackler received her M.A. in public policy and Ph.D. in political science and economics from Claremont Graduate University in California, and a B.A. in political science and economics from the College of Idaho.

About CGI

Founded in 1976, CGI is a leading information technology and business process services provider with 27,000 professionals operating in more than 100 offices worldwide. In the public sector, CGI is a major partner to federal, state, provincial, local and municipal governments in the U.S., Canada, Europe and Australia.

CGI has helped more than 100 U.S. federal agencies improve program and back-office operations, allowing them to better fulfill their core missions. Our federal track record includes enhancing citizen information via Websites such as Medicare.gov; enabling the Environmental Protection Agency to better assess global warming,

water quality, and pollution; helping more than 50 agencies achieve IT infrastructure economies of scale through managed services; and modernizing financial management operations for more than 100 agencies.

Focused on helping government continually adapt and evolve, CGI created the Initiative for Collaborative Government, which analyzes models of collaboration between government and the private and nonprofit sectors, and provides recommendations on how government can best leverage these models to maximize mission results.

About George Mason University

The **Department of Public and International Affairs** at George Mason University is partnering with CGI on the CGI-GMU Initiative for Collaborative Government, which commissioned this report. The department is home to nationally recognized biodefense, political science, and public administration programs and many world-renown faculty who are experts in their fields. The department's Master of Public Administration (MPA) program is designed for people who hold or aspire to hold leadership positions in organizations that participate in the development and implementation of public policy. The program's mission is to give graduate students the opportunity to build their knowledge of politics, policy, and management and to enhance their analytic, problem solving, and communication skills.

For more information about the Department of Public and International Affairs, visit its Website: pia.gmu.edu.

This research report was prepared by a faculty member of the **School of Management (SOM)** at George Mason University. The school educates future business leaders through world-class teaching, innovative academic programs, and strategic business partnerships. The School of Management's curricula and research are rooted in entrepreneurship, corporate governance, and global business education. More than 3,650 undergraduate students are enrolled in SOM and pursuing majors in accounting, finance, management, marketing, or information systems and operations management. More than 450 graduate students are enrolled in the MBA, the Executive MBA, the MS in accounting, and the MS in technology management programs.

For more information about the School of Management, visit its Website: som.gmu.edu.



Initiative for
Collaborative Government

Partnering for Mission Results

www.collaborativegov.org