BEST PRACTICES IN FOREIGN DIRECT INVESTMENT AND EXPORTING BASED ON REGIONAL INDUSTRY CLUSTERS

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INTRODUCTION

Export
sending or transporting goods abroad, for trade or sale.

Exporting and foreign direct investment (FDI) are increasingly important economic development strategies. Exporting entails the sale of materials, parts, goods, and services outside the United States. FDI is the investment by an entity of one country in physical assets in another country. FDI is typically considered as the construction of a new facility, but it may also include installation of machinery and equipment; acquisition of a domestic firm by a foreign firm; a joint venture or other strategic alliance; or even the licensing of intellectual property. This type of investment implies a long-term economic relationship as opposed to foreign investments in equity markets which may be of any length and are not considered FDI.[1] Exporting and FDI offer several benefits. Not only do these two strategies provide new economic opportunities to local communities, such as reducing unemployment, but they also increase the skills and competitiveness of existing industries.

Foreign Direct Investment
involves investing in United States businesses by foreign citizens

Despite such benefits, few local communities fully use these strategies. This report profiles 10 useful examples for local communities that may introduce initiatives to promote exporting and FDI or already have launched such initiatives and want to make them more effective. Eight of the practices concern FDI and five relate to exporting (Table 1). These practices are located in various regions of the United States, with several clustered in the Midwest (Figure 1). Moreover, the practices involve diverse parts of the world. Five of the practices in this collection have connections in Europe, Asia, and Latin America. Canada figures prominently in four of the cases. Many of the practices target multiple global regions while some (e.g., the Virginia-Israel Biosciences Commercialization Center, the Idaho Market Enhancement Strategy) target a particular country (Table 2).

Table 1. Cases by FDI or Exporting Practice

Practices	FDI	Exporting
International Soft Landings Center at TechTown	X	X
Virginia-Israel Biosciences Commercialization Center	X	
Bothell Biomedical Manufacturing Innovation Partnership Zone		X
Nebraska Reverse Trade Mission	X	
Milwaukee 7	X	X
Clemson University International Center for Automotive Research	X	
The Right Place	X	
Automation Alley	X	X
Idaho Market Enhancement Strategy		X
State University of New York at Albany NanoTech Complex	X	

1 http://www.going-global.com/articles/understanding_foreign_direct_investment.htm

Figure 1. Location of Best Practices in Exporting and FDI

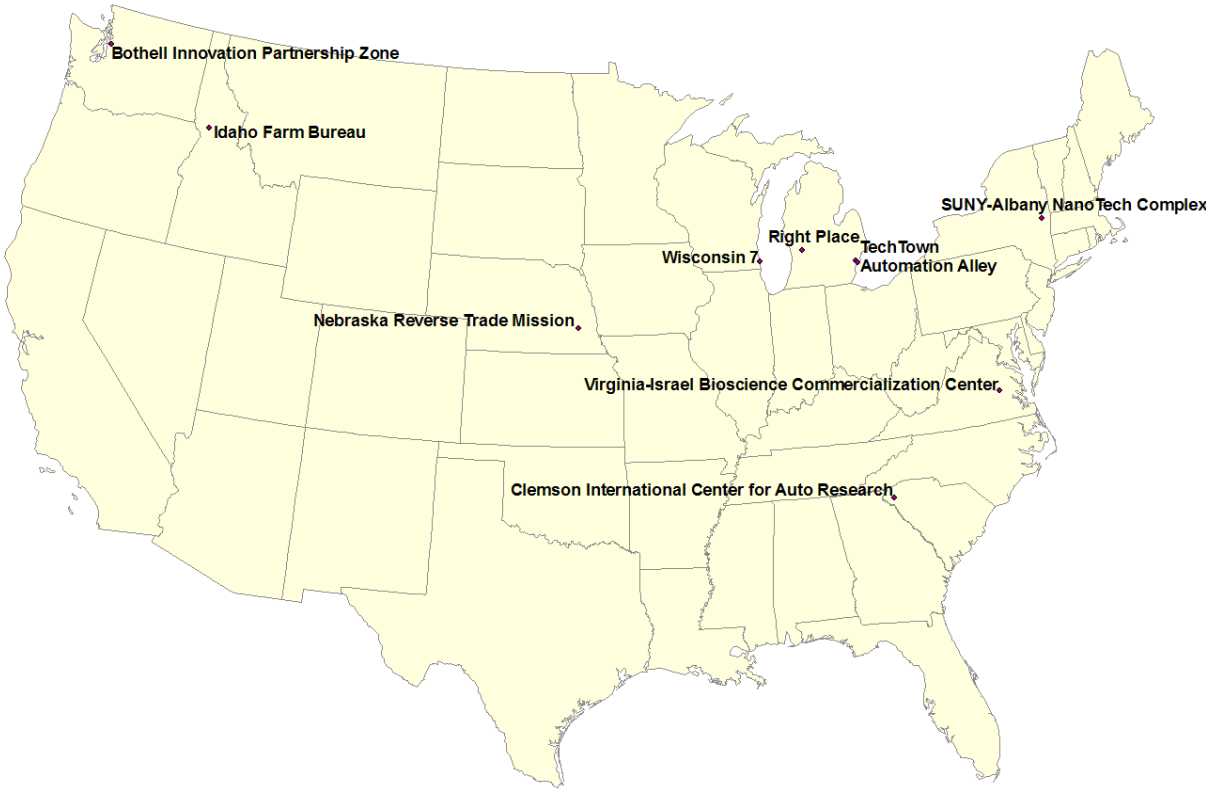

Table 2: Best Practices by International Region

Cases	Latin America	Canada	Asia	Europe	Middle East	Africa	Other	No Target Region
International Soft Landings Center at TechTown	X	X				X		
Virginia-Israel Biosciences Commercialization Center					X			
Bothell Biomedical Manufacturing Innovation Partnership Zone								X
Nebraska Reverse Trade Mission	X	X	X	X	X	X		
Milwaukee 7	X	X	X	X				
Clemson University International Center for Automotive Research			X	X				
The Right Place			X	X	X			
Automation Alley	X	X	X	X	X			
Idaho Market Enhancement Strategy	X							
State University of New York at Albany NanoTech Complex			X	X	X			

Selection of Cases

The cases profiled in this collection reflect an extensive canvassing of federal, state, and local economic development organizations nationwide. More than 200 officials from these organizations were contacted and requested to provide information about best practices in exporting and FDI. A review of nearly 100 articles from academic literature, economic development journals, and trade magazines was conducted to identify examples of best practices in exporting and FDI. Results of many of these articles are summarized in the literature review in the appendix. A Web nomination process was also created to gather recommendations from economic developers online. These efforts yielded a set of more than 100 candidate best-practice cases.

These cases were then reviewed according to several criteria, including:

- ability of the practice to be replicated
- evidence of an ongoing program with measurable or describable outcomes
- willingness of the informant to participate in the data collection process
- ability of the case to contribute to a broad range of practices (including by geographic region as well as by type of practice).

The project team also wished to identify cases that were situated in a local community or region, or that could provide guidance for a local community or region. Although state and federal governments are commonly key actors in exporting and FDI, this collection of practices sought to provide direction for communities by emphasizing local and regional initiatives. Similarly, efforts with explicit or implicit industry clusters or target industries were given priority. The review of the literature in the appendix indicated that exporting and FDI initiatives grounded in regional innovation clusters were most apt to be successful. The team defined a regional industry cluster as a geographic concentration of firms and industries that are members of the same extended value chain; have common needs for talent and therefore utilize a shared labor pool; require similar physical infrastructure; and exchange key information and/or knowledge that can lead to technological advancements.[2]

Regional Innovation Clusters: *centers of related industries that foster innovation and next-generation industries to enhance long-term economic growth*

The selection process did not eliminate practices that lacked extensive quantitative outcomes. Most of the practices selected showed signs of success, even though a few were still in their early stages and thus did not have definitive quantitative evidence of outcomes. Because none of the cases can guarantee a successful, lasting result, the project team did not regard data on outcomes as a requirement for inclusion.

The team did not use a scoring approach to winnow the list of practices from the 100 candidates to the final 10 selections. The final set resulted mostly from finding practices that qualified and would participate.

The 10 practices were written by multiple investigators. The write-ups were based on telephone interviews, newspaper articles and websites, and appraisals performed by external researchers. While site visits were not conducted, the information in these case studies was validated with other third-party data obtained from the research and data collection process outlined above.

2 http://www.eda.gov/AboutEDA/RIC/

In the report, each individual practice begins with a summary of the case, which draws attention to key focus areas of the practice, as well as lessons learned and success factors. This section is followed by background that describes the problems facing the economies of the region(s) in the case, the economic composition of the region, and how the practice got started. For economic composition, this is defined through a location quotient (LQ). An LQ equal to 1.00 means that the share of employment for that industry is the same in the county or state being studied as it is in the United States. A location quotient greater than 1.00 means that the industry has a greater share of local employment than that industry does in the nation, and a location quotient of less than 1.00 means that the industry has a smaller share of local employment it does in the country as a whole.

The background section also includes information about the practice's organizational structure and sources of funding. "The Practice in Operation" section highlights major processes followed in the practice, such as marketing, development of infrastructure, assistance services, or training. Outcomes, presented in a "Results to Date" section, were often based on accounts of company relocations or investments, evidence of the implementation of significant practices, or analyses of recent economic information. For a few cases, the practice contributed to results but did not fully account for them, and this is acknowledged where appropriate. All practices end with a "Lessons Learned" section that summarizes the case, its applicability to other regions, and lessons of the case and key success factors. The cases conclude with a milestone table, references, and key website addresses.

The cases conclude with a milestone table, references, and key website addresses and contact information. The practices appear in alphabetical order in this document for easy reference. A companion website tool http://fdibestpractice.org/ enables easy access by geography, practice type, and major stakeholder.

Summary of the Practices

These practices were not randomly selected through any kind of sampling method. Quantification of the results and generalization thus is not possible and would be misleading. Nonetheless, the collection does have broad implications for local exporting and FDI practices.

Linkage of exporting and FDI to an existing cluster or target industry is a prominent feature of the 10 profiled practices. These cases illustrate the central role of clusters in exporting and FDI across a range of industries, from electronics and bioscience to agriculture and automotive (Table 3). Bioscience, automotive and other transportation, electronics, and agriculture are represented in four or more of the cases in this collection.

Table 3. Practices By Regional Cluster

Cases	Biosci-ences	Autmotive/ Aerospace	Electronics/ Energy	Food/ Agriculture/ Water	Advanced Mfg	Information Technology	Financial Services	Distribution
International Soft Landings Center at Techtown		X						
Virginia-Israel Biosci-ences Commercializa-tion Center	X							
Bothell Biomedical Manufacturing Innova-tion Partnership Zone	X							
Nebraska Reverse Trade Mission				X				X
Milwaukee 7	X		X	X		X	X	
Clemson University In-ternational Center for Automotive Research		X						
The Right Place	X	X	X	X	X			
Automation Alley	X	X	X			X		
Idaho Market En-hancement Strategy				X				
State University of New York at Albany NanoTech Complex			X					

Partnerships are a fundamental feature of each of these cases (Table 4). All the cases reflect strong partnerships with state economic development agencies. State agencies customarily are the key representative for international outreach. In the cases here, state agencies provide funding, expertise, leadership, and organization and commitment to FDI and exporting initiatives. Regional cooperation is important for sharing resources, presenting a unified image, and reaching scale for key infrastructure items, as illustrated in the Milwaukee 7 and Automation Alley cases. Establishing partnerships with local companies is a basic step in the development and vitality of industry clusters, including those having exporting and FDI initiatives. The distinctive role of universities and university research in attracting FDI is highlighted, especially in the Clemson University International Center for Automotive Research, International Soft Landings Center at TechTown, and the State University of New York at Albany NanoTech Complex cases. Federal relationships are also important. A case in point here is the International Soft Landings Center at TechTown, designated by the U.S. Export-Import Bank as a City-State Partners Initiative participant and collocated with a U.S. Export Assistance Center.

Table 4. Practices by Key Types of Partners

Cases	State	Federal	Local	Industry	University	Other (e.g., foundations)
International Soft Landings Center at TechTown	X	X		X	X	X
Virginia-Israel Biosciences Commercialization Center	X			X	X	
Bothell Biomedical Manufacturing Innovation Partnership Zone	X		X	X	X	
Nebraska Reverse Trade Mission	X			X	X	
Milwaukee 7	X		X	X		
Clemson University International Center for Automotive Research	X	X		X	X	
The Right Place	X					
Automation Alley		X	X	X		
Idaho Market Enhancement Strategy	X			X		X
State University of New York at Albany NanoTech Complex	X			X	X	

Each case supports on of the five strategic orientations outlined in Table 5. Five of the practices explicitly involve trade missions, including reverse trade missions in which foreign companies are invited to a U.S. region in a carefully planned visit and presented with business opportunities in targeted industry areas.[3] Another five cases involve consideration given to facilities and infrastructure to accommodate the exporting or FDI practice. These latter practices underscored the repurposing of unused buildings, constructing and providing clean rooms and specialized equipment, and developing research parks.

Trade Missions: *visits to the United States to enable foreign delegates to observe the design, manufacture, demonstration, and operation of U.S. goods and services that potentially can help them achieve their development goals.*

Although FDI and exporting are often viewed as involving large multinational firms, three of the 10 practices involve international soft landings in which foreign companies, often startups, seek to expand into the U.S. market through locating a small unit in this country.[4] Two of these international soft landings, the International Soft Landings Center at TechTown and Virginia-Israel Biosciences Commercialization Center, have received Soft Landings International Incubator designations from the National Business Incubator Association. As the Bothell Biomedical Manufacturing Innovation Partnership Zone illustrates, Web-based portals can offer a range of guidelines, assistance sources, information sources, and case examples. Training focused on FDI or exporting related to the target industry can involve technical issues such as regulatory requirements or the European CE Mark, which indicates that the exported product meets European Community basic requirements.

Soft Landing: *the gradual expansion of foreign companies into U.S. markets*

3 http://export.gov/reee/guide/eg_main_022190.asp
4 http://www.nbia.org/member_services/soft_landings/

Table 5. Practices by Strategic Orientation

Cases	Soft Landing	Web-based	Facilities and Infrastructure	Training	Trade Missions
International Soft Landings Center at TechTown	X		X	X	X
Virginia-Israel Biosciences Commercialization Center	X		X		X
Bothell Biomedical Manufacturing Innovation Partnership Zone		X	X	X	
Nebraska Reverse Trade Mission					X
Milwaukee 7					
Clemson University International Center for Automotive Research			X		
Automation Alley	X				X
Idaho Market Enhancement Strategy					X
State University of New York at Albany NanoTech Complex			X		

Lessons Learned

The cases offer several lessons for successful implementation of exporting and FDI.

- **Establishing strong, ongoing relationships** with state economic development agencies and other organizations that are active in exporting and FDI. All of the cases have these types of relationships. The Nebraska Reverse Trade Mission in particular illustrates the type of state government initiative that is fitting for engagement by local economic development organizations.
- **Universities are of growing importance** as a source of international connections. Economic developers should work with contacts at their local universities to stay aware of high profile research which attracts international interest as well as economic development initiatives implemented by universities (such as international soft landings) with potential benefits for exporting or FDI.
- Making a **long-term commitment to the practice** is a key factor according to the program managers the team interviewed. Particularly relevant examples of this commitment are found in the Virginia-Israel Biosciences Commercialization Center, the State University of New York at Albany NanoTech Complex, and The Right Place; decades of effort produced the reported results.
- Many of the practices have a good **quality information** base about the local companies in the cluster (e.g., Bothell Biomedical Manufacturing Innovation Partnership Zone) as well as contacts at companies in other countries (e.g., the Nebraska Reverse Trade Mission).
- Several program managers emphasized **awareness and acceptance of cultural traditions and lifestyles.** For example, The Right Place case employs language-specific business cards and marketing materials, involves foreign-born university professors, and supports institutions in the community, such as schools, to serve international populations.

The practices in this collection demonstrate that diverse initiatives are possible for exporting and FDI. Although the future success of these practices is not guaranteed, the cases suggest different ways for localities to develop effective efforts that have a global reach and are tailored to the distinctive circumstances and industries in their regions.

AUTOMATION ALLEY

Dana Brewer and Robert Lann

Summary

Automation Alley is a membership-based economic development organization serving southeastern Michigan's technology and manufacturing business community. The region covers eight counties: Genesee, Livingston, Oakland, Macomb, Monroe, St. Clair, Washtenaw, and Wayne (including the city of Detroit). It has programs to help the region's defense-related manufacturers, entrepreneurs, and firms wanting to expand into foreign markets, as well as an international business center to help international companies locate in the region. It is situated in the Automation Alley Technology Park in Troy, Michigan.

Automation Alley leads periodic international trade missions with regional businesses. Its staff make all arrangements for the participating firms, which lets the companies concentrate on business meetings for export contract development. The organization conducted its first trade mission in 2001, and since then has helped acquire more than $188 million in contracts for regional companies from 15 trade missions. Automation Alley received the national Presidential "E" Award for Exporting in 2008.

This practice illustrates how an organization that represents multiple jurisdictions can effectively conduct trade missions to increase exporting opportunities for local companies. The ability of these jurisdictions to share resources and cooperate with one another is an important factor in effective organizing of trade missions. Focusing on target industries further enhances the capacity of the practice to operate successful trade missions. A key lesson of the practice is the importance of sustained follow-up after trade missions are implemented.

Background

Automation Alley began as an organization dedicated to supporting innovation and technology-based businesses to grow and diversify southeastern Michigan's economy. Its eight-county region lost population between 2000 and 2010, according to the 2010 U.S. Census, primarily because of Detroit's population loss (25 percent) over this period. Six of the eight counties gained population, while St. Clair and Wayne counties lost population. Much of Detroit's decline can be traced to the negative impact of import competition on its automotive industry beginning in the 1970s. With Detroit in its boundaries, Wayne County is the largest of the eight counties (35 percent of the region's population in 2010), but Oakland and Macomb counties are both relatively large, making up another 23 percent and 16 percent, respectively.

The Detroit area has a long history with automotive assembly and parts manufacturing industries. The 2011 location quotient (LQ) for the Detroit metropolitan area transportation equipment manufacturing industry was 4.25. The area also had a LQ of 7.97 for motor vehicle parts manufacturing and 3.33 for military armored vehicles and tank parts manufacturing. However, job losses in these sectors have lowered their respective LQs over the past 10 years. More recently, from 2010 to 2011, metro Detroit increased its transportation equipment manufacturing jobs by 9.7 percent to 82,232, compared to a national growth rate of 4.4 percent. This resulted in a growth in the metro area's transportation equipment LQ, from 4.14 to 4.25.

The Detroit-Warren-Lavonia metropolitan statistical area (MSA) unemployment rate has consistently remained above national averages over the past 10 years. The unemployment rate for the MSA reached a peak of 15.0 percent in 2009[1], compared to the nation's peak of 9.6 percent the following year. As of May 2012, the Detroit MSA's unemployment rate (preliminary) had dropped to 9.9 percent, a significant improvement over three years, but still greater than the nation's rate that month of 7.9 percent.[2] The unemployment rate of the eight-county region Automation Alley serves rose from 5.2 percent in 2001 to 11 percent in 2011.

Established in 1999 with 44 company members, Automation Alley now serves nearly 1,000 businesses. It created a seed capital fund for startup companies in its early years and still focuses on small businesses. A year after its founding, Automation Alley won a $400,000 U.S. Department of Commerce grant,[3] which it used to fund an international trade mission program to help small businesses expand their markets through exporting. Automation Alley received the award in October 2000 from the Market Development Cooperator Program (MDCP). It was the only organization in that year's nationwide competition to receive the award on its first application. In 2011, the organization established a soft-landing center to expand foreign direct investment in the region, but it retains its commitment to export-focused trade missions to Brazil, China, Germany, India, Mexico, and Central and Eastern Europe.

Automation Alley has diversified the industries it targets beyond automobile manufacturing to encompass technology-based industries. Today, 62 percent of its membership is in technology/manufacturing (the remainder in government, education, association/non-profit, and professional services). About half of that technology/manufacturing membership is in information technology, with the rest in automotive, defense, clean technology, renewable energy, and life sciences/medical businesses. The focus on defense helps bring southeastern Michigan back to the arsenal and military-related products it specialized in during the World War II era before the automobile industry dominated the region.

The organization is from a mix of sources including membership fees, grants, contracts, and private-sector philanthropic contributions. In its 2011 annual report, Automation Alley reported 35 percent of its revenues from grants, 29 percent from government contracts, 22 percent from membership dues, 10 percent from contributed services, and 4 percent from events (these numbers exclude its seed capital fund for startups).

The Practice in Operation

Automation Alley's trade missions focus on bringing a small group of companies, typically about 10, to meet firsthand with overseas businesses for potential exporting contracts. The following outlines the activities that Automation Alley's international business services staff – Director Noel Nevshehir and Supervisor Lisa Lasser – engage in to plan, host, and follow up on the mission trips.

Plan

Automation Alley takes full responsibility for arranging all travel reservations and meeting schedules for the trade missions. By handling these logistics, Automation Alley enables participants to focus on developing business relationships for exporting opportunities.

The international staff seek about 10 companies to participate in each of the trade missions, which Automation

1 Source: U.S. Bureau of Labor Statistics

2 Ibid

3 "Working Together for Global Trade, Boosting Business in Automation Alley," February 2002, published by Marx Layne and Company, the public relations firm of record for Automation Alley's Small Business Export Initiative, in Export America.

Alley hosts two to four times a year. The staff focus on mid-size companies in industries related to the economy of the targeted country. Automation Alley develops promotional materials and direct mail campaigns to reach companies in its region who may be interested in participating. The organization also partners with local economic development organizations to identify participants.

Host

Trade mission trips typically involve visiting two cities in the targeted country, with four to five meetings each day. The meetings between participants and foreign business executives build the relationships that can develop into future export contracts. Translators and interpreters are involved in each of the meetings to ensure mutual understanding. The businesses with which the participants meet are identified by working with partners such as the U.S. Commercial Service, the trade promotion arm of the U.S. Department of Commerce's Trade Administration, and the American Chambers of Commerce Abroad. Typically, the consulate also assists by reviewing the information and goals of the participants and helping to link them to companies in the host countries.

Although their primary goals are the business meetings, the trips also promote Michigan for business attraction and explore other business opportunities.

Follow-up

Nevshehir and Lasser believe the most important part of their trade mission program is the follow-up activities. Weeks after returning from a trade mission, they host a luncheon for participants to debrief them on what next steps they should take to secure exporting contracts with the international businesses they met with. The two staffers coach the businesses through this discussion, as well as assist with the follow-up contacts.

The international staff also contact past participants about twice a year to inquire about any additional activity resulting from the trade missions. It is important to capture these metrics, whether it's a signed export contract that occurred as soon as a week after or as long as five years after the trip. For example, one year after a trade mission to China six years ago $2 million in signed exporting contracts were secured. As of 2012, that amount has grown to $26 million.

Results to Date

Automation Alley's 15 trade missions over the last 11 years have resulted in $188 million in signed exporting contracts for participants. Those contracts have resulted in 956 new direct and indirect jobs in the region, based on economic impact estimates by the federal International Trade Administration.

Nevshehir and Lasser report receiving only positive comments from past participants. Some regional businesses are repeat participants, having found value in the trade mission program. In 2008, the international business services program received the national Presidential "E" Award for Exporting.

Automation Alley has also experienced significant results from its effort to promote foreign direct investment (FDI). In 2011, 365 new jobs were created through business attraction of foreign companies. A trade mission to Israel in 2009 resulted in Elbit Systems establishing a presence in Macomb County. Automation Alley has hosted 5,241 site visits from India, 1,939 from Canada, 777 from China, and many additional domestic and international companies.

Lessons Learned

Automation Alley's trade mission program was established via a $400,000 competitive grant from the U.S. Department of Commerce's Market Development Cooperator Program. Over the first three years, matching funds and in-kind services from its members and Oakland County resulted in $1.2 million in resources for export and trade activity. Since that time, it has completed 15 trade missions to countries including Brazil, China, Germany, India, Mexico, and Central and Eastern Europe.

The practice can be replicated by other economic development organizations willing to commit the resources required to conduct foreign trade missions. Staff working on trade missions must be fully committed to conduct the trips efficiently and garner results. Trade missions should not end when participants return home. Follow-up is an important next step because such contacts in the host countries provide regional participants with a better chance of securing an exporting contracts and long-term relationships.

Milestones

1999	Automation Alley is founded.
2001	Export program begins, with the assistance of a U.S. Department of Commerce grant.
2002	First trade mission to China occurs.
2003	Automation Alley opens business accelerator.
2006	Noel Nevshehir joins Automation Alley.
2008	Automation Alley is awarded a Presidential "E" Award for Exporting.
2011	The organization opens International Business Center for international soft landings.
May 2012	Trade mission goes to Brazil, the 15th such trip since 2001.
September 2012	Trade mission travels to Canada.
November 2012	Trade mission travels to Israel and Turkey.

References

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BOTHELL BIOMEDICAL MANUFACTURING INNOVATION PARTNERSHIP ZONE

Jan Youtie

Summary

The Bothell Biomedical Manufacturing Innovation Partnership Zone (Bothell IPZ) uses a networked approach to deliver export assistance and other services to medical device companies. The Bothell IPZ is one of 15 IPZs designated as innovation zones by the State of Washington as part of its strategy to encourage sustainable, innovation-driven regional clusters. The IPZ, through its partners, made available new services to the medical device cluster including an export Web portal and targeted exporting seminars.

The Bothell IPZ's approach enables it to deliver value to the companies in its cluster. The involvement of private-sector companies in the Bothell IPZ helps it to customize its programs to the particular needs of the medical device industry. The level of communication and cooperation among core partners gives the Bothell IPZ the flexibility to leverage each partner's resources and capabilities to provide these services.[1]

The ability to identify and serve a particular innovation segment, in this case the medical device segment, is an important feature of this practice. As a result, this practice is especially applicable to locales with well-defined industry clusters. A key lesson of the practice is the need for flexibility in organizing partnerships with industry, government, and universities.

Background

Bothell is a city of 34,000 people in the Seattle-Tacoma-Everett metropolitan statistical area (MSA). In addition to drawing on the assets of the larger MSA, Bothell is home to nearly 4,500 businesses and two major higher educational institutions: Cascadia Community College and the University of Washington at Bothell. The city has a relatively strong economy; its five-year per capita income is $37,096, compared to less than $30,000 for the state as a whole.[2]

The Seattle MSA has long been known for having a robust bioscience cluster. Seattle was ranked fifth in The Milken Institute's 2005 study of life-science clusters and 11th in a 2009 update.[3] Washington state has 175 biopharmaceutical companies, 205 medical device companies, and more than 25,000 life-science employees.[4] The state has long been home to a strong life-sciences organization – the Washington Biotechnology and Biomedical Association, which has more than 500 members.[5] Over the years, the increasing size of the membership suggested, however, that there was a need to develop a more differentiated networking capability

1 This case study is based on interviews conducted with the chairman of the Bothell IPZ on September 10, 2012.
2 U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, County Business Patterns, Economic Census, Survey of Business Owners, Building Permits, Consoli dated Federal Funds Report, Census of Governments
3 DeVol, R., Yeo, B., Chatterjee, A., Bedroussian, P., Wong, P. (2009). The Greater Philadelphia Life Sciences Cluster 2009: An Economic and Comparative Assessment. Santa Monica: The Milken Institute.
4 http://www.choosewashington.com/industries/sciences/Pages/default.aspx
5 www.washbio.org

focused on the distinctive requirements of the medical device industry versus that of the biopharmaceutical industry. With the Philips Healthcare headquarters for ultrasound R&D and manufacturing based there, Bothell was a key node for the medical device industry. In 1998, Phillips acquired Advanced Technology Laboratories, which was a Bothell-based spinoff of University of Washington research. This ultrasound R&D formed the basis for several companies including SonoSite Inc. (hand-carried and mountable ultrasound devices), Medicis Technologies Corporation (ultrasound-based noninvasive body sculpting), and EKOS Corporation (ultrasound for thrombosis). In all, more than 100 medical device companies were operating in the Seattle region as of May 2008, including 18 in Bothell.[6]

During this period, the state sought to enhance its innovation capabilities. Particular attention was given to the need for innovative clusters in particular regions of the state. This need for development of sustainable clusters, generated legislation in 2007 to create Innovation Partnership Zones (IPZs).[7] The program called for the Washington State Department of Commerce to designate as IPZs qualifying regions that formed partnerships between academic institutions, businesses in R&D-intensive industries, and workforce training entities. Twelve IPZs were authorized (there are now 15), and half of them received funding from a $5 million capital grant pool. Another $1.5 million was made available for IPZ capital projects in 2009, and 2011 saw the competitive allocation of $250,000 grants to IPZs.[8]

The Bothell Biomedical Manufacturing Innovation Partnership Zone (Bothell IPZ) successfully competed for an IPZ designation in 2008. The IPZ application required an administrator, so Terrie Battuello, Bothell's assistant city manager and economic development manager, took on this role to coordinate the effort along with her other responsibilities. Other core partners, in addition to the city of Bothell, were Economic Alliance Snohomish County, EnterpriseSeattle, the University of Washington at Bothell, Washington Biotechnology and Biomedical Association, and the state's Department of Commerce. Major private-industry partners also were involved, including Philips, Medicis, Spiration, and Pathway Medical.

The IPZ functions as a virtual, informal network without hired staff, facilities, or funds from the initial rounds of state cluster grants or membership fees (the IPZ is not a membership organization).[9] In 2011, the IPZ incorporated as part of its business plan to pursue state cluster grants for an incubator and training and conference center – the Washington MedTech Discovery Center. That year, the Bothell IPZ was awarded two $500,000 grants, one to support the establishment of an incubator at Lake Washington Institute of Technology and the other for planning of the Washington MedTech Discovery Center. The initial location of the incubator was designed to leverage the institute's strong machining facilities and training programs to benefit the design and prototyping needs of medical device companies; however, the incubator will eventually be moved to the MedTech Discovery Center.

The Practice in Operation

The Bothell IPZ is involved in three main activities: (1) outreach, (2) partnerships, and (3) training. Exporting and international business are two of the major needs of medical device companies, which seek to diversify markets and address regulatory situations as part of their business strategy.

6 Terrie Battuello and Matt Smith, (2011). Bothell Biomedical Manufacturing Innovation Partnership Zone Business Plan, September 2011.
7 SHB 1091, Section 43.330, Chapter 227, Laws of 2007.
8 Coordinating Workforce and Economic Development around Strategic Industry Clusters: A Progress Report on Substitute House Bill 1323, December 15, 2010.
9 Nickell, A. (2011). What Makes IPZs Click? The Successes and Developmental Challenges of Three Innovation Partnership Zones. Commerce Research Service for Washington Economic Development Commission, July 2011.

Outreach

When established, the Bothell IPZ lacked information about regional companies in the medical device sector, so it initiated a study of such companies. The study found that the broader region housed 108 companies with 5,800 employees, generating the firms nearly $2.5 billion in gross revenue.[10] These companies formed the basis for a database composed of company name, product, website, and address. The database has been used as a distribution list for events, beginning with the annual Biomedical Device Summit. The summit offers networking, information sharing, and product exhibits; more than 200 companies (85 percent from the medical device industry) participated in the June 2010 summit.[11] Also in 2008, the IPZ commissioned a study to address the needs of medical device companies for local machining capabilities to develop and make prototypes of devices. The study identified manufacturing information about relevant equipment and competencies in area machine shops.[12]

Partnerships

Several economic development organizations and higher educational institutions in Washington had programs to assist the medical device industry, but these offerings were not always well-known to the industry and to the other partners. The Bothell IPZ provided a venue for exchanging information about training programs and other offerings. This information sharing enabled the partners to identify gaps in information and assistance. For example, easy-to-access information on exporting for medical device firms was lacking. The University of Washington Center for Commercialization partnered with the Bothell IPZ to create a Web portal for new-to-export medical technology companies. Other partners included the Washington Global Health Alliance, Institute of Translational Health Sciences, South Lake Union Global Health Innovation Partnership Zone, and Washington Biotechnology and Biomedical Association. The Washington Community Economic Revitalization Board (which provides funding to cities, counties, towns, IPZs, and public port districts for infrastructure and technical assistance) awarded a $291,264 grant to Bothell IPZ at the end of 2010 for improving export assistance to medical technology companies, including the creation of the medical technology company export-information portal.

Training

The Bothell IPZ has fostered sharing of information about education and training programs. For example, finding that few training programs on medical device exporting existed, in 2010, the Bothell IPZ co-hosted, with the Washington Department of Commerce, a seminar called “Staying Competitive in the Global Market” that concerned the European Directive 2007/47/EC. The Bothell IPZ co-sponsored the “Go Global Med Tech” seminar and workshop on February 27, 2012, in partnership with the University of Washington Center for Commercialization, Washington Biotechnology and Biomedical Association, and the Washington Global Health Alliance. The event’s expert speakers presented information about and examples of databases and resources, foreign market selection, partner selection, risk assessment, logistics, trade finance, and regulatory issues.

Results to Date

Washington’s life-science industry accounts for $1.4 billion of the state’s exports. These exporting dollars cannot be directly tied to the Bothell IPZ’s programs, but the exporting figure is indicative of the effectiveness of state efforts, including those of Bothell IPZ, to generate life-science exports.

10 Biomedical Device Innovation Zone Bothell Washington (2009). Device Statistics, March 2009.

11 Business Services Division (2010). Innovation Partnership Zones: First Steps toward a More Collaborative Approach to Economic Development, Washington Department of Commerce, November.

12 Biomedical Device Innovation Zone Bothell Washington (2008). Machine Shop Survey: Medical Device Capabilities. November 2008.

The Web portal for medical technology companies, overseen by the University of Washington Center for Commercialization, went live on July 2012. A broad range of information about exporting is presented in the portal (http://www.lifesciencestartup.com/wiki/index.php?title=Exporting):

- A six-step guide to exporting
- An exporting-readiness questionnaire
- Links to local and national export assistance resources
- An exporting check list
- Case studies explaining how to do a market assessment, gather local regulatory and business license requirements, use financing resources, obtain a European Union CE Mark, and deal with international shipping and logistics.

The 2012 "Go Global Med Tech" seminar and workshop reflected interest in exporting among statewide medical technology companies. The chancellor of the University of Washington at Bothell, attuned to offerings through the Bothell IPZ, developed an additional export training program for medical device companies, "Navigating the International Highways and Byways of Medical Technology." The program's first seminar in March 2012 addressed the regulatory environments of four countries and presented information on clinical testing, device licensing, and advertising in these countries.

One of the Bothell IPZ's key private-sector partners, EKOS Corporation, received European CE Mark approval in 2011 for its EkoSonic Endovascular System's use to treat pulmonary embolism.[13] Although the company previously had received U.S. Food and Drug Administration and CE Mark approval for other uses of the device, this most recent European CE Mark approval reflected the demand for exporting among medical device companies in the region.

Lessons Learned

The Bothell IPZ represents a networked approach to export assistance embedded in an existing cluster development strategy. As such, it differs from traditional export assistance programs that tend to provide general export information to companies across a broad range of industries. The Bothell IPZ begins from the needs of its medical device cluster and provides customized export information (through the portal) and training programs (such as the "Go Global Med Tech" seminar and workshop).

What make the Bothell IPZ successful are the flexibility and communication among the partners to offer programs. The level of cooperation among these partners is high, and it enables the IPZ to leverage the activities of one partner for the benefit of the state's medical device industry. No single organization must be responsible for delivering all the assistance.

Industry participation is critically important. The IPZ enjoys the involvement of companies ranging in size from Philips to startups. These companies keep the Bothell IPZ focused on offerings that bring value to the industry.

The State of Washington is known as a gateway to Asia, but this geographic positioning is not a limiting factor. The export-related offerings through the Bothell IPZ are replicable by any city that targets and seeks to serve its local industry cluster(s).

13 Shah, S. (2011). EKOS's EkoSonic Endovascular System Gets European Clearance to Treat Pulmonary Embolism. Cardiology, Radiology, January 18, 2011.

Milestones

2007	The state of Washington passes legislation to create Innovation Partnership Zones (IPZs).
2008	The Bothell IPZ is designated as an innovation zone by the Washington Department of Commerce, completes a medical device economic impact study, and convenes first industry summit.
November 2008	The Bothell IPZ conducts a machine shop survey.
June 2009	IPZ convenes second industry summit.
June 2010	The Bothell IPZ co-hosts "Staying Competitive in the Global Market" about the European directive 2007/47/EC. The Third Annual Biomedical Device Summit is held.
Late 2010	The Washington Community Economic Revitalization Board awards a grant to the University of Washington Center for Commercialization to develop a medical device export information Web portal. The Bothell IPZ receives a state grant to fund a business incubator.
Early 2011	EKOS Corporation receives European CE Mark approval for its EkoSonic Endovascular System's use to treat pulmonary embolism.
2011	The Bothell IPZ incorporates. IPZ convenes fourth industry summit.
2012	The "Go Global Med Tech" seminar and workshop are offered in February; the "Navigating the International Highways and Byways of Medical Technology" seminar is offered in March. The IPZ receives a grant to plan the MedTech Discovery Center. IPZ convenes fifth industry sumimit.

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CLEMSON UNIVERSITY INTERNATIONAL CENTER FOR AUTOMOTIVE RESEARCH (CU-ICAR)

Leigh Hopkins

Summary

CU-ICAR is a 250-acre advanced technology research campus located in Greenville, South Carolina, 45 miles from the main Clemson campus in Anderson, South Carolina. CU-ICAR is also home to several embedded labs. An embedded lab is a satellite research location of a company or companies located on or near a university campus with the primary objective of facilitating a collaborative industry-university relationship.

Since the location of BMW in the Greenville-Spartanburg area in 1994, CU-ICAR has progressed from an idea by Clemson faculty to build a wind tunnel to a full-scale automotive research center. This center uses the latest available industry technology and leverages Clemson faculty research and student capabilities, especially appropriate given that Clemson has one of the nation's only Ph.D. programs in automotive engineering.

CU-ICAR has not only provided a skilled workforce for the auto industry through its industry-specific programs, but it has helped spur jobs and investment in the greater Greenville-Spartanburg region. As an embedded lab within Clemson University, CU-ICAR provides automotive testing facilities, engineering talent, and on-site collaboration between faculty, staff, and students. This case study shows how CU-ICAR has helped strengthen the automotive cluster in the Greenville-Spartanburg region through partnerships forged between industry, state government, and academia.

This practice illustrates the importance of university research in attracting foreign direct investment. The major lesson of the practice is that the ability to listen and respond to industries in a target cluster makes the university relationship that much more useful to attracting and retaining foreign companies in the cluster. The experience of the practice in extending services to other regions of the state suggests that the practice is relevant not only to communities near a research university, but also to others throughout the state.

Background

Over the last two decades, the greater Greenville area has transformed its economy from a large textile industry presence to a diversified concentration of automotive-related industries, becoming a hub of automotive research and development in the southeastern United States. The developing "core auto cluster" is located in the Upstate region, along the Interstate 85 corridor. It primarily comprises five counties-- Anderson, Greenville, Spartanburg, Cherokee, and York—and is centered on the Greenville-Spartanburg area.

As of June 2012, the South Carolina unemployment rate was 9.4 percent, down from 10.5 percent in June 2011. Although unemployment in the Spartanburg metropolitan statistical area (MSA) remains at 10.4 percent, the Greenville MSA boasts one of the lowest unemployment rates in the state, at 8.6 percent, in part a reflection of the concentration of automobile-related opportunities.[1] The manufacturing sector in South Carolina has continued to grow, adding 7,400 jobs (or 3.43 percent) from June 2011 to June 2012. Manufacturing is the

1 South Carolina Department of Employment and Workforce, Labor Market Information. Source: http://www.dew.sc.gov/about-lmi.asp.

largest sector in South Carolina, representing 11 percent of employment. As of 2012, manufacturing has 849 establishments in the Greenville MSA, employing 37,879 workers.[2]

South Carolina's automotive cluster is diverse, comprising core automotive and equipment manufacturers, first- and second-tier suppliers, and other related industries. The entire automotive cluster (including first- and second-tier suppliers) employed 158,934 people in 2008 (the most recent year of measurement), including 28,268 workers in core automotive firms.[3] Using the North American Industrial Classification System (NAICS) code 336 (transportation equipment manufacturing) as a proxy for the automotive and equipment manufacturing cluster, in 2011 Spartanburg County had a location quotient (LQ) of 5.89, Anderson County one of 4.76, and Laurens County one of 3.72. The state had a LQ of 1.54.[4] These figures were considerably higher than they were in 2001 when Spartanburg County had a LQ of 3.91, Anderson County followed closely at 3.83, and the state had a LQ of 1.19, indicating an increasing concentration of this cluster in the state.

In 1994, BMW located its U.S. manufacturing plant in Greer, South Carolina, on a high-visibility site along the I-85 corridor between Greenville and Spartanburg. The location was chosen for several reasons: (1) a technically trained workforce, (2) rail infrastructure, (3) proximity to the ports of Charleston and Savannah, (4) proximity to BMW's target market, (5) location of two-thirds of the U.S. motorsports racing teams along the I-85 corridor between Atlanta, Georgia and Charlotte, North Carolina and (6) the inclusion of state and local incentives (including tax credits, abatements, job training allowances, and infrastructure improvements). BMW's location has resulted in an investment of $4.6 billion in South Carolina.[5] According to a recent economic impact study, BMW has a multiplier effect of 4.3 meaning that for every one job created by BMW, another 4.3 jobs are created for suppliers and related industries.[6]

In early 2000, Clemson's dean of the College of Engineering, Thomas Keinath, approached BMW to be an investment partner in constructing a commercial wind tunnel, the objective of which was to commercialize university research in mechanical engineering related to the auto industry. BMW already had a multimillion-dollar commercial wind tunnel (which can cost $41 million to construct)[7] in Germany, but discussions between BMW and Clemson continued. BMW was particularly interested in building a local technically trained workforce that could support its operations and future growth, as well as build the capacity for its suppliers to locate nearby. In particular, BMW needed engineers with advanced automotive degrees not currently offered in the United States – these would differ from the traditional mechanical engineering degree, for which Clemson already had an established program, and focus solely on the needs of the automotive industry.

From these discussions came the Clemson University International Center for Automotive Research (CU-ICAR), which broke ground on its first facility, the BMW Information Technology Research Center, in 2003. This center is completely occupied by BMW, where company engineers and Clemson students collaborate to address challenges that face automotive information technology.

The CU-ICAR facility used an initial $40 million investment from the South Carolina Department of Commerce

2 South Carolina Works Industry Profile data. Source: http://jobs.scworks.org/.
3 *The Economic Impact of South Carolina's Automotive Cluster*. Moore School of Business, University of South Carolina. January 2011. http://moore.sc.edu/UserFiles/moore/Documents/rev1_19.pdf
4 Calculated from Quarterly Census of Employment and Wages Data, Bureau of Labor Statistics. The analysis area included: Greenville County, Spartanburg County, and South Carolina. The base area is the United States.
5 Source: Greenville Economic Development Corporation: http://www.greenvilleeconomicdevelopment.com/automotive.php
6 BMW in South Carolina: *The Economic Impact of a Leading Sustainable Enterprise*. University of South Carolina Moore School of Business. September 11, 2008.
7 "CU-ICAR wind tunnel viable, but not essential" Clemson University newsroom, October 27, 2006. Source: http://www.clemson.edu/newsroom/articles/2006/october/windtunnel.php5

to the university (which originated from BMW's tax credits earned from job creation and capital investment). The South Carolina General Assembly adopted the Research University Infrastructure Bond Act in 2004, which granted Clemson a $70 million award for research infrastructure and facility construction.[8] With $10 million in matching Centers of Economic Excellence funds from the state, CU-ICAR then secured endowed-chair positions from BMW and Michelin, at $5 million each, which began the program. Today, CU-ICAR has four endowed-chair positions under Founding Chair and Executive Director Imtiaz Haque. The endowed-chair positions are courtesy of industry partners Timkin, Michelin, and BMW (which has two endowed chairs). The Carroll A. Campbell Jr. Graduate Engineering Center was completed in 2007, and houses the graduate automotive engineering and research programs at Clemson. Funding includes $50 million from public partnerships and $200 million from private partnerships. Partner companies have access to the research facilities at no cost.

CU-ICAR is a physical campus of Clemson University, organized under the university's Office of Economic Development and reporting to the Office of the President. The Clemson University Real Estate Foundation (CUREF) is a 501c(3) organization that plays an integral role in the planning and development of the 30,000 university-owned acres across the state, including the 250-acre CU-ICAR property. John Boyette, who has managed CUREF since 2004, has served as interim director of CU-ICAR since December 2011. Suzanne Dickerson, who manages business development for CU-ICAR, regularly interfaces with local economic development groups, the City of Greenville, the state Department of Commerce, and the Upstate Alliance.

The Practice in Operation

CU-ICAR is an embedded lab, designed to engage automotive engineering students with domestic and international companies in the greater Greenville automotive cluster and to provide research-driven economic development in South Carolina. Although this practice involves some traditional academic instruction, students work across a number of labs on the CU-ICAR campus, using state-of-the-art testing equipment for product research, design, development, manufacturing, and electronic systems. The students have access to industry professionals and real-world pilot projects that would otherwise be siloed within the industry.

Three key aspects of CU-ICAR are: (1) its design, (2) joint university-industry research, and (3) practice-based instruction.

Facility Design

CU-ICAR was developed with a focus on foreign direct investment. Clemson University President and former architecture professor Jim Barker realized that CU-ICAR's physical design would be crucial in drawing international attention, including the construction of LEED-certified buildings and implementing restrictions and covenants on building construction. The center's design created a collaborative environment, facilitating dialogue and interaction between researchers and industry professionals.[9] Clemson University and CUREF designed a master plan that sectioned the campus into five "traditional neighborhood" phases of development. Phase 1, comprising CU-ICAR's five existing buildings, is nearly complete as of late 2012. As CU-ICAR develops, funds from leases will help move CU-ICAR operations to a self-sustaining funding model.
As of late 2012, CU-ICAR is currently composed of five main buildings:

- Auto Park and Innovation Place – Parking facility and central gathering place at CU-ICAR.
- BMW Information Technology Research Center (ITRC) – Research and development extension of

8 Non-government matching funds were required to receive funding. Phone interview with John Boyette, July 23rd, 2012.
9 Understanding Research, Science, and Technology Parks: Global Best Practices. National Research Council (U.S.). Committee on Comparative Innovation Policy: Best Practice for the 21st Century, National Research Council, (2009), p. 87.

BMW.

- The Carroll A. Campbell Jr. Graduate Engineering Center – Central location for postgraduate studies in automotive engineering.
- Koyo Bearings/JTEKT Group Collaboration 3 Building – Koyo Bearings' location for needle bearing design and technology development.
- Center for Emerging Technologies (CET) – CU-ICAR's 60,000-square-foot business incubator and startup space and world headquarters for Sage Automotive Interiors.

These buildings house some of the world's most advanced, automotive equipment research and development technology available to Clemson students, including a road simulation and climate test chamber, drive-on vehicle coordinate measurements, an engine performance facility, and machine shop. The services provided by these facilities are offered at a deep discount to industry (partners have use of these facilities at no cost). The sharing of facilities between students and industry further builds the collaborative environment at CU-ICAR.

Joint University-Industry Research

CU-ICAR is unique in that professors and graduate students are routinely engaged in research that will benefit the automotive industry, which primarily sponsors the research projects. The Michelin Tweel is one of the more high-profile research projects at CU-ICAR. Faculty and students in the advanced powertrain systems area of research are developing the Tweel, an airless tire that uses a "hub and spoke design," combined with a flexible wheel, to enable more efficient tire performance.[10] Application of the technology is being tested on the NASA lunar wheel. A CU-ICAR graduate team is also collaborating with DiMora Motorcar to develop a new suspension technology that will enable enhanced stability at high vehicular speeds. These types of industry applications further advancements in the auto industry, while providing a synergistic environment for industry and academia.

Practice-Based Instruction

The annual Deep Orange program at CU-ICAR provides a studio learning experience for students. The program takes a vehicle from concept to a full-scale, market-ready prototype. CU-ICAR faculty and more than 20 industry partners are involved in this program. Deep Orange allows students to understand issues, including geographic, social, political, and financial matters faced by the automotive industry's original equipment manufacturers (OEMs) and suppliers, an experience not typically gained until after the students have entered the workforce. Deep Orange also allows the industry partners to glean a fresh perspective on vehicle design using the latest available technology at CU-ICAR.

Results to Date

Since its launch, CU-ICAR has expanded from two to 19 on-site partners in five constructed buildings totaling 760,000 constructed square feet. CU-ICAR's newest building, the Center for Emerging Technologies (CET), is a 60,000-square-foot center that provides office, administrative, and laboratory space for the transportation, technology, and energy sectors.[11] Funded in part by a $3 million grant from the federal Economic Development Administration, the CET will provide office space for companies that want to be close to the OEMs and suppliers but do not wish to lease an entire building. Already 87 percent leased, the new center will complete the link at Clemson between laboratory research and the marketplace, and will attract $11 million of new investment

10 Michelin. "Michelin Lets the Air Out of Future Tire Innovation," 2005. Source: http://michelinmedia.com/news/michelin-lets-the-air-out-of-future-tire-innovation/

11 Source: http://www.clemson.edu/media-relations/3779

to the university.

Since its inception in 2003, CU-ICAR has generated more than $230 million in public and private investments, created some 775 jobs, placed hundreds of Clemson automotive engineering and systems engineering graduates in related industry careers, and helped attract thousands more jobs from CU-ICAR's partner companies and affiliates.

The Greenville area now has more OEMs and first-tier suppliers than Detroit.[12] Overall, international companies employ 107,000 people and have invested more than $37.3 billion in South Carolina since 1960.[13] BMW alone generates more than $4 billion in exports, primarily through the Port of Charleston. Nearly two dozen international companies are located at or near CU-ICAR, and the international impact is even greater when considering companies that not only work directly with ICAR, but also those that work with their industry partners to leverage ICAR research. For example, CADFEM GmbH of Munich, Germany, and EnginSoft, SpA, of Trento, Italy, formed a consortium with Ozen Engineering (Sunnyvale, Ca.) to provide consulting services and software for advanced automotive computer modeling, and have their U.S. headquarters at CU-ICAR. The campus was chosen for the interchange between academia, research, and actual products in the market. German-based ZF Group, a transmission manufacturer, chose nearby Laurens County because of the area's synergy between industry and technology. French tire maker Michelin chose South Carolina because of the skilled workforce that CU-ICAR produces. Koyo Bearings, a division of the Japanese-based JTEKT Group, is also located on the ICAR campus.

Automotive research through partnership is at the core of CU-ICAR's mission. To date, CU-ICAR has received more than $130 million in research contributions through various public and private partnerships. Several new research initiatives are on the horizon at CU-ICAR. Project Green is a joint economic development initiative between CU-ICAR and the South Carolina Technology and Aviation Center for research and development of sustainable mobility systems. CU-ICAR has also built two drive simulators on campus. The U.S. Department of Energy awarded Clemson a $45 million grant, matched by $53 million in public and private funds, to develop the world's largest wind turbine drivetrain testing facility located at the Clemson University Restoration Institute (CURI) in North Charleston, South Carolina. At the Clemson University Advanced Materials Center in Anderson, South Carolina, a joint project was completed in June 2011 with Duke Energy and the South Carolina Research Authority (SCRA), funded in part with a $2 million gift from Duke Energy. The Duke Energy Innovation Center will include a business incubator and labs for SCRA'S advanced materials research projects, further strengthening Clemson's automotive research capabilities.

Job generation is perhaps CU-ICAR's greatest accomplishment. The synergy of companies and university research has helped to create more than 10,000 jobs in the greater Greenville area.[14] Some of the most recent examples include:

- Bridgestone tire factory in Sumter County that will have 1,600 jobs
- Bridgestone's new 1.5 million-square-foot plant in Aiken County that will have 850 jobs
- ZF Industries in nearby Laurens County that will have 1,600 jobs

12 Using a 500-mile radius around Clemson and Detroit, Michigan. Source: Understanding Research, Science, and Technology Parks: Global Best Practices. National Research Council (U.S.). Committee on Comparative Innovation Policy: Best Practice for the 21st Century, National Research Council, p. 88

13 "South Carolina Draws International Companies" Bill Lewis. Source: http://businessclimate.com/south-carolina-economic-development/south-carolina-draws-international-companies. Accessed July 25, 2012.

14 Source: Greenville Area Development Corporation, accessed online July 29, 2012. http://www.greenvilleeconomicdevelopment.com/automotive.php

- 50 percent increase in production at the BMW facility
- Michelin's expansion of Proterra[15] (a startup zero-emissions bus company)

In addition, a new American Titanium Works mill, which will be built in nearby Laurens County, will locate research at CU-ICAR with a $500 million investment. Auto supplier Bosch is expanding its operations in nearby Dorchester County with an investment of $125 million, creating approximately 300 new jobs. CU-ICAR also is talking with three more major prospects about partnerships.

CU-ICAR had more than 200 students apply to the graduate program in 2012.[16] Of the average 100 students in the program each year, 100 percent are placed in related industry jobs.[17] Many of those jobs are retained in South Carolina, as 44 percent remain in the state. The United States retains 90 percent of the ICAR jobs that leave the state, with only 10 percent going overseas. CU-ICAR's partners, including Staubli Corporation, BMW, Automation Engineering Corporation, Altair, and the Mazda Corporate Foundation, have also contributed to scholarships and fellowships for outstanding CU-ICAR students. Building on CU-ICAR's automotive focus, five technical colleges have collaborated to offer automotive engineering-related programs in the Upstate region of South Carolina. The South Carolina Technical College System's Division of Economic Development and Workforce Competitiveness also offers a complementary training program, ReadySC, that provides free pre-employment training to new and expanding companies that create permanent, high-quality jobs in the state's industry clusters.

Lessons Learned

CU-ICAR was formed in response to the needs of the growing auto industry in the Greenville-Spartanburg area of South Carolina. With more than 120 automotive organizations/suppliers in metro Greenville and more than 30,000 employed in auto-related organizations, the automotive industry has become one of Greenville's largest industry clusters.[18] CU-ICAR supports that cluster by providing a key research and development function for the industry.

CU-ICAR was initially formed with support from the state, the automotive industry, and Clemson University. CU-ICAR differs from traditional economic development in that university knowledge assets are offered in addition to traditional incentive packages; specifically, the access to research and innovation, and the graduating workforce, whose members are equipped to use the latest technology in the industry. The CU-ICAR model has been further strengthened by initial partnerships formed with BMW, Michelin, and Timkin.

Several factors have contributed to CU-ICAR's success. CU-ICAR has a critical mass of companies drawn to the campus from initial partnerships with BMW, Michelin, and Timkin. Word travels fast in the industry, and companies that look to build relationships with a company like Michelin would likely want to be located nearby. The access to considerable resources in one place functions much like a city center for the industry. These companies range from established manufacturers to startups, and CU-ICAR provides the work environment for companies in various stages of their life cycle. CU-ICAR listened to what the industry wanted and created the academic niche on the research side and in the job market for the auto industry's future workers.

15 Phone Interview with John Boyette, July 23, 2012. The South Carolina Department of Commerce ranked Proterra its top economic development achievement of 2010. Source: 2010 – 2011 CU-ICAR Annual Report, accessed online: http://media.clemson.edu/cuicar/CUICAR_10_11_Report_Print.pdf

16 Phone Interview with John Boyette, July 23, 2012.

17 In 2010, there were 107 graduate students and nine faculty members in the program. Source: 2010 – 2011 CU-ICAR Annual Report p. 13, accessed online: http://media.clemson.edu/cuicar/CUICAR_10_11_Report_Print.pdf

18 Greenville Area Development Corporation. Source: http://www.greenvilleeconomicdevelopment.com/target-industries.php

As an economic development best practice, the CU-ICAR model is replicable around state research universities and target industry clusters. South Carolina is currently replicating the model with the aerospace industry cluster in Charleston, with Boeing and Clemson as partners. Research at Clemson's Advanced Materials Center in Anderson is primarily focused on the auto industry, but there is also crossover in aerospace. In partnership with Clemson, the South Carolina Research Authority built an Applied Research Innovation Center adjacent to the Charleston International Airport where startup companies will bring new advanced materials to the aerospace market.[19]

Clemson took a risk by placing its bets on the auto industry, but it has resulted in a program that benefits the university, companies in the auto industry, and the state. Through these partnerships, CU-ICAR has become a premier research and development facility for the industry, as well as a place where the auto industry's future workforce can gain valuable hands-on skills. While CU-ICAR's beginnings can be traced to BMW's decision to locate in South Carolina, its success in attracting additional foreign direct investment has been generated by the university's willingness to reach out, listen, and respond to the needs of potential partners for the betterment of economic development in the state.

19 South Carolina Research Authority. Source: http://www.scra.org/scra_applied_research_center.html

Milestones

1992	BMW chooses a site along I-85 in Greer, South Carolina for its U.S. manufacturing plant.
1994	BMW opens its manufacturing plant.
2000	Clemson University's dean of engineering approaches BMW to explore the possibility of an industry-university partnership for constructing a commercial wind tunnel.
2003	BMW Information Technology Research Center launched.
2004	South Carolina General Assembly adopts the Research University Infrastructure Bond Act, allocating $217 million across three state research institutions, including $70 million to Clemson.
2006	CU-ICAR officially opens.
2007	Carroll A. Campbell Jr. Graduate Engineering Center building within CU-ICAR opens.
2008	BMW announces a second assembly plant, a $750 million investment that includes a 300,000-square-foot addition and a 1.2 million-square-foot flexible assembly second plant.
2010	Clemson University creates the Department of Automotive Engineering, diverging from the Department of Mechanical Engineering; program staff includes 11 professors as of 2012.
2011	CU-ICAR's newest building, the Center for Emerging Technologies, opens.
2011	BMW announces a $100 million investment in its Upstate assembly plant.

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IDAHO MARKET ENHANCEMENT STRATEGY

Candice C. McKie

Summary

The Idaho Farm Bureau Federation's (IFBF) market enhancement strategy is an example of leveraging local industry strengths and establishing long-term relationships to expand exporting opportunities. The IFBF is a not-for-profit, general farm organization that advocates on behalf of the Idaho agricultural community. At the root of the market enhancement strategy is IFBF's underlying goal to promote and enrich farm markets so that farmers and ranchers in Idaho are better positioned to take advantage of economic opportunities.

More than a decade ago, IFBF representatives accompanied the state's governor, representatives of the lieutenant governor's office, and other key officials on a trade mission to Mexico. With that initial trade tour, the Idaho Farm Bureau Federation developed a relationship with Mexican flour-milling companies that they have continued to nurture and cultivate over the years. In addition to building and maintaining long-term relationships, the IFBF has partnered with (1) industry to assist with refining IFBF members' knowledge of grain markets and (2) a grain marketing team for assistance with market development.

This practice illustrates how trade associations such as IFBF can play key roles in increasing demand for exports, including resource-intensive agricultural exports. Increasing exports need not require a border or seaport location, as this practice uses inland-port infrastructure. A key lesson of this practice is the importance of long-term partnerships between the state, the trade association, and Mexican officials to building trust and mutual understanding, which eventually leads to greater exporting opportunities.

Background

Idaho is located in the northwestern United States. In 2011, its population was an estimated 1.6 million, an increase of more than 20 percent from 2000. Compared to the average of 87 persons per square mile in the nation, Idaho is one of the least densely populated states, with only 19 people for every square mile. Given Idaho's abundance of land and natural resources, agriculture plays a large role in the state's economy. The agriculture, forestry, and fishing sector contributed nearly 6 percent of the total gross domestic product (GDP) in Idaho in 2011, whereas the same sector represented only 1.2 percent of the GDP in the United States.[1] In 2011, seven of the state's top 25 exports were related to agriculture.

Nearly 22 percent of all land in Idaho, or 11.5 million acres, was dedicated to farmland or ranchland in 2007.[2] Wheat is harvested in 42 of the 44 counties in Idaho, with the northern and eastern regions having the largest share of wheat production, 32 percent and 43 percent, respectively.[3] There were 1.35 million acres of harvested wheat in 2010 in the state, second only to hay, which accounted for 1.47 million harvested acres. In terms of cash receipts, sales of wheat generated more than $533 million for Idaho wheat farmers in 2010. This represented about 9 percent of the total cash receipts for all Idaho agricultural commodities in 2010.[4]

1 U.S. Bureau of Economic Analysis. http://www.bea.gov
2 2007 Census of Agriculture. http://www.agcensus.usda.gov.
3 Source: Idaho Wheat Commission, Idaho Wheat Transportation Characteristics. October 9, 2012.
4 Source: Idaho State Department of Agriculture, Idaho Agriculture Facts. October 4, 2012.

Idaho's agriculture accounted for 21,904 jobs in 2011, or 4.4 percent of the state's total number of estimated jobs in the private sector. From 2001 to 2011, total agriculture jobs increased by 10 percent (2,062 jobs) in Idaho, but decreased 1 percent in the United States. Approximately 36 percent of all agriculture jobs in the state were involved with crop production, which had a location quotient (LQ) of 3.26 in 2011. Despite representing a small share of the total crop production employment, wheat farming (344 jobs in 2011) had a LQ of 13.65—confirming the concentration of the wheat industry in Idaho. A location quotient measures the competitiveness of an industry between two areas (in this case, between Idaho and the United States as a whole). A LQ equal to 1.0 indicates that the percentage of employees for that industry is the same in Idaho as it is in the United States. A LQ above 1.0 indicates a higher percentage of employees are employed by the local industry compared to the national equivalent, and a LQ less than 1.0 indicates a lower percentage of employees in the local industry than employed in that industry in the United States. A high LQ indicates a local specialization in a particular industry. From 2001 to 2011, wheat-farming jobs have increased by 72 percent in Idaho, compared to just 36 percent in the United States. Idaho is increasing market share in wheat production as the state is home to 6.3 percent of the total wheat-farming jobs in the country, a slight increase from the 5 percent Idaho claimed in 2001.

Although the number of direct wheat-farming jobs is small, as a crop wheat impacts numerous other industries involved in the overall production process[5]. Flour milling, grain and field bean merchant wholesalers (grain elevators), wholesale trade agents and brokers, and farm product warehousing and storage are among industries influenced most directly.[6] These ancillary industries are also directly affected by fluctuations in the wheat markets. Combined, Idaho counts 3,431 jobs in these industries.

Over 50 percent of Idaho wheat is exported. Given cost efficiencies and proximity to the inland port in Lewiston, Idaho, most of the wheat produced in northern Idaho is exported by barge, whereas wheat produced in the eastern region is mainly transported by truck or rail. Northern Idaho exports 93 percent of the wheat it produces, but eastern Idaho exports only 17 percent of the wheat produced in the area.[7] The value of all Idaho wheat exported in 2010 reached nearly $300 million, third highest of all the Idaho food and agriculture products exported that year. Canada, across Idaho's northern border, was the single largest importer of all Idaho agricultural exports in 2010, garnering 22.6 percent of the market share. Mexico and Japan were the second and third largest importers of agriculture products from Idaho that year, with 17.8 percent and 8.8 percent, respectively.

Given the prominence of agriculture to Idaho, several industry-related organizations represent specific commodities produced in the state. The largest of these is the Idaho Farm Bureau Federation (Idaho Farm Bureau or IFBF). Idaho Farm Bureau is a non-profit, general farm organization that represents farming and ranching families throughout the state. It comprises 38 county chapters with active boards and more than 64,000 members. Based in Pocatello, Idaho, IFBF is funded through membership dues, and it advocates on behalf of farmers and ranchers in various areas including trade, environmental regulation, conservation, and state policy pertinent to members. By its very nature, Idaho Farm Bureau is a grass-roots organization that serves as a single voice for Idaho's agricultural community.

Organized in May 1939 as an independent farm organization, Idaho Farm Bureau, along with Puerto Rico and

5 To a certain degree, the NAICS codes used to classify wheat farming will not completely capture the total number of jobs actually involved in wheat farming. For instance, people that operate a diversified farm may grow more acres of another crop other than wheat, or they may plant wheat as a rotational crop. This influences the primary NAICS industry they report and may skew the employment numbers downward.

6 Wheat production also creates transportation and freight forwarding jobs.

7 Source: Idaho Wheat Commission, Idaho Wheat Transportation Characteristics. October 9, 2012.

the other 49 independent state farm bureaus, operates under a cooperative agreement with the American Farm Bureau Federation (AFBF). Similarly, each county farm bureau affiliate in Idaho is a separate legal entity that operates under an agreement with the IFBF. Under this agreement, county-level farm bureaus are responsible for collecting member dues, including the state and national portions, which fund programs and policy development at each respective level. The main goals of the Idaho Farm Bureau are to promote Idaho agriculture in general and to "enhance net farm income and improve quality of life for farm and ranch families."[8]

Although wheat is just one of the many commodities that the Idaho Farm Bureau promotes, it is significant for international expansion. Over a decade ago, the IFBF Board of Directors saw an opportunity to improve and expand markets, both domestically and internationally, for wheat produced by Idaho farmers. In 1996, Idaho's current Governor Butch Otter[9] organized a trade mission to Guadalajara to meet with Mexican officials. This was just two years before the full launch of the North American Trade Agreement (NAFTA).[10] The IFBF was one of the groups asked to join the trade tour on behalf of Idaho farmers and ranchers. From that initial trade tour, IFBF began taking a group of farmers on subsequent trade tours to promote Idaho's agricultural products. In particular, IFBF recognized that although wheat was a quality product, its prices were low and the commodity needed strengthening. The marketing and promotion programs supported by IFBF were revised and a new and innovative market development strategy was crafted. Emphasis was placed on market research and education, traditional marketing activities, and new marketing methods.[11] One innovative strategy was the partnership between IFBF and a company established in grain marketing and brokerage services, AgriSource Inc., and two market education teams--JC Management and Market Quest Research Associates.

Funding for the market enhancement strategy was paid for by member dollars and some grant funds. The line item cost for the practice within IFBF's total budget is $30,000 per year.[12] Most of the amount, 59 percent, is dedicated to research and dissemination of market information to IFBF members. Promotion of agricultural commodities through traditional trade missions and reverse trade missions makes up 25 percent of the total budget for the practice, and the remaining 16 percent is spent on market seminars and the delivery of wheat contracted with millers in Mexico. According to Dennis Brower, current director of commodities at IFBF, a small percentage of the proceeds from the sales of wheat goes to help pay for future reverse trade missions so that expenses to bring buyers up from Mexico are completely covered by the Idaho Farm Bureau and the brokers and grain companies with whom IFBF has formed a partnership.[13]

The Practice in Operation

The Idaho Farm Bureau market enhancement strategy is geared toward IFBF members and foreign countries interested in purchasing Idaho's agricultural products. While time is spent visiting various countries to foster relationships, most of the emphasis has been targeted toward Mexican flour millers who value reliable and consistent wheat product. The market enhancement strategy developed by the IFBF focuses on three key areas: (1) market analysis services and education, (2) participation in traditional trade missions, and (3)

8 http://www.idahofb.org/index.php?action=aboutus.home.

9 He was serving as lieutenant governor at the time.

10 Subsequent to passage of NAFTA, which alleviated most of the barriers to trade and investment across North American border countries, Idaho established a trade office in Guadalajara to help facilitate and support trade between Mexico and Idaho.

11 Idaho Farm Bureau Marketing Program Overview (2009). *Gem State Producer*, 13(1). Retrieved from http://www.idahofb.org/assets/pdfs/June%202009%20Producer.pdf.

12 Ibid.

13 This case study includes information from interviews with IFBF Commodity Director Dennis Brower on September 12, 2012 and with Laura Johnson, Idaho State Department of Agriculture Marketing Division bureau chief, on October 2, 2012.

facilitation of reverse trade missions.

Market Analysis and Education

Idaho Farm Bureau places considerable importance on continuing the education of its members regarding commodity markets by introducing this aspect of the market development strategy first. It also represents the largest share of the budget allocated to the strategy. Ensuring that members understand the global and domestic factors that affect the wheat market remains a key component of the strategy, as well as being instrumental to the overall mission of Idaho Farm Bureau.

The IFBF contracts with several local consultants to provide market analysis services and reports to members through dissemination on the Web or via email.[14] Kelly Mendenahall of Market Quest Research Associates provides a daily email to subscribers that reports on the happenings in the wheat, corn, beef, and dairy markets.[15] Members can also call a toll-free number to get the latest market information in Idaho, Oregon, and Utah.

Currently, IFBF contracts with market analyst Clark Johnson of JC Management to (1) provide commentary in IFBF publications and (2) conduct seminars statewide to discuss appropriate methods and strategies of enhancing profits and managing the risks inherent in commodity production. In 2005, IFBF received a grant of nearly $10,000 from the Western Center for Risk Management Education to conduct seven grain-marketing seminars across the state.[16] By holding the seminars in rural Idaho, IFBF could reach 160 members who might otherwise be unable to attend. In addition to statewide seminars, the IFBF often schedules marketing cruises. For instance, in 2003, IFBF held a marketing seminar on a cruise to the Mexican Riviera.

Trade Missions

According to Brower, every year officials with Idaho Farm Bureau Federation and a grain-marketing team from AgriSource Inc. travel to Mexico to try to generate trade agreements for Idaho wheat. There are some specific companies that IFBF has worked with over the years to establish a long-term partnership. During its time in Mexico, the IFBF team schedules appointments to visit with these specific companies and the affiliated industry associations. These recurring trade missions have been important to maintaining connections with companies interested in Idaho commodities, and also help to nurture the trading relationship between Mexico and the United States.

The Idaho Farm Bureau Federation also takes a delegation of its members on separate farmer-to-farmer trade tours. During these tours, IFBF members get an opportunity to learn more about the agriculture industry in the country they are visiting, to exchange ideas, and, in some cases, to visit mills where the wheat they have grown has been shipped. When visiting Mexico, the IFBF trade tour delegation often attends the AgroExpo, one of the largest agricultural trade shows in Mexico.[17] Displaying Idaho agriculture commodities at this show is sometimes the Mexican public's first introduction to food produced in Idaho.

The IFBF has participated in more traditional trade missions with several other commodity commissions, such as the Idaho Wheat Commission, the Idaho Bean Commission, and the Idaho Potato Commission. In addition

14 Idaho Farm Bureau Marketing Program Overview (2009). Gem State Producer, 13(1). Retrieved from http://www.idahofb.org/assets/pdfs/June%202009%20Producer.pdf

15 Fuhriman, G. (2008). IFBF Announces New Grain Marketing Team. *Gem State Producer*, 12(8). Retrieved from http://www.idahofb.org/assets/pdfs/Dec%20Producer%202008.pdf

16 Source: http://www.agrisk.umn.edu/verification/vrregister.dll/publicresults?ProjectNumber=RME-BS001358

17 Ellis, S. (2005). Seminars Teach Value of Marketing Knowledge. *Gem State Producer,* 12(8).Retrieved from http://www.idahofb.org/assets/pdfs/gsp04-05.pdf

to industry-affiliated groups, IFBF has formed key partnerships with the Idaho State Department of Agriculture, the Idaho Department of Commerce, and the offices of the lieutenant governor and governor of Idaho. Since 1996, IFBF has taken 11 trade tours to Mexico, and members have also visited Canada, China, and Australia.

Reverse Trade Missions

The Idaho Farm Bureau Federation has been strategic and targeted with respect to the companies invited to visit Idaho. In general, IFBF has focused solely on Mexican milling companies interested in importing identity-preserved wheat.[18] The IFBF identifies Mexican flour- milling companies to invite, generally those with whom IFBF has had previous contact. Company representatives then join the Idaho Farm Bureau, and the occasional co-host, on an all-expense-paid, two-day tour across the state to various wheat-producing regions. While on tour, Mexican millers can meet Idaho wheat growers and observe the wheat at various stages of the production process, whether in the field, at a grain elevator, on a vessel headed to the Port of Portland, or on a train.

Hosting Mexican wheat millers on reverse trade missions to Idaho has been instrumental in generating additional trade contracts for the local wheat industry. Buyers can see and experience the quality of the product firsthand. Brower states, "They want us to have a better understanding of their needs and what they're looking for when they buy wheat."[19]

Results to Date

The IFBF market enhancement strategy focuses on expanding and supporting the Idaho wheat market. Not all results are easily measured, such as those regarding the education and research prongs of the strategy. Nor are the results instantaneous. For example, the first sale of wheat came nearly six years after IFBF first visited Mexico on the lieutenant governor's trade mission. In 2002, seven flour mills purchased 85,000 bushels of white winter wheat worth $500,000. The relationship that grew from the initial contact was essential to the deal. Hilario Payan of Munsa Mills in Sonora, Mexico, said that it was important for Idaho Farm Bureau Federation to come down--"The importance of us meeting face to face is the most important step taken."[20]

In 2011, IFBF hosted Grupo Altex, one of Mexico's largest wheat buyers and millers of wheat for Mexico's largest bakery, Grupo Bimbo. Officials with IFBF first made contact with representatives from Grupo Altex during one of the governor's trade missions to Mexico.[21] The Mexican buyers were so impressed by the Idaho wheat that, during the reverse trade mission, Grupo Altex placed several orders of soft white wheat by the trainload. Shortly after the company representatives had returned to Mexico, they placed additional orders of the soft white wheat to be delivered by train and shipped from Portland, Oregon. They also ordered another variety, hard red spring wheat, by the trainload.

In 2011, Idaho wheat exports to Mexico totaled $25.9 million. Although the IFBF cannot claim that all of these exporting dollars resulted directly from its market development plan, improvement has clearly been made by the work that IFBF is doing in Mexico. Through June 2012, Idaho wheat exports to Mexico had increased 300 percent over the previous year. Laura Johnson, division chief of the Idaho State Department of Agriculture's market development division, credits the Idaho Farm Bureau Federation's continued efforts in Mexico as a reason why Mexican imports of wheat from Idaho have increased, and says, "They've been doing a lot of legwork down there for a number of years, and it's really paying off. When they need wheat, they know where

18 Unlike most wheat, identity-preserved wheat is not comingled. Instead, it is separated out by protein and quality.

19 Putnam, J (2011).IFBF Helps Land Contract With Mexico Wheat Buyers. *Gem State Producer,*.15(7).Retrieved from http://www.idahofb.org/assets/pdfs/OctProducerWeb_2011.pdf

20 Idaho completed $500,000 Mexico wheat sale. The Associated Press State & Local Wire

21 Idaho Grain (2011). Wheat Exports to Mexico Climb. Source: http://www.idahowheat.org/images/newsletters/winter_LoRes.pdf

to look; they look to Idaho."[22]

An additional result of the trade missions was that Mexican flour millers expressed a great deal of interest in purchasing more identity-preserved wheat. Ever mindful of profit margins, the buyer for Grupo Altex suggested the possibility of buying the specialty wheat directly from the grower rather than from the intermediaries. Further, during one of the trade missions, the owner of Grupo Altex invited Idaho officials to join him on a business mission to Cuba. This could result in a potential expansion of the market enhancement strategy to include wheat sales to another country.

Lessons Learned

The IFBF has created a market enhancement strategy that focuses on the development of domestic and international markets for wheat. The key aspects of the strategy include: (1) market research and education for current IFBF members, (2) building strategic partnerships through participation in trade missions, and (3) hosting reverse trade missions. This method differs from traditional export efforts in two ways. First, it is specific to one commodity primarily, although not exclusively, clustered in a particular region of the state. Second, Idaho has a comparative advantage specific to Mexico that shows the most promise as a trading partner.

The success of the strategy can be attributed to the long-term nature of IFBF's efforts. Relationships with companies and officials from Mexico have been founded on trust and a mutual understanding of each entity's goals. Commitment to nurturing and maintaining these relationships over time has been imperative for the success of the strategy.

The formation of strategic partnerships with governmental officials and trade associations in Idaho has also been a factor. These partnerships allow for greater networking ability and an increased sharing of information. Leveraging these local relationships helps to expose IFBF to additional market opportunities. Additionally, the inclusion of the locally established industry (i.e., the marketing consultants) has helped IFBF to focus its efforts and resources on the facilitation of the trade missions rather than on the actual logistics of the trade agreements.

The keys to replicability of this practice are commitment and follow-through. Every mission will not necessarily result in a sale; however, each mission helps to strengthen the relationship with the company and country and increases trust between the trade partners. Much of the success of the strategy is based on the actual structure of the strategy and on leveraging local industry strengths to target a particular country. Although IFBF opens its membership only to Idaho farmers and ranchers, it's possible for specific counties, or geographic regions, to form a coalition of farm bureaus and apply IFBF's strategy to their own local industry strengths.

22 Ellis, S. (2012, August 29). Idaho Wheat Exports to Mexico Soar in 2012. Capital Press. Retrieved from http://www.capitalpress.com/idaho/SE-wheat-exports-083112-art

Milestones

1994	The North American Free Trade Agreement (NAFTA) is fully launched.
1996	Idaho Farm Bureau Federation participates in governor's and lieutenant governor's trade missions to newly established trade office in Guadalajara, Mexico.
1997	Trade mission – Guadalajara and Puerto Vallarta, Mexico.
1998	Visitation to Sinoloa, Mexico.
1999	Trade trip to Alberta, Canada, and trade show (AgroExpo) in Cuilican, Mexico
2000	Trade mission – Vera Cruz, Mexico
2001	Trade mission – Jalisco, Mexico
2002	Sinaloa, Mexico; first sale of wheat sold to Mexico.
2003	Alberta, Canada; Mexican Riviera marketing cruise (seminar)
2004	Agro Expo Trade Show in Cuilican, Mexico
2005	Visits to Sonora and Sinaloa, Mexico
2006	Trade mission to China occurs.
2007	IFBF staff travel to Jalisco and Colima, Mexico, and to Agro Expo trade show in Cuilican, Mexico.
2008	Trip to Australia.
2009	Marketing cruise (seminar) in conjunction with AFBF Annual Meeting in San Antonio, Texas.
2010	Trade mission introducing producers to prospective buyers in Guadalajara and Mexico City.
2011	Reverse trade mission with Mexico; Visit Guadalajara, Toetihuacan, Mexico City, Zihuatanejolxtapa.
2012	Reverse trade mission with Mexico; Hawaii cruise.
2013	Reverse trade mission with Mexico planned; Trip to New Zealand planned.

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MILWAUKEE 7

Leigh Hopkins

Summary

Launched in September 2005, Milwaukee 7 (M7) is a regional economic development organization composed of representatives from seven southeastern counties in Wisconsin: Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha. Both M7's mission and strategic framework em phasize the importance the organization places on working regionally to grow, expand, and attract businesses in the following established and emerging industry clusters: (1) power, automation, and electronics; (2) food and beverage manufacturing; (3) information technology; (4) water technology; (5) financial services; and (6) medical technology and biomedical research.

M7's strength lies in its regionalism. The combined efforts, resources, and competitive advantages of all seven counties have allowed M7 to develop a plan to attract interest to the region on a scale that would be difficult if not impossible to achieve if the counties were working alone. Since 2010, M7 has helped create 4,911 direct jobs and $444 million in capital investment in the region. This case study shows how the combined resources and efforts of a regional development organization focused on foreign direct investment (FDI) and exporting have provided southeast Wisconsin the advantage needed to compete on an international scale with already-established global leaders, specifically in the manufacturing and water technology sectors.

This practice represents the importance of taking a regional approach to attract FDI. The importance of identifying and targeting established and emerging industry clusters and developing a long-range planned approach to strengthening these clusters through FDI is an important lesson of the practice. The practice is relevant to any multi-jurisdictional region that seeks to revitalize its economy through cooperation and industry-segment targeting.

Background

Milwaukee is similar to many Rust Belt cities of the Midwest that have experienced manufacturing decline in recent years. Milwaukee had a 31.4 percent decline in manufacturing jobs from 2000 to 2010.[1] The region also experienced a decline in its overall population, an increase in unemployment, and a significant decline in median household income, the latter down more than 17 percent since 2000.[2] Over the last two decades, job growth has lagged behind the national average, and the growth that has occurred has done so in Milwaukee's exurban areas rather than in the city.[3] In part a reflection of middle-class and working-class differences, the Milwaukee metropolitan area also experienced a 23.4 percent increase in concentration of poverty rates in the city, with more than 90,000 residents of the city living in extreme-poverty areas, defined as areas where at

1 Brookings Institution. "Interactive: Locating American Manufacturing: Recent Trends Show a Halt in the Long-Term Shift of Manufacturing Jobs to the South." http://www.brookings.edu/research/interactives/manufacturing-interactive.
2 Brookings Institution. "State of Metropolitan America Indicator Map: Change in Median Household Income Since 2000." http://www.brookings.edu/about/programs/metro/~/link.aspx?_id=3a8c0c850cea4d4e959679faedf74327&_lang=en&_z=z#/?subject=8&ind=76&dist=0&data=Percent&year=2010&geo=metro&zoom=0&x=0&y=0.
3 Jobs for the Future. 2009. "Building Regional Capacity to Stimulate Economic Growth and Workforce Productivity: Milwaukee Region Case Study." http://www.jff.org/sites/default/files/MILcasestudy-071509.pdf.

least 40 percent of individuals live below the poverty line.[4]

The M7 comprises seven southeast Wisconsin counties that fall into one of four metro or micropolitan statistical areas: (1) Milwaukee, Waukesha, Washington, Ozaukee (Milwaukee-Waukesha-West Allis MSA); (2) Racine (Racine MSA); (3) Walworth (Whitewater Micropolitan Statistical Area); and (4) Kenosha (Chicago-Naperville-Joliet, IL-IN-WI MSA). As of July 2012, the Wisconsin unemployment rate was 7.3 percent, down from a high of 9.2 percent in July 2009.[5] Metropolitan areas of Wisconsin have been slower to recover since the peak of unemployment in the state in 2009. Unemployment in the Milwaukee-Waukesha-West Allis MSA peaked in March 2010, and declined to 8.2 percent in July 2012. The Chicago-Naperville-Joliet MSA unemployment peaked in January 2010 at 11.9 percent, and fell to 9.1 percent in July 2012. While Kenosha comprises a small portion of workers (0.8 percent) of the large and economically dynamic Chicago MSA, it lost almost 5.9 percent of its employment from 2001 to 2011.[6] As of July 2012, the Racine MSA was down to 9.2 percent unemployment and Whitewater mircopolitan statistical area down to 7.5 percent. Taken together, all four of the MSAs in the M7 lost an average of 5.9 percent of total private-sector employment between 2001 and 2011.[7] Wisconsin as a whole lost only 2.4 percent during the same period.

Wisconsin has identified the following industry clusters within its borders: (1) wind energy, (2) biotech, (3) dairy, (4) food products and processing, (5) paper, (6) plastics, (7) printing, and (8) tourism. In addition, there are two additional emerging clusters: (1) information technology and (2) medical devices. The other predominant industries in Wisconsin include manufacturing, health care, and finance/insurance sectors. In 2010, the top industries in Wisconsin were in manufacturing, which accounted for nearly 18 percent of the paid employment in the state, and health care, which accounted for 16.5 percent of paid employment in the state. Both the health care and finance/insurance sectors gained jobs in Wisconsin from 2001 to 2011.[8]

A location quotient equal to 1.00 means that the share of employment for that industry is the same in the county or state being studied as it is in the United States. A location quotient greater than 1.00 means that the industry has a greater share of local employment than that industry does in the nation, and a location quotient of less than 1.00 means that the industry has a smaller share of local employment than it does in the country as a whole. LQs are particularly useful in determining the industries in which a region specializes, and thus are used to determine cluster activity in an industry sector. Based on the location quotients, the predominant industry sectors that existed in the seven-county M7 region in 2011 included fabricated metal products, machinery, electrical equipment, food and beverage manufacturing, and finance.[9]

There are more than 50 foreign-owned manufacturing companies in Wisconsin that employ over 200 people. Regional examples include ThyssenKrupp, a German-based elevator and construction machinery company that has its metals division in Kenosha. Also, U.K.-based SABMiller Brewing employs 1,700 and has its regional headquarters in Milwaukee. France-based Veolia Environnement SA, a water technology and treatment company, has at least seven locations in southeastern Wisconsin.

Overall, the M7 region has strengthened the concentration of these industries since 2001, but there have

4 Brookings Institution. 2011. "The Re-Emergence of Concentrated Poverty: Metropolitan Trends in the 2000s." http://www.brookings.edu/research/papers/2011/11/03-poverty-kneebone-nadeau-berube

5 Bureau of Labor Statistics, state historical unemployment for Wisconsin. http://data.bls.gov/timeseries/LASST55000003.

6 Source: On the Map Work Destination Analysis by State. Approximately 30 percent of Kenosha's workers traveled across state lines to work in the Chicago, Ill. area.

7 Source: Bureau of Labor Statistics Quarterly Census of Employment and Wages (2001 – 2011)

8 Source: U.S. Census County Business Patterns

9 Source: Bureau of Labor Statistics LQ Calculator: http://data.bls.gov/location_quotient

been several exceptions. In 2001, the Racine MSA had a higher share of the medical equipment sector (North American Industry Classification System (NAICS) code 42345), and Kenosha County had a higher share of the electrical equipment and appliance manufacturing (NAICS code 335) and fabricated metal product manufacturing (NAICS code 332) sectors. However, counties in the surrounding region gained shares of those sectors from 2001 to 2010. Although the region experienced a formidable decline in manufacturing jobs from 2000 to 2010, from the first quarter of 2010 to the fourth quarter of 2011 manufacturing jobs in the region increased by 6.1 percent.[10] As of July 2012, the Milwaukee-Racine-Waukesha combined statistical area was seeing a steady decrease in the unemployment rate, to 8.3 percent, comparable to the rate of the nation as a whole during the same period, from an area high of 10.4 percent measured in February 2010.

Initially, there was no economic development vision for the region prior to the M7 – a region that has been at odds internally since the 1990s when the city of Milwaukee attempted to levy taxes on the surrounding suburbs to pay for water and sewer services.[11] From its beginning, the M7 has been business-led and business-driven. Businesses from the Greater Milwaukee Committee (GMC) and the Metropolitan Milwaukee Association of Commerce (MMAC) worked alongside political representatives from the seven counties in a council that examined how 40 different communities organized themselves into various regional economic development strategies. Decisions made by business helped formulate the regional strategy, and by working through a strategic planning process, the communities found that political boundaries became less important.

While decisions continue to be largely business-driven, the goals of M7 are economy-driven. Historically, the region has housed fewer foreign companies than have other areas of the country. The first three years of M7 were spent assessing the region's strengths and assets, and reacting to prospect activity. M7 first focused on managing companies that would potentially locate in the region. Next, an interactive website was developed to answer questions from potential prospects or from those companies looking to expand. The last two years – 2010 to 2012 – have been spent on proactive strategies. For example, as part of a formal "call program," M7 talked with all of the companies in its manufacturing sector to survey their needs, and subsequently put together value propositions for those companies.

Europe has been the main source of FDI dollars for M7. Germany and the northern Basque region in Spain are most aligned with the types of foreign companies and business climate that the Milwaukee region embodies. M7 had early FDI success with four Spanish companies: Ingeteam, SIC Lazaro, Talgo, and Inesa LLC. Exporting has also been a major focus of M7, as one-third of all regional jobs drive the export of goods and services from the region. Manufacturing is at the top of the list for regional export drivers (173,305 jobs), followed by financial services (49,871 jobs), company headquarters and management (20,148 jobs), and information technology (12,770 jobs).[12] M7 has developed several tools to leverage the region's exporting potential. Working with the Wisconsin Manufacturing Extension Partnership (WMEP), M7 supports "ExporTech," an export acceleration program that customizes international growth strategies for companies looking to expand into new markets. M7 also has China and India councils, which assist MMAC with conducting trade missions and creating business opportunities in those countries. M7 also utilizes a foreign trade zone at the Port of Milwaukee, and supports the Milwaukee World Trade Association.

The M7 is a collaboration between local businesses and government. MMAC and the Milwaukee Development Corporation (MDC) provide M7 with its core infrastructure and operational structure. M7 is co-chaired by two

10 Brookings Institution. "Interactive: Locating American Manufacturing: Recent Trends Show a Halt in the Long-Term Shift of Manufacturing Jobs to the South." http://www.brookings.edu/research/interactives/manufacturing-interactive

11 Jobs for the Future. 2009. "Building Regional Capacity to Stimulate Economic Growth and Workforce Productivity: Milwaukee Region Case Study." http://www.jff.org/sites/default/files/MILcasestudy-071509.pdf.

12 Source: Milwaukee 7 Strategic Framework. http://www.choosemilwaukee.com/framework.aspx.

local corporations (also investors) and the mayor of Milwaukee, and is directed by an on-loan employee of the MDC, housed in the MMAC.[13] M7 has gone from an initial 55 investors to approximately 140 smaller investors (85 percent of M7 funding is from private or foundation contributors while only 15 percent is from government). During its first five-year plan, M7 had as its goal the raising of $1 million a year, which it achieved. The M7 now has a goal of raising $1.5 million per year. Funding is funneled through the MMAC. While all investors give what they can, top investors from each of the seven counties have a seat on the economic development council and help set M7's strategy. M7 has three meetings annually where the council reviews and sets a strategy for executing the business plan. In 2012, M7 is applying for Economic Development Administration (EDA) designation as a district.[14]

The Practice in Operation

The M7 approach is a comprehensive economic development strategy. Its purpose is to help companies in driver industries create jobs and invest capital locally so that the entire region may prosper, and M7 does this in three ways: (1) region-building activities, (2) managing business expansion and attraction, and (3) improving the economic development climate.[15] Attracting FDI and fostering "export-driver" industries are key segments of the M7's overall framework. The MMAC is the organization responsible for conducting trade missions to target exporting, and the M7 supports that function. M7 focused its early attention on Western Europe, basing its strategy on data provided by the U.S. Bureau of Economic Analysis indicating that Western Europe is the largest source of FDI in the U.S. manufacturing sector. In November 2011, M7 attracted its largest source of FDI for the region when Blue7 Solutions (a joint venture of Blue Star Infotech of India and Trisept Solutions of Bayside, Wisconsin), announced that it would create 250 jobs in Bayside (a village in Milwaukee and Ozaukee counties) at an average annual salary of $60,000.

The three key focuses of the M7 FDI strategy are: (1) creating a "world water hub," (2) supporting a comprehensive export strategy, and (3) conducting marketing and outreach to European manufacturing companies.

Creating a World Water Hub

In addition to its overall impacts on job and wealth creation in the region, M7 has also been instrumental in the creation of the Milwaukee Water Council. In 2009, Milwaukee was designated a UN Global Compact City, recognized internationally for its freshwater expertise. The Milwaukee Water Council developed from M7's focus on supporting Milwaukee's water technology cluster.[16] Formed in 2009, the Milwaukee Water Council has been successful in bringing together water-engineering companies and academic initiatives in water engineering and technology to establish Milwaukee as the "World Water Hub," for water research, economic development, and education.[17] Building upon the M7 region's international recognition, businesses and universities in the M7 region have collaborated to introduce aquaponic farming to communities in Kerala, India.

Notable international companies that have located in the M7 region include French Veolia Environnement SA and German Siemens Water Technologies (water and wastewater treatment equipment). Laurent Auguste of Veolia Water North America sits on the Milwaukee Water Council board. In 2009, council representatives hosted two Chinese delegations that came to Milwaukee to explore partnerships with the area's water

13 http://www.jff.org/sites/default/files/MILcasestudy-071509.pdf
14 Interview with Pat O'Brien.
15 M7 Council meeting minutes. March 1, 2012. http://www.choosemilwaukee.com/upload/documents/M7CouncilMinutes3-01-12.pdf
16 Jobs for the Future. *Building Regional Capacity to Stimulate Economic Growth and Workforce Productivity: Milwaukee Region Case Study*. 2009 Source: http://www.jff.org/sites/default/files/MILcasestudy-071509.pdf
17 Milwaukee Water Council. Source: http://www.thewatercouncil.com/about/

technology businesses. Choosing Milwaukee as a headquarters, General Electric and Pentair launched a joint venture in 2009 focused on residential water filtration. The new company, Pentair Residential Filtration, will target exports to India and China as well as domestic markets.[18]

Supporting a Comprehensive Export Strategy

The Milwaukee region produces $6.5 billion in exports per year, primarily in industrial machinery, electrical machinery, and scientific and medical instruments, all three of which align with M7's cluster strategy. The top destinations for southeast Wisconsin exports are Canada, Mexico, and China. Foreign-based companies located in Milwaukee – such as Nestle, Kikkomen, and Fiat – note several reasons why the region is ideal for operations and export capacity. The proximity to two international airports located less than two hours driving distance from each other – Milwaukee's General Mitchell International and Chicago's O'Hare International – and access to the St. Lawrence Seaway via the Port of Milwaukee are both big draws.[19]

In addition to the region's physical assets, foreign investors also note programs like Milwaukee's use of the federal EB-5 Immigrant Investor Visa Program as an incentive, which offers green cards to foreign investors and their families in exchange for a minimum of $1 million business investment that can create at least 10 full-time jobs for U.S. workers. As part of M7's mission to grow, expand, and attract global business and talent, the group also works with local and state officials on several global trade initiatives. These include the China and India business councils (working with the MMAC), WMEP's customized manufacturer training program ExporTech™, the Manufacturing Exporters Network (MEN), a foreign trade zone for the Port of Milwaukee, the Milwaukee World Trade Association, and development of services for exporters with the Wisconsin Department of Commerce.

Marketing and Outreach to Europe

M7 has been aggressively pursuing visits to Europe and targeting companies that fit within M7's identified industry clusters. A delegation from the M7 attended the Hannover Messe in 2011, one of the largest industrial trade shows in the world. During the visit, members met with 47 companies and 15 agencies with a similar function to the M7 in Europe, the intent being to familiarize these agencies and their client companies with the southeast Wisconsin region. Visits to Spain resulted in the location of train-builder Talgo and wind-and-solar-energy-component company Ingeteam in 2009. Even after landing four Spanish companies, M7 leveraged its success and continued outreach with visits to Spain to build recognition of the M7 region, resulting in more prospective locations of Spanish companies to southeastern Wisconsin.

Results to Date

Since 2010, M7 has added 10 new FDI companies, primarily in the electrical manufacturing industry. During its first five years, M7 was involved in more than 100 potential business relocations and expansions in the Milwaukee region.[20] To date, these engagements have fostered the creation or retention of more than 8,100 jobs in the region, resulting in more than $430 million in direct payroll, $600 million in capital investment[21], and the leveraging of nearly $200 million in public-sector assistance, including federal earmarks, state

18 "Why Our Water Wins Are Big" by Rich Meeusen and Paul Jones. Milwaukee Journal Sentinel. Mar. 22, 2009. http://www.choosemilwaukee.com/popUp.aspx?contentid=e542fae9-aa7b-4823-b61c-e03ed7ee2526.

19 The Port of Milwaukee offers shipping access to the Great Lakes, and inland waterway systems that connect to the Gulf of Mexico. Source: http://www.choosemilwaukee.com/doing_business_internationally.aspx.

20 Milwaukee 7. *Milwaukee 7 2011 Report: Driving Economic Growth*. 2011. Source: http://www.choosemilwaukee.com/upload/documents/2011-M7InvestorReport-WEB.pdf

21 Milwaukee 7. Source: http://www.choosemilwaukee.com/milwaukee7/default.aspx

assistance, foreign-investment-zone dollars, and municipal investments.[22] As a further measure of its success, M7 estimated in 2011 that for every $1,000 it spent, one job was created with an average salary exceeding $52,000.[23]

M7 has also achieved designation as a regional center for the EB-5 Immigrant Investor Visa Program, resulting in the attraction of $23.5 million from Chinese, Korean, and Venezuelan investors, as of May 2011. M7 has shown recent success in Spain, and as of March 2012, it claimed four "wins" – three firms of which are already investing in the region, and seven new Spanish prospects have shown interest in doing so.

The organization's ability to attract FDI dollars cannot be underestimated as a factor in M7's success in stimulating job creation and capital investment in the region. The area has experienced significant FDI gains, marked by the attraction of companies such as Blue 7 Solutions, Paul Davis Restoration, Thomas Magnete, Helios USA, the Seda International Packaging Group, Inesa LLC, Sic Lazaro, Talgo Inc., and Ingeteam Inc. The latter was the first of four Spanish corporations to settle in the Milwaukee region in 2009, bringing with it 275 jobs and the construction of a new 50,000-square-foot manufacturing plant to Menomonee Valley,[24] a 300-acre brownfield revitalization site that has attracted 33 companies and generated 1 million square feet of green buildings.[25] While the remaining three Spanish corporations cite the history of manufacturing and the strength of the region's engineering programs as attractive qualities, Inesa noted that the decision of its customers, Ingeteam and Talgo, to also settle in the Milwaukee region was a significant factor in Inesa's decision to locate nearby.[26] Together, these four international firms employ 435 people and occupy over 325,000 square feet of manufacturing space.

The Milwaukee Water Council has encouraged linkages between academic research institutions and private water companies, and has developed initiatives and programs such as the National Science Foundation's Industry/University Collaborative Research Center (I/U CRC) to stimulate entrepreneurship activity. [27] As a result of its success in growing its freshwater industry, the city of Milwaukee was recognized in 2009 by the UN Global Compact Cities Programme for its expertise in the freshwater industry.[28]

Lessons Learned

The strategic framework developed to guide the direction of M7 was based on community-identified themes that acknowledged the importance of reducing the economic disparities among residents of the region.[29] To forge a plan for success, the community recognized the necessity of working in a broad context to overcome the challenges present and foster sustained economic growth. This emphasis on regionalism has enabled the M7 counties to compete internationally.

The creation and adoption of this strategic framework laid the groundwork for M7's growth. The organization's second phase of development was marked by a focus on "proactive attraction," furthering not only regional

22 Milwaukee 7. *Performance Scorecard.* 2011. Source: http://www.choosemilwaukee.com/upload/documents/Performance%20Score-card01-26-12.pdf
23 Milwaukee 7. *Milwaukee 7 2011 Report: Driving Economic Growth*. 2011. Source: http://www.choosemilwaukee.com/upload/documents/2011-M7InvestorReport-WEB.pdf
24 Milwaukee 7. Source: http://www.choosemilwaukee.com/milwaukee7/default.aspx
25 Menomonee Valley Partners, Inc. Source: http://www.renewthevalley.org/
26 Milwaukee 7. Source: http://www.choosemilwaukee.com/milwaukee7/default.aspx
27 Milwaukee Water Council. Source: http://www.thewatercouncil.com/temp2/iu-crc/
28 Milwaukee Water Council. Source: http://www.thewatercouncil.com/temp2/un-global-compact/
29 Jobs for the Future. 2009. "Building Regional Capacity to Stimulate Economic Growth and Workforce Productivity: Milwaukee Region Case Study." http://www.jff.org/sites/default/files/MILcasestudy-071509.pdf.

capacity-building, but also leading to cluster development and the establishment of policies necessary for continued regional partnership and growth.[30] The third, and current, phase of the M7 builds on the foundation of the previous phases, emphasizing expanding innovation and the target clusters of the region, attracting foreign direct investment, and growing export opportunities.[31]

M7 not only collaborates regionally, but has also worked on strengthening partnerships with businesses, workforce development agencies, government, and institutions to create new opportunities and change the perception of what is possible for the region. The directives and incentives of the M7 have created an environment where tangible benefits exist for the region due to the conglomeration of regional businesses, organizations, and professionals reaching a critical mass. The leadership of M7 acknowledges that the "old industrial economy" is no longer an effective model for growth.[32] Changes in manufacturing have led to collaboration between the M7 and workforce development agencies and technical colleges, such as the Milwaukee Technical College, to address the needs of the business community through the development of two-year certificate programs in key cluster areas. This fundamental change in thinking about the economy and the initiatives that it fosters provides a sense of direction and an influx of energy to the region.[33]

As an economic best practice, the M7 networking model would be replicable in other regions where the collective efforts of a group could leverage the strengths of the participating jurisdictions and be more impactful than standing alone and competing with its neighbors. Prior to its launch, M7 founders researched and visited the best examples of regional collaboration from 40 communities nationwide. Several of the M7's programs and tools were modeled after those other successful examples, but customized to be most effective for southeastern Wisconsin. Although the techniques that the M7 employs are not unique in economic development, the ways it leverages the region's strengths are unique. Faced with particular economic challenges, the M7 demonstrates how a concerted effort in the development and implementation of a regional strategic plan for economic growth can effectively change the decades-long trend of decline.

30 Interview with Milwaukee 7 Executive Director Pat O'Brien.
31 Ibid.
32 Ibid.
33 Ibid.

Milestones

2005	M7 is officially launched.
2006	M7 region is one of 39 regions across the country to receive a Workforce Innovation in Regional Economic Development (WIRED) grant from the U.S. Department of Labor, encouraging regional collaboration among public and private entities to develop a skilled workforce. [1]
2007	M7 develops a strategic framework to identify the region's competitive advantages and target markets, which in turn ensures a workable long-range plan.[2]
2007	Veolia Environnement SA lands in Milwaukee, winning a multi-year contract to operate the Milwaukee Metropolitan Sewerage District, bringing with it numerous branches located around the M7 region.[3]
2008	BizStarts Milwaukee, a strategic partner of the M7, launches with the mission of assisting entrepreneurs by providing education and connections to resources, talent, and contacts.[4]
2008	Veolia Environnement SA further invests in the southeast Wisconsin region with a $1.5 million water research grant to the University of Wisconsin-Milwaukee.
2009	M7 forms Milwaukee Water Council to analyze emerging technologies as well as state, national, and international regulations that drive water policy and affect national and global industry activity.[5] Milwaukee Water Council is inducted into the UN Global Compact Cities Programme.
2010	Spanish firms Ingeteam (wind and solar energy components) and Talgo (train manufacturer) locate in the Milwaukee region following site visits by state and local government leaders.
2010	Italy-based Seda International Packaging, which produces food and beverage packaging, locates in Racine, Wisc. and creates 189 jobs.
2011	Milwaukee region is formally designated as a regional center for the EB-5 Immigrant Investor Visa Program by U.S. Citizenship and Immigration Services (USCIS) of the U.S. Department of Homeland Security.[6]
2011	Blue7 Solutions is created, marking M7's largest FDI project to date, creating 250 jobs in Bayside, Wisc.[7]
2011	Germany-based Thomas Magnete GmbH (manufacturer of engine parts) locates in Brookfield, Wisc. and builds a 20,000-square-foot North American production facility.
2011	Spanish firm SIC Lazaro (industrial counterweights) opens manufacturing facility in Milwaukee's north side. Spanish firm Inesa LLC (electric panel manufacturer) selects Milwaukee for its North American operations. With Inesa's location, Spanish firms now total four in the region.
November 2013	Water Technology Research and Business Accelerator Building scheduled to be complete.[8]

1 Milwaukee 7. Source: http://www.choosemilwaukee.com/workforce_development.aspx

2 Milwaukee 7. Source: http://www.choosemilwaukee.com/framework.aspx

3 "Seeking Clear Answers on Water: Q&A with Veolia CEO" by JOHN SCHMID. Milwaukee Journal Sentinel. Oct. 6, 2008. http://www.choosemilwaukee.com/popUp.aspx?contentid=506fb82e-3e9c-425d-9933-dc722809c7fb

4 BizStarts Milwaukee. Source: http://www.bizstartsmilwaukee.com/AboutUs/HistoryofBizStartsMilwaukee.htm

5 Milwaukee Journal Sentinel. Source: http://www.jsonline.com/business/63693137.html

6 Milwaukee 7. Source: http://www.choosemilwaukee.com/upload/documents/MKE%20MMAC%20Regional%20Center%20Approval.PDF

7 Milwaukee 7. Source: http://www.choosemilwaukee.com/milwaukee7/

8 "State Makes $750,000 Grant to Water Tech Incubator" Tom Daykin. Milwaukee Journal Sentinel, Jan. 19, 2012.

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NEBRASKA REVERSE TRADE MISSION

Dana Brewer and Robert Lann

Summary

The Nebraska Reverse Trade Mission (RTM) is an initiative of the Nebraska Department of Economic Development (NDED), the Nebraska Diplomats[1], and the University of Nebraska designed to assist international companies interested in doing business in the state. Executives of international companies, matched to opportunities with Nebraska-based companies, are invited to an event showcasing the state's assets and business incentives. NDED covers costs except airfare. The first reverse trade mission event occurred in 2008 and attracted some 140 international guests representing eight countries and five industries.

The 2008 event was followed by another reverse trade mission event in 2011 that targeted four industries: food and agriculture, distribution and logistics, water technology, and alternative energy (primarily biofuels). The lessons learned and relationships developed from the 2008 event helped shape the 2011 event. The latter was nearly equal in size but larger in its geographic reach, with 117 guests from 15 countries. NDED continues to have follow-up discussions with participants in the 2011 mission.[2]

Current Nebraska Governor Dave Heineman has been focusing economic development efforts on expanding foreign direct investment in the state and growing commodity exports, primarily agricultural exports.[3] The reverse trade mission events are another means to further these goals and represent a direct outcome of various NDED trade missions.

This practice represents the usefulness of reverse trade missions that are targeted to particular defined industry segments. Although it is led by state government, the practice illustrates how localities can engage with these kinds of state initiatives for the benefit of both parties. Key lessons of the practice include the importance of commitment of the governor and a strong information system to support the organization of the mission.

Background

Nebraska is a Midwestern state with a population of 1.8 million in 2011. Population density is only 24 persons per square mile compared to the population density in the United States of 87 persons per square mile. Much of Nebraska is dedicated to agriculture and livestock. In 2010, the state's agriculture, forestry, and fishing sector made up 7.6 percent of its gross domestic product (GDP) whereas in the nation this figure was 1.6 percent.[4] Manufacturing made up 14 percent of Nebraska's GDP in 2010 and food processing composed 36.4 percent of manufacturing's GDP. Of the state's top 25 exports, 18 are related to agriculture.

1 Composed of 475 business executives and community leaders, the non-profit Nebraska Diplomats is the largest economic development organization in the state. http://www.neded.org/nebraska-diplomats-home

2 This case study includes information from interviews with NDED International Development Manager Joe Chapuran on April 4, 2012 and with NDED's development consultant, Mike Kuzma, on July 24, 2012.

3 Based on various weekly columns by Governor Dave Heineman at http://www.governor.nebraska.gov/columns/index.html.

4 U.S. Bureau of Economic Analysis, http://www.bea.gov.

There were an estimated 35,934 jobs in Nebraska's agriculture and food processing sector in 2011,[5] or just under 5 percent of Nebraska's private-sector jobs. The majority of those jobs (93 percent) were in food manufacturing, which had a location quotient (LQ) of 3.36 in 2011 and made up 36 percent of all manufacturing jobs in the state. The state lost 0.3 percent of food manufacturing jobs from 2010 to 2011, for a total of 33,571 in 2011, compared to a loss of 1.4 percent in the nation. Within food manufacturing are animal slaughtering and processing with a LQ of 7.53, animal food with an LQ of 5.41, and grain and oilseed milling with an LQ of 3.47, in 2011. From 2008 to 2011, jobs in animal slaughtering and processing grew by 0.4 percent compared to national losses of 4.4 percent. Similarly, animal food manufacturing grew by 4.4 percent, outpacing the national growth rate of 1.9 percent. From 2008 to 2011, Nebraska lost market share in grain and oilseed milling, with a 6.3 percent loss, and in other food manufacturing,[6] with a 5.9 percent loss (during that span, the nation lost 4.8 percent of its jobs in grain and oilseed milling, and gained 2.9 percent of jobs in other food manufacturing).

The distribution and logistics sector includes wholesale trade, transportation services, and warehousing and storage establishments. In Nebraska, this sector contained 77,177 jobs with a LQ of 1.24 in 2011. Selected subsectors are truck transportation, with a LQ of 2.83, and non-durable-goods merchant wholesalers, with a LQ of 1.33. From 2008 to 2011, all subsectors of the distribution and logistics sector in Nebraska lost jobs except for support activities for transportation, which grew during this period by 1.14 percent to 3,365 jobs in 2011. For the most recent annual change, 2010 to 2011, several sectors experienced growth: 3.6 percent in support activities, 2.5 percent in durable good merchant wholesalers, 1.7 percent for truck transportation, and 0.9 percent for electronic markets and agents and brokers.

The remaining two targeted sectors of the second reverse trade mission were water technology and alternative energy. Water technology is a relatively small sector, with only 10,472 jobs in 2011; however, its location quotient is 2.08. The largest component of water technology is farm machinery and equipment manufacturing, with a LQ of 11 and 5,866 jobs. The Nebraska Water Center at the University of Nebraska-Lincoln lends research support to this cluster.

Alternative energy, primarily the production of ethanol and biofuels, is a very specialized and growing employment base in Nebraska. A Battelle cluster study in 2010[7] recognized renewable energy as a small but growing sector represented by companies like Abengoa Bioenergy, Siouxland Ethanol, Cargill, and Calenergy Operating Corporation. In 2011 only 1,906 jobs existed in Nebraska's renewable energy cluster, but this represented a concentration 28 times larger than that found in the United States.

Over the past 10 years, Nebraska's unemployment rate has been low, reaching its lowest point of 3.0 percent in both 2006 and 2007. While the nation's unemployment rate peaked at 9.6 percent in 2010, Nebraska's peak was less than half that at 4.7 percent. As of May 2012, the Nebraska unemployment rate remained less than half the nation's – 3.8 percent compared to 7.9 percent nationally.

NDED's international development consultant for the Asian market, Mike Kuzma, explained the state's economic success not only from the recent reverse trade missions, but also from the state's attractiveness to everything from insurance firms to data-processing centers. Before 2008, the NDED's economic development

5 Nebraska's agriculture and food sector was defined using the North American Industrial Classification System codes of 1151, 1152, and 311.

6 This sector described as "other" by the official North American Industry Classification System includes perishable prepared food and all other miscellaneous food not classified elsewhere.

7 "Growing Jobs, Industries, and Talent: A Competitive Advantage Assessment and Strategy for Nebraska," Battelle Technology Partnership Practice, Cleveland, Ohio, October 2010.

efforts concentrated on domestic opportunities. Staff carried out several trade missions to generate foreign direct investment (FDI) and expand export opportunities, but results were not satisfactory. An assessment determined that until a foreign company obtained firsthand knowledge of what Nebraska had to offer, it was difficult to persuade the company to invest. As a result, NDED decided to offer targeted international firms an all-expense-paid trip (except for airfare) to an event showcasing the state's assets and incentive programs. This culminated in the first reverse trade mission in 2008.

Nebraska's first reverse trade mission did not target specific industries, but the second in 2011 targeted food and agriculture, distribution and logistics, water technology, and alternative energy. These targets were gleaned from a cluster study of the Nebraska economy completed by Battelle's Technology Partnership Practice in 2010[8]. The first trip was funded through the department's international development budget, as well as by corporate sponsors. NDED's business allies considered the event such a success that the NDED could fully fund the second mission with about $50,000 in corporate sponsorships. For these events, corporate sponsors included smaller professional services firms, larger corporations, and the University of Nebraska.

For the first reverse trade mission, NDED found that the planning and hosting was too large an endeavor for its three international staff, so the department pulled employees from other projects to bring event staff to about 30 persons. By the second reverse trade mission, the NDED staff had increased to four to help handle the event and all the follow-up prospect work generated.

The Practice in Operation

For Nebraska's reverse trade missions, international business executives with interests matched to Nebraska-based companies are invited for an all-expense-paid visit to the state (except airfare).[9] As explained by Kuzma, the events' primary value is that they expand international businesses' definition of America beyond Los Angeles and New York. He also credits Joe Chapuran, NDED's international development manager, for developing the idea of a reverse trade mission. Chapuran presented the notion to Nebraska Governor Dave Heineman who helped find funding for the first reverse trade mission. The subsequent success of these missions resulted from hard work by the staff, volunteers, and corporate sponsors. The following provides more information about the practice, divided into what can be defined as a three-part process: (1) planning, (2) hosting, and (3) following up with participants.

Planning

For the inaugural reverse trade mission in 2008, the governor and NDED's top leaders set a goal of obtaining commitments from more than 100 executives to participate, which stretched the staff's time but the goal ultimately was met and exceeded with about 140 guests. NDED tried to identify other states where similar efforts were undertaken, but Chapuran reported finding none that had pursued reverse trade missions on the scale of what Nebraska was planning.

Much of the preliminary work for NDED staff in 2008 entailed raising awareness to generate participation in the reverse trade mission. They traveled to several countries to pitch the opportunity to industrial associations and specific companies. Outreach decisions were made based on FDI targets and export market potential. NDED staff used relationships with international consultants, trade groups, and industrial associations to encourage participation.

8 Ibid.

9 Nebraska Department of Economic Development. "Bringing the World to Nebraska." http://www.neded.org/rtm/2011/RTM_2011.pdf

For the 2011 reverse trade mission, NDED focused on identifying executives from the following targeted industries: food and agriculture, distribution and logistics, water technology, and alternative energy.[10] The NDED planners desired a smaller group of participants and targeted only 75 companies compared to the 140 in 2008. However, by the time the second reverse trade mission occurred, 114 foreign firms participated.

Hosting

Both reverse trade missions were four-day events – two days focused on the trade mission and the next two were held in conjunction with Passport to Nebraska, an annual hospitality weekend targeting both national and international prospects. The mission visits included seminars on the Nebraska Advantage incentive package, sites and buildings, utilities, infrastructure, cost of living, and quality of life.[11] Guests also toured the state's foreign trade zone and local industries. At the end of each event, one-on-one business meetings were set up based on NDED matchmaking of visitors with local business persons representing opportunities for exporting, reverse investment, joint ventures, and licensing.[12] These one-on-one business meetings make the reverse trade mission model more useful than overseas trade missions because the meetings provide a means for international executives to meet directly with several local distributors and other relevant businesses. International businesses can see firsthand what Nebraska offers via business meetings, presentations, receptions, and tours, and determine what opportunities exist.

The NDED staff scheduled the events around the participants' interests. They also took special measures to ensure the comfort of the participants, such as hiring interpreters. Interpreter involvement included simultaneous interpreters for large numbers and consecutive interpreters for just one or two people.

Nebraska's Reverse Trade Mission and Passport to Nebraska Weekend, September 7 – 10, 2011[1]	
Tuesday	Arrival day, with small dinners as guests arrive, but no formal activities.
Wednesday	***Reverse Trade Mission.*** Introduction to Nebraska, break-out events, tour of Omaha, big dinner and reception with speakers.
Thursday	***Reverse Trade Mission.*** FDI opportunity and breakout-tours based on industry targets, concluding in Lincoln.
Friday	***Passport to Nebraska.*** Co-scheduled with an event with 300 business leaders for an economic overview of the state, CEO roundtables, and another big dinner and reception with speakers.
Saturday	***Passport to Nebraska.*** Tailgate at the Governor's Mansion followed by attending a University of Nebraska football game.
Sunday	Departure day.

1 Sources: Interviews and online information: http://www.neded.org/business/international-trade-and-investment/reverse-trade-mission/rtm-schedule.

Following up

Much of a Nebraska reverse trade mission's acknowledged purpose is to plant seeds for future development. During these missions, the governor explains to participants that the visit is just the start of a dialogue. For example, within a year of the 2011 event, NDED professionals traveled to China twice to visit the home office

10 Ibid.
11 Ibid.
12 Ibid.

of those who participated in the event, and some of those businesses made return trips to Nebraska. Within a year of the 2011 event, there were two visits to Nebraska from companies tied to the Shanghai SME Center for International Cooperation. These two visits, with respectively 10- and 18-member delegations, were self-funded. They included past participants and their colleagues who wanted to explore business opportunities with Nebraska after hearing about the state from their peers.

The recurring follow-up dialogues with past participants and NDED staff are a core component of the Nebraska program. Staff expect to continue to benefit from opportunities that arise from conversations with the participants and their peers. Anticipating that this activity will keep them busy for at least a few years, staff do not expect to plan another large-scale reverse trade mission until 2015.

Results to Date

Nebraska's international development staff have found the reverse trade missions to be an effective means of generating a flow of leads and opportunities that can be pursued in a much more targeted fashion than previously possible. They now do less print advertising and more relationship-focused recruitment work as a result of the reverse trade missions.

Several companies from the Shanghai and Shaanxi regions of China have visited and established relationships with Nebraska companies due to the two events and the follow-up by NDED staff. The reverse trade missions benefit Nebraska's economic development through the information exchange between foreign companies and Nebraska firms and economic development staff. Foreign companies come to understand that opportunities exist in a region of the United States other than the East and West coasts.

Through post-event follow-up, NDED staff have learned that international executives visiting Nebraska via the reverse trade missions return home to inform their peers of opportunities in Nebraska. They discover a means of establishing a U.S. presence at a lower cost, in particular, the cost of commercial real estate. For example, Global Choice International, a Chinese company, had been considering a Chicago location until the reverse trade mission introduced the firm to Nebraska where the cost of establishing a business was about half that of Chicago.

In 2008, the reverse trade mission was attended by 140 representatives from eight countries.[13] The event resulted in new business opportunities from China and Japan. For example, the Chinese company Easyway International was considering a location in Vancouver, Canada, before the trip to Nebraska reportedly changed executives' thinking.

The partnership agreement between the state of Nebraska and the 3,000-member Shanghai SME Center for International Cooperation, which participated in both the 2008 and 2011 reverse trade missions, has resulted in a number of business opportunities. The partnership provides a means for NDED to connect to numerous small and medium-sized companies in the Shanghai area for trade and investment opportunities.

Results from the 2008 RTM:

- The University of Shizuoka and University of Nebraska-Lincoln signed a memorandum of understanding (MOU) to partner on food-related research. The two universities were connected

13 Heineman, Dave. "The World Comes to Nebraska." September 9, 2011. http://www.neded.org/news/107-september-2011/1386-the-world-comes-to-nebraska-

by reverse trade mission participant Shizuoka Prefecture from Japan. The MOU also intended to expand food-processing business activity through technology transfer, product development, and export growth.

- Nebraska organic soybean (or non-genetically modified) farmers established an exporting agreement with a Japanese company.
- A new logistics and import/export company location, Easyway International of China, created about 20 jobs and may expand to 40 by the end of 2012.
- A renewable energy and heating, ventilation, and air conditioning (HVAC) systems joint venture was established between Nebraska's Behlen Manufacturing Company and China's HRC Energy. [14]

Representation increased in 2011, with 117 visitors from 15 countries participating in the event, including Argentina, Canada, Chile, China, Czech Republic, Germany, Japan, South Korea, Mexico, Russia, South Africa, Spain, United Arab Emirates, and Vietnam. In conjunction with the event, German-headquartered Evonik Industries, an international specialty chemical company, announced a business expansion exceeding $80 million in Blair, Nebraska.[15] NDED staff are still conducting follow-up efforts with the second-round participant companies. As of 2012, there have been several announcements of international business expansions in Nebraska by companies from South Korea, China, and South Africa.

Results from the 2011 reverse trade mission:

- Chinese solar panel, wind turbine, transformer, and LED product manufacturer Global Choice International LLC will expand its current sales operations in Omaha with additional warehousing and distribution functionality.
- South Korean industrial gear manufacturer EM Gear LLC announced plans to locate its U.S. headquarters in Omaha.
- Chinese lighting manufacturer SFT America Limited LLC also announced plans to locate its U.S. headquarters in Nebraska.
- The South African scheduling software developer Benchmark Timetable, which specializes in serving schools and colleges, signed a MOU stating plans to locate its U.S. headquarters in Nebraska.[16]

The Greater Omaha Chamber of Commerce hosted its first reverse trade mission in May 2012. The chamber identified 10 foreign businesses to attend the event. It offered different itineraries to each firm, targeting specific interests, with a few overlapping introductory and social events. The mission did not have a particular focus other than to welcome companies with strong potential interest in the Omaha area. Some of the participants related to local industry targets, and the chamber emphasized businesses from China. To facilitate its promotional efforts, the chamber scheduled its reverse trade mission around the Berkshire-Hathaway annual shareholders meeting. The chamber had only one person dedicated to international development and had to rely mostly on help from partner organizations to help plan and execute the event.[17]

14 Nebraska Department of Economic Development. "Gov. Heineman Announces State's Second Reverse Trade Mission." http://www.neded.org/news/103-april-2011/1229-gov-heineman-announces-states-second-reverse-trade-mission

15 Nebraska Department of Economic Development. "Gov. Dave Heineman Kicks Off 2nd Reverse Trade Mission." http://www.neded.org/news/107-september-2011/1382-gov-dave-heineman-kicks-off-2nd-reverse-trade-mission

16 Nebraska Department of Economic Development. "Gov. Dave Heineman Announces Business Expansions Resulting from Reverse Trade Mission." http://www.neded.org/news/107-september-2011/1387-gov-dave-heineman-announces-business-expansions-resulting-from-reverse-trade-mission

17 This portion of the case study is based on an interview conducted with Marisa Ring, manager of international business development of the Greater Omaha Chamber of Commerce on April 10, 2012.

Lessons Learned

Nebraska's reverse trade missions were an outgrowth of traditional trade missions in which civic and business leaders were unsuccessful at convincing foreign firms to invest in Nebraska. Foreign executives were unfamiliar with the Nebraska economy and therefore unwilling to invest. The reverse trade missions were developed to overcome this shortfall by bringing foreign executives to an event in Nebraska where they could learn about the state's assets and incentive programs.

Successfully executing a reverse trade mission requires organization, leadership support, funding, and, if possible, a relationship with an international city or region with matching industry strengths. Organization is essential to ensuring events of this complexity are well-executed and that all participants have a positive experience. Event staff members must have clear, specific responsibilities to ensure that everything is covered efficiently and effectively. A centralized planning information database is an important tool to handle logistical updates that arise frequently with a reverse trade mission event. At least eight staffers dedicated to the event are needed to successfully handle the planning of and promotional effort for a reverse trade mission of this magnitude.

For statewide reverse trade missions, the governor's commitment is important for attaining funding, committing staff time, and lending a level of importance to the event that helps encourage participation by international business executives. For other states to replicate Nebraska's reverse trade missions, the challenge would be to generate the funding needed to cover the events and the overseas promotional effort such an event requires. Costs can be reduced if a reverse trade mission is scheduled around an existing, already-funded, high-profile event.

Promotional efforts are aided by having an existing relationship with a region, such as what Nebraska achieved with the Shanghai and Shaanxi areas of China from post-event follow-up efforts. With an existing relationship, staff can focus efforts on a particular region, reducing promotional costs from what would be required for multiple countries and regions. Selecting a region based on matching industry-cluster strengths helps staff focus on specific industries.

According to Mike Kuzma, only two states – Kansas and Minnesota – have inquired about Nebraska's reverse trade mission. The Nebraska practice should be easily replicated in other states with solid planning and execution, good leads from a history of trade missions, and a commitment from state leaders to finance the events and follow-up efforts.

Milestones

Fall 2008	First reverse trade mission is held.
Fall 2011	Second reverse trade mission is held.
Spring 2012	Follow-up visit to China occurs.
Summer 2012	Follow-up visit to China occurs. Formal agreement is signed with Shanghai SME.

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THE RIGHT PLACE

Dana Brewer and Robert Lann

Summary

The Right Place, established in 1985, is an economic development organization serving the Grand Rapids, Michigan area. It is a multi-faceted organization helping western Michigan with business retention, expansion, and attraction. Its services comprise location assistance, manufacturing assistance including workforce training and certification, and innovation assistance including commercialization and technology transfer. Foreign direct investment (FDI) is a best-practice area that began with the organization's first strategic planning process in 1986-87. Its focus on FDI has helped garner investments from firms in Germany, Italy, Korea, Japan, and Israel.

President and CEO Birgit Klohs cites three factors in explaining her organization's success: (1) sustaining a communitywide commitment to pursuing international opportunities; (2) being knowledgeable of and sensitive to cultural differences; and (3) sustaining a business climate and lifestyle supportive of foreign-born persons. The Right Place's FDI-related efforts have focused on established clusters such as advanced manufacturing and food processing, as well as emerging opportunities in life sciences and alternative energy. China is seen as a future opportunity for more FDI and exports. The Right Place's efforts in expanding FDI are replicable for organizations able to sustain a communitywide interest and funding commitment to pursuing international investment.

This practice illustrates the ability of an economic development organization to engage in learning about international cultures and to leverage this learning to increase FDI. A key lesson of the practice is the need for targeting specific countries, as well as certain targeted industries, and operating with cultural sensitivity such that the local business climate supports these companies. As a result, this practice is applicable to any area with an economic organization with the appropriate expertise and target marketing approach.

Background

Grand Rapids is Michigan's second largest city, with a 2010 population of 188,040. It is the primary city in the Grand Rapids-Wyoming metropolitan statistical area (MSA), Michigan's second largest MSA behind the Detroit-Warren-Livonia MSA. The Grand Rapids-Wyoming MSA encompassed a population of 774,160 in 2010, a 4.5 percent increase over 2000. The largest MSA in Michigan, the Detroit-Warren-Livonia MSA, lost 3.5 percent of its population between 2000 and 2010. Grand Rapids-Wyoming MSA is also the largest segment of its combined statistical area (CSA), which in 2010 had a population of 1,321,557.

The Grand Rapids-Muskegon-Holland CSA's economic base is dominated by manufacturing, which makes up 16.4 percent of private-sector jobs in the region. Retail and wholesale trade together compose 13.6 percent of jobs; finance, insurance, and real estate make up 8.6 percent; education and health care 14.6 percent; and professional, scientific, and management services another 5.7 percent[1]. Grand Rapids-Wyoming MSA reached a peak unemployment rate of 11.0 percent in 2009 (compared to 15.0 percent for the Detroit-Warren-Livonia

1 Economic Modeling Specialists Inc. is the source noted on The Right Place website at http://www.rightplace.org/Regional-Data-Workforce.aspx.

MSA and 9.3 percent nationally). Its April 2012 unemployment rate fell to 6.3 percent compared to 7.7 percent for the nation and 8.7 percent for Detroit.

The Right Place concentrates its efforts in six business clusters: alternative energy, sustainability, advanced manufacturing, life sciences, aerospace and defense, and agribusiness. Advanced manufacturing covers most manufacturing sectors except food processing, and with a location quotient (LQ) of 1.68 in 2011 it is heavily concentrated in the Grand Rapids MSA. Advanced manufacturing sub-sectors include metalworking machinery, with a LQ of 7.15 and 3,607 jobs; other general purpose machinery manufacturing,[2] with a LQ of 4.08 and 2,963 jobs; and other chemical product and preparation manufacturing,[3] with a LQ of 4.14 and 1,065 jobs. The automotive side of advanced manufacturing is also concentrated in the MSA, with a LQ of 5.44 and 7,368 jobs in motor vehicle parts manufacturing, and a LQ of 4.85 and 1,696 jobs in motor vehicle body and trailer manufacturing.

Food processing had a LQ of 1.18 in 2001, a figure that grew to 1.57 in 2011 (6,906 jobs). The food processing subsector, grain and oilseed milling, grew its LQ from 3.0 in 2001 to 12.42 in 2011 (2,220 jobs). Jobs in the grain and oilseed milling subsector grew by 91 percent, compared to a 7 percent loss of jobs in this subsector nationally.

In the first strategic planning exercise The Right Place did within a year of its start, the leadership identified recruiting foreign businesses as among its strategic priorities. To advance that plan, The Right Place hired Birgit Klohs in 1987 as its CEO. At the time, Klohs was an experienced economic development professional with personal ties to Germany. Klohs continues as The Right Place CEO today.

The organization has grown from four to 22 staff engaged in a range of activities dedicated to the recruitment, retention, and expansion of businesses. Operating with a $3.3 million budget, FDI is just one small piece of what the organization focuses on. The staff dedicated to international work includes three professionals, two administrative support staff, and one German-based consultant. The Right Place does not have a specific line item in its budget for international work. To cover the needs of all its activities, The Right Place commits about $200,000 to marketing and $100,000 to travel each year.

Since 1985, The Right Place's activities have resulted in more than $2 billion in capital investment and the creation of more than 30,000 jobs in west Michigan.[4] As of mid-2012, it has generated $118 million in capital investment and assisted in the retention and creation of 829 jobs in western Michigan.[5] Existing international companies in the region were not all a result of the organization's efforts to grow foreign direct investment, but an example of a recent FDI that The Right Place can take credit for is an Israeli company called Plasan. Plasan is creating 202 jobs and more than $18 million in capital expenditures in the region over three years.[6] Residing in the composite materials industry, the company will be manufacturing auto parts from composites rather than metal.

2 This sector described as "other" by the official North American Industry Classification System (NAICS) includes industrial process furnaces and ovens, packaging machinery, welding and soldering equipment, and other miscellaneous general-purpose machinery not classified elsewhere.

3 This sector described as "other" by the NAICS includes custom compounding of purchased resins; photographic film, paper, plate, and chemical manufacturing; and all other miscellaneous chemical product and preparation not classified elsewhere.

4 The Right Place. http://www.rightplace.org/About-The-Right-Place.aspx

5 The Right Plane, http://www.rightplace.org/About-The-Right-Place-News.aspx

6 The Right Plane, http://www.rightplace.org/About-The-Right-Place-News.aspx article titled, "Carbon Composite Manufacturer Expands in West Michigan," July 19, 2011.

The Practice in Operation

The Right Place's FDI activities focus on recruiting international companies to establish a presence in the Grand Rapids area, as well as facilitating the expansion of existing businesses with headquarters or other business relationships overseas. As described below, there are three primary elements to this process for The Right Place: (1) embrace and expand cultural knowledge; (2) sustain business and partner relationships; and (3) target activities for existing clusters.

Focus on Cultural Knowledge

The Right Place works to understand the cultures of the countries it targets for business opportunities. According to Klohs, using the appropriate cultural greeting can be an effective means of establishing a comfortable environment for an international business person. The Right Place uses advice from appropriate foreign-born university professors and information gleaned from Internet research to educate its staff on basic cultural differences between the targeted countries and the United States. This information helps staff when interacting with international businesses during overseas trips or when welcoming international visitors to Michigan. The Right Place also translates its business cards, marketing materials, and presentations into every language relevant to its target markets.

The Right Place tries to maintain a reputation for western Michigan as a community that welcomes all immigrants, something Klohs highlights as key to The Right Place's success. That includes encouraging elected officials, educational leaders, and the wider community to be accepting of other cultures. The organization also works with local media to encourage a positive public response regarding the community's interest in and openness to FDI. Initiatives have been taken to better serve international business persons and their families; for example, about 15 years ago the community opened a Japanese Saturday school.

The Right Place staff understand that negative impressions may discourage other international firms from considering the Grand Rapids area for investment; therefore, the organization and its community partners focus on helping new companies feel welcome. By achieving this, international firms will consider growing their presence and encouraging their overseas peers and business partners to also consider locating in the Grand Rapids area.

Sustain Relationships

The Right Place relies heavily on partnerships as a means of generating FDI leads and supporting international businesses. For example, The Right Place regularly communicates with existing local companies having overseas headquarters. These communications include conversations with local managers and annual visits to the overseas headquarters. Such visits demonstrate to the companies a level of commitment and support, as well as serve as a source of FDI lead generation for these businesses' suppliers and peers.

Maintaining relationships with local businesses that do not have a headquarters overseas is also important. These local businesses also help The Right Place's efforts by communicating the area's attractiveness as a place to do business. The organization relies on local existing businesses to share their experiences working and living in the area to prospects considering a Grand Rapids location.

Local attorneys, accountants, banks, and other professional service providers also represent an asset that can assist the international community. Many of these service firms have developed a specialization in assisting international businesses trying to navigate the regulations and procedures for establishing and operating a business in the United States. Having a business support infrastructure is a critical component to sustaining

The Right Place's FDI work.

Other helpful relationships include those with site selection consultants who can make connections to potential international companies. The Right Place has a number of partners among key economic development organizations – from international chambers of commerce to the Michigan Economic Development Corporation (MEDC). The Right Place regularly works with and travels with MEDC to leverage the state's activities for The Right Place's regional FDI-related economic development work.

Targeting Its Activities

Currently, The Right Place focuses its FDI development work on the industries of advanced manufacturing, life sciences, alternative energy, and food processing. The organization also concentrates on specific geographic areas. Germany has been a long-standing target; subsequently, Italy, Korea, Japan, and most recently, Israel, have been added to The Right Place's geographic focus. The organization is beginning to focus on China as well for FDI and expansion of the region's exports. India is also under consideration as a future opportunity.

The Right Place targets its efforts in order to prioritize its time and financial resources on building on established experiences and the most promising new opportunities. Klohs attributes The Right Place's success in FDI to the way in which it has targeted activities to its proficiencies, primarily matching western Michigan's strengths to the needs of foreign business opportunities.

The Right Place also identifies companies currently exporting to the Grand Rapids region, figuring these firms may be interested in investing in western Michigan to cut product delivery costs. Further, The Right Place determines what international trade shows to attend, and when and how to collaborate with the Michigan Economic Development Corporation based on what industries and geographies The Right Place has agreed to target.

Results to Date

Since its start in 1985, The Right Place has focused on international recruitment, resulting in 50 to 60 locations.[7] Jobs and investment tracking of FDI, according to Klohs, is challenging. A company's domestic presence may begin with one sales person and after several years expand into a manufacturing assembly facility, making it difficult to track.

For all of its activities, The Right Place reports facilitating the location or expansion of businesses that collectively represent more than $2 billion in capital investment and more than 30,000 jobs in western Michigan.[8]

The organization has expanded its capabilities over the years – and not just by growing its staff from four to 22 people (for all its activities, not just specific to FDI work). Klohs also reports a significantly expanded level of sophistication in how the organization goes about its recruitment, retention, and expansion work.

Attorneys, banks, and other professional services firms in the region have developed the expertise necessary to support international businesses. Organizations serving the families of international business people have also taken action to support the growing international population; for example, with the opening of a Japanese Saturday school.

7 Based on an interview with CEO Birgit Klohs.
8 The Right Place. http://www.rightplace.org/About-The-Right-Place.aspx

Lessons Learned

The Right Place has established an expertise in international business recruitment and retention to increase the region's foreign direct investment. A focus on FDI has been a part of its strategic plan from the beginning. Over the 25 years of its existence, The Right Place has developed a practice that goes beyond the traditional reactive approach to FDI by: (1) educating its staff to be sensitive to and knowledgeable of the cultures represented by its international targets; (2) targeting international firms that fit well with the region's industry clusters; (3) using existing firms to help attract FDI; and (4) collaborating with other statewide and regional organizations to leverage their services.

Klohs attributes The Right Place's success to the longevity of its efforts, building on past experiences, and having long-standing relationships with overseas companies, site selection consultants, and state and regional economic development partners. It is important, she believes, to make a commitment – in partner support and funding levels – for the long term to succeed in growing FDI.

Partner support starts with securing the buy-in of an economic development organization's board, but buy-in from community leaders and institutions is also necessary. Giving all constituencies of an organization an opportunity to have their concerns heard is essential to garnering the support required for a long-term commitment to FDI.

Making a long-term commitment to FDI is key to replicating The Right Place's success, but it is also crucial to understand that international companies bring their culture with them. Facilitating a business establishing a regional presence involves identifying and addressing the specific cultural preferences and needs of that business. It also requires a long-term commitment to ensure the company receives the culturally specific assistance and community support it needs to feel welcome. Only then will it encourage its overseas peers and business partners to consider a particular regional location.

Milestones

1985	The Right Place is founded.
1986-87	First strategic planning process includes FDI focus.
1987	Birgit Klohs hired as CEO.
1989	The Right Place forms a Manufacturers Council.
1999	Governor John Engler appoints Birgit Klohs to newly formed MEDC board.
2000	Birgit Klohs joins MEDC's Host Committee.
2001	Corporate Partnership Agreement is signed with MEDC.
2001	Grand Rapids SmartZone is created by Governor Engler.
2002	Grand Rapids SmartZone gets funding for business accelerator from MEDC.
2002	MEDC awards $2 million grant from Core Communities Fund to the Grand Rapids SmartZone.
2009	West Michigan Wind Manufacturers Network is established.
2010	West Michigan Solar Supply Chain group is established.
2010	West Michigan Bio-Energy Consortium is established.
2010	The Innovation Cooperative is formed by The Right Place.
2011	West Michigan Economic Development Collaborative – a 13-county regional partnership – is established by The Right Place.
2012	The final Next Michigan Development Corporation is formed in western Michigan.

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STATE UNIVERSITY OF NEW YORK AT ALBANY NANOTECH COMPLEX

Jason Chernock and Jan Youtie

Summary

State University of New York (SUNY) Albany's College of Nanoscale Science and Engineering (CNSE) NanoTech Complex is one of the country's best examples of leveraging research university partnerships to spur local economic development, and specifically to attract foreign direct investment to a region. The CNSE NanoTech Complex is a research, development, prototyping, and educational facility that provides industry support through outreach, technology acceleration, business incubation, pilot prototyping, and test-based integration for on-site corporate partners including IBM, Intel, GlobalFoundries, SEMATECH, Samsung, Toshiba, Tokyo Electron, and Novellus Systems. It also undertakes other nanotechnology research activities.[1]

The National Nanotechnology Initiative describes nanotechnology as "the study and application of extremely small things and can be used across all the other science fields, such as chemistry, biology, physics, materials science, and engineering."[2] While simply defined, nanotechnology has boundless applications across all types of industry, from consumer goods to advanced health care products.

CNSE's NanoTech Complex, built in stages since the late 1990s, has attracted foreign direct investment (FDI) from corporate partners around the world, including $300 million from Tokyo Electron Ltd. Research and Development Center in 2002, and the 2008 announcement of a new GlobalFoundries facility in Saratoga County, New York. This particular collaboration between state government, the university system, and corporate partners has led to the direct investment of dollars, jobs, R&D infrastructure, and human capital from foreign companies interested in expanding their activities in the United States.

This practice demonstrates how university research can be leveraged to attract FDI in a targeted technology-intensive segment. The partnership between state government, SUNY Albany, and corporations is an important lesson of the case. In particular, the sustained engagement of the state, across multiple governorships, with the university and the NanoTech Complex and the extent of investment were critical factors to the success of the practice. This practice provides a useful example for how communities can work with their local research university to attract foreign companies.

Background

The Albany-Schenectady-Troy metropolitan statistical area (MSA), made up of Albany, Rensselaer, Saratoga, Schenectady, and Schoharie counties, has been called one of the most recession-proof regions of the country[3]. Anchored by the state capital of Albany, the region has experienced continued population growth since the 1980s. From 1980 to 2010, the region saw a 12.9 percent increase in its population, including a 5.4 percent increase between 2000 and 2010. The region's unemployment rate has consistently remained

1 http://cnse.albany.edu/WorldClassResources/CNSEAlbanyNanoTechComplex.aspx (accessed July, 2012)
2 http://www.nano.gov/ (accessed August, 2012)
3 http://money.cnn.com/2010/06/22/news/economy/recession_proof_cities/index.htm (accessed July, 2012)

lower than the state's, averaging an annual 1.2 percent lower than New York's unemployment rate between 2000 and 2012. Even during the nation's slow economic recovery, between January 2009 and May 2012, the region's unemployment rate only surpassed 8.0 percent during two months, while the state's unemployment rate was at least 8.0 percent 37 times. However, while the region's economy has remained relatively strong, its composition has shifted significantly. The manufacturing sector lost 15,300 jobs, a 43.0 percent decline between 1990 and 2010, while New York's health and education sector gained 32,900 jobs, an increase of 61.5 percent during the same time period.

The NanoTech Complex illustrates the gain of education-related jobs. This entity is a cluster of buildings located on the western edge of SUNY Albany's main campus. Although most of the major groundbreakings at and investments in CNSE's NanoTech Complex have occurred within the past decade, most timelines describe the beginning of the region's move toward nanotechnology as a targeted economic development cluster during the early-to-mid-1990s. It was during this period when Dr. Alain Kaloyeros received $10 million in funding to study computer chip technologies, and his Material Physics Program was designated as a Center for Advanced Thin Film Technology by then-Governor Mario M. Cuomo. This center, which received $1 million from the state of New York, attracted funded research projects in collaboration with electronics firms such as IBM, AMD, Texas Instruments, and General Electric, as well as with the SEMATECH semiconductor research consortium. Dr. Kaloyeros later became CNSE's senior vice president and chief executive officer.

The state and SUNY Albany's first major collaboration in the development of a nanotechnology program occurred in 1997 with the establishment of the NanoFab 200, also known as the Center for Environmental Sciences and Technology Management (CESTM). Funding for CESTM came from a $10 million state economic development grant, a $2 million federal grant, and more than $1 million in contributions from businesses and individuals.[4] The CESTM was the first component of what would eventually be called the NanoTech Complex. Then-Governor George Pataki was instrumental in facilitating the state's investment of financial resources into SUNY Albany for nanotechnology.

A major milestone occurred in 2001 when the School of Nanosciences and Nanoengineering was established at SUNY Albany, subsequently receiving formal accreditation in 2004 as the CNSE. Also in 2001, SUNY Albany was selected to receive one of the state's Centers of Excellence in Nanoelectronics and Nanotechnology (CENN). The Centers of Excellence program was designed to encourage technology development. CENN received $50 million from the state under this program, along with $100 million from IBM. Funding from this public-private partnership enabled the construction of critical buildings and equipment.

The NanoTech Complex was developed in stages, including the still-in-progress NanoFab Xtension, CNSE's most ambitious building to date. It is designed to help advance the computer chip manufacturing industry to making chips on 450-millimeter (mm) wafers from the current 300-mm size, and is the world's first consortium-supported research facility dedicated toward this goal. In a June 2012 interview, Dr. Kaloyeros said, "Now that there is a consensus that 450 is happening, our role is to create the environment, enable the resource innovation and the manufacturing innovation for the transition. The NanoFab Xtension facility is going to be heavily focused on tool development and demonstration, but at the end of the day, all this is going to be driven by innovation."[5]

The following table outlines the major facilities constructed as part of the NanoTech Complex, the initial

4 http://www.albany.edu/feature97/cestm/ (accessed July, 2012)
5 http://semimd.com/blog/tag/global-450-consortium/ (accessed September, 2012)

investment into each of them, and their total square footage.[6]

Building	Year Completed	Investment	Square Footage	Additional Information
NanoFab 200	1997	$16.5 million	70,000	4,000 square feet of clean room space
NanoFab South	2004	$50 million	150,000	32,000 square feet of clean room space
NanoFab North	2005	$170 million	228,000	35,000 square feet of clean room space
NanoFab East & Nano-Fab Central	2009	$150 million	350,000	15,000 square feet of clean room space
NanoFab Xtension	Ongoing	$365 million	Approx. 500,000	Approx. 50,000 square feet of clean room space

While CNSE moved forward with its plans to expand the size and role of the NanoTech Complex, local and regional economic development organizations leveraged the region's growing reputation as a hub for nanotechnology research and development. In the late 1990s, the Center for Economic Growth (CEG), a not-for-profit economic development organization serving New York's capital region, started building and implementing a new marketing campaign for the area. This campaign, later rebranded as "NY Loves Nanotech," was an attempt to redirect the economic development efforts of New York's capital region from declining traditional manufacturing and toward tech-related sectors, including advanced materials, biotech, clean energy, information technology, and nanotechnology.[7] In 2004 the CEG commissioned an industrial-sector report describing the potential market and economic impacts of nanotechnology-related industries. Beyond the marketing and research, the CEG began actively recruiting to New York's capital region foreign companies with ties to nanotechnology research and development, in particular those operating in the nanoelectronics and semiconductor sectors.

The Practice in Operation

CNSE's NanoTech Complex currently employs more than 2,600 people and has established some 300 corporate partnerships[8]. Its existing space encompasses approximately 800,000 square feet, where its staff engage in every activity from basic research to community relations. The NanoTech Complex's approach and involvement in recruiting FDI has changed over time, but it has always been in the business of recruiting corporate partners. Three key aspects of the practice are infrastructure, research, and marketing.

Infrastructure

The NanoTech Complex encompasses an extensive set of facilities and equipment that integrate key aspects of semiconductor innovation: research, development, and prototyping. The complex includes 200-mm/300-mm wafer facilities and more than 80,000 square feet of Class 1 clean room space. Metrology, lithography, and processing tools are available. In addition, the nearby Smart System Technology and Commercialization Center offers equipment and facilities for design, fabrication, and packaging for development of new devices and process manufacturing. The NanoTech Complex is a distinctive mix of high-end equipment for educational use, shared facilities for lease by corporations, and proprietary facilities established by leading semiconductor companies.

6 http://cnse.albany.edu/WorldClassResources/CNSEAlbanyNanoTechComplex.aspx (accessed July, 2012)
7 Tucker, Michael F. *The Rise of Tech Valley*. The IEDC Economic Development Journal; Vol 7, Number 4, Fall 2008.
8 http://cnse.albany.edu/AboutUs/CNSEQuickFacts.aspx (accessed July, 2012)

University Research

The relatively new college attracted faculty with substantial industry experience. Laura Schultz, assistant professor of nanoeconomics at CNSE, notes that more than one-third of CNSE faculty have industry experience compared with fewer than 15 percent in traditional physical sciences departments.[9] These faculty are involved in 29 nanoelectronics research centers and programs. For example, CNSE is home to one of the pre-eminent nanoelectronics programs – the Institute for Nanolectronics Discovery and Exploration (INDEX). This effort represents a collaboration of the Semiconductor Research Corporation (a research consortium composed of leading semiconductor companies such as IBM, Intel, and Texas Instruments) and the National Science Foundation as part of the Nanoelectronics Research Initiative. Dr. Alain Kaloyeros is the INDEX director, and 10 other universities from around the nation are involved in INDEX-related research. INDEX seeks to make breakthroughs in fabrication and measurement at the nanoscale. INDEX has attracted nine companies that serve as industrial liaisons, enabling them to have early access to research results.

Marketing the Region

According to Dave Rooney, CEG's senior vice president of business development and marketing, CEG and the NanoTech Complex have always had a symbiotic relationship in attracting businesses to the region. As the NanoTech Complex was being developed, CNSE would exhibit with CEG at conferences under the banner of "NY Loves Nano." These included key microelectronic conferences such as Semicon West in San Francisco and Semicon Europa in Dresden, Germany. In subsequent years, as CNSE gained more international renown as a hub of nanotechnology research and development, CNSE's role within the conferences changed. Instead of working the exhibition hall, faculty gave talks and presentations at the same conferences where CEG was exhibiting. The relationship between the university and local economic development organizations today continues in this fashion. CNSE's NanoTech Complex is internationally regarded, and as CEG highlights the region's strengths, the NanoTech Complex is one of the biggest components to showcase. As an example, CEG recently arranged a tour of the NanoTech Complex with a visiting group of site selectors.

Results to Date

The NanoTech Complex has hundreds of corporate partners engaging in collaborative research and development with each other and with SUNY Albany faculty, but there are two key foreign direct investments that speak to the success of the NanoTech Complex.

The first is the 2002 location of Tokyo Electron Ltd.'s $300 million research and development center, the only one of its kind outside Japan. Tokyo Electron identified several favorable factors when making its location decision. The NanoTech Complex already had a concentration of companies that would benefit from Tokyo Electron's products and provide a platform for research and development collaboration. International SEMATECH, a consortium of the world's largest computer chip makers, had relocated its international headquarters there from Austin, Texas in 2007. International SEMATECH's presence, along with the abundant testing facilities in which the NanoTech Complex had invested, provided Tokyo Electron with a platform to speed its product development and time to market. At the time of the announcement, Tokyo Electron's president and CEO said, "By participating in this center, we will significantly enhance our internal development efforts, ultimately allowing us to shorten the time required to bring critical technology from the research lab to the production floor."[10] Applied Materials and ASML, which make up a large portion of the semiconductor manufacturing equipment market, arrived shortly after Tokyo Electron and created their own research centers within CNSE.

9 Schultz, L. I. (2011). Nanotechnology's triple helix: a case study of the University at Albany's College of Nanoscale Science and Engineering. Journal of Technology Transfer 36, 553.

10 http://www.siteselection.com/ssinsider/bbdeal/bd021202.htm (accessed August, 2012)

The attraction of Tokyo Electron and others is an excellent example of how a region can leverage university partnerships to recruit intellectual capital and investment from foreign companies.

However, for local economic development organizations (EDOs), the direct benefits remain within the walls of SUNY Albany. The goal of many local and regional EDOs is to recruit facilities to their communities that provide direct employment opportunities for their residents. Albany area EDOs wanted to see more examples of companies such as Vistec Lithography and M+W Group. In 2006, Vistec Lithography relocated its headquarters from Cambridge, England to Watervliet Arsenal, less than 10 miles from Albany, and brought its research and development operations to CNSE. M+W Group moved its U.S. headquarters to the Watervliet Arsenal site in 2010.

The scope grew larger when GlobalFoundries, a leading international manufacturer of computer chips, decided to construct a $4.2 billion[11] semiconductor manufacturing facility, called Fab 8, at the Luther Forest Technology Campus in New York's Saratoga County. The attraction of GlobalFoundries validated the state's and region's plans to build a nanotechnology cluster not based solely on research and development, but on creating high-paying, quality jobs for area residents. Travis Bullard, GlobalFoundries' public affairs and communications manager, was quoted in 2010 as saying, "When you look at why this [location] process was successful, I think the answer is that [the state] knew exactly what it wanted. New York State and this area [Saratoga County] in particular determined that they wanted to bring a semiconductor chip fab here. What you are seeing here today is the result of New York setting a goal and identifying the resources needed to be in place to make the decision...so much easier."[12]

A review of location quotients in Saratoga County adds more clarity to the local economic impact of GlobalFoundries' decision to build its most recent manufacturing facility here. Location quotients show the share of employment for an industry at a local level as compared to the share of employment in the same industry for a larger reference area. The following table shows the change in location quotients for the semiconductor and electronic component manufacturing industry[13] in Saratoga County between 2007 and 2011.

Saratoga County, N.Y.	2007	2008	2009	2010	2011
NAICS 33441 Semiconductor and electronic component manufacturing	ND	1.06	1.13	2.12	4.95

Source: US Bureau of Labor Statistics

In 2007, the share of employment within the semiconductor and electronic component manufacturing industry was so small that the federal Bureau of Labor Statistics could not calculate it. Over the next four, years Saratoga County went from having a miniscule share of employment in this sector to having a far greater concentration as compared to the United States as a whole. While a location quotient does not prove causality between the NanoTech Complex and job growth in this industry, it shows that the practices put in place have made a significant contribution. A 2011 economic impact study on the GlobalFoundries facility found 6,500 annual direct, indirect, and induced jobs created since the company made its location announcement in 2008.[14]

11 http://www.areadevelopment.com/AnnualReports/july2010/Globalfoundries-New-York-2010-Gold-Shovel-1100001.shtml?Page=1 (accessed August, 2012)
12 http://www.areadevelopment.com/AnnualReports/july2010/Globalfoundries-New-York-2010-Gold-Shovel-1100001.shtml?Page=2 (accessed August, 2012)
13 NAICS Code 33441
14 http://www.lutherforest.org/documents/EhrilchEconomicStudyUpdateJune2011.pdf (accessed August, 2012)

Lessons Learned

The key to the success of the NanoTech Complex attracting foreign direct investment – both as intellectual capital and on-the-ground development – is the partnership between state government, SUNY Albany, and corporations. Not every state can attract the same industry that the capital region of New York has, but every state with a major research university can study, replicate, and implement the partnership model that has served New York so well.

Some keys to this success include a state government, and particularly a succession of governors, that saw value in making capital investments that would lure cutting-edge researchers and companies to the area. This continuity in leadership support was essential to the ongoing investment from the state. A 2010 New York State Comptroller report found that from 2000-2001 to the 2008-2009 fiscal year, the state invested $876.1 million in funding for nanotechnology research at the SUNY Albany College of Nanoscale Science and Engineering, across 13 different projects.[15] This level of support would not have been possible without the ongoing support of the state's top leadership.

It was also important that the director of the NanoTech Complex, Dr. Alain Kaloyeros, understood and used the language of economic development. In nearly every interview, Dr. Kaloyeros has spoken about the economic impact to the state and its communities through the work being done to grow and advance the NanoTech Complex and its various programs.

Also, incentives played a big role in attracting internationally recognized corporations to the NanoTech Complex and surrounding communities. Access to cutting-edge research and a unique cluster of academic leadership, advanced equipment, testing facilities, and an educated workforce gave companies a reason to take a close look at New York's capital region. Still, the financial incentives were important to closing the deal on several key relocations. The state of New York provided $201 million in incentives to attract International SEMATECH, $100 million to attract Tokyo Electron Ltd.,[16] and an unprecedented $1.2 billion to GlobalFoundries.[17]

It was by no means easy or inexpensive to attract this set of companies, but through very strong state-university-corporate partnerships, a proactive targeted industry attraction effort, and the availability of state incentives, New York has developed a premier nanotechnology cluster and a base for future economic growth.

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15 Use of State Funding for Research into Emerging Technologies at the State University of New York at Albany: Nanotechnology. Office of the New York State Comptroller. 2010.

16 http://www.siteselection.com/ssinsider/bbdeal/bd021202.htm

17 http://www.areadevelopment.com/AnnualReports/july2010/Globalfoundries-New-York-2010-Gold-Shovel-1100001.shtml?Page=2 (accessed August, 2012)

Milestones

1993	Center for Advanced Thin Film Technology is formed.
1997	NanoFab 200 is launched.
2001	Center of Excellence in Nanoelectronics and Nanotechnology is selected.
2002	Tokyo Electron Ltd. locates its $300 million research and development center in the NanoTech Complex.
2004	NanoFab South breaks ground.
2005	NanoFab North is established.
2007	International SEMATECH locates its headquarters in the NanoTech Complex.
2009	NanoFab East and NanoFab Central are launched.
2010	GlobalFoundries constructs a $4.2 billion semiconductor manufacturing facility at the Luther Forest Technology Campus in nearby Saratoga County.

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INTERNATIONAL SOFT LANDINGS CENTER AT TECHTOWN

Jan Youtie

Summary

The International Soft Landings (ISL) Center at TechTown, in partnership with Wayne State University in Detroit, Michigan, provides business assistance to foreign startup companies and mature enterprises seeking to enter the U.S. market. The ISL Center is part of TechTown's incubator service. As of July 2009, TechTown was one of 23 worldwide that have received a Soft Landings International Incubator designation[1] from the National Business Incubator Association.

In addition to its proximity to the Canadian border, which links the ISL Center to the Canadian automotive supply chain and the University of Windsor in Ontario, Canada, the TechTown center leverages the strength of the region's existing automotive industry cluster. This industry is of great interest to many of these foreign startup companies looking to relocate to the United States. Another important factor in the ISL Center's success is that it is firmly situated within the economic development strategies of the city and state, as well as the university's plans to stimulate technology-based development in the region. [2]

This practice exemplifies how a community can use its local university to attract startup enterprises from overseas. The ability to network with state and local economic development organizations (and eventually federal agencies) to re-purpose buildings to provide a home for these foreign startup firms and the specialists who assist them, and to fit into university and city plans for revitalizing the neighborhood are key lessons of this practice. This practice could prove useful to communities with a recognized business cluster, such as the Detroit automotive cluster, that seek to revive declining neighborhoods by attracting foreign direct investment.

Background

Detroit underwent a long-term decline in the 1950s and 1960s as the interstate highway system encouraged a demographic shift to the suburbs. This decline was compounded by deleterious effects of competition from global automotive imports beginning in the 1970s. Various efforts to foster a renaissance of Detroit's city center were begun, but had difficulty gaining momentum. From 2000 to 2010, Detroit's population declined by 25 percent, according to the 2010 census. At the same time, the city's automotive industry continued to maintain its scale, albeit from a moderating base – metropolitan Detroit accounted for 9.3 percent of U.S. employment in the automotive sector and 5.7 percent of all advanced automotive establishments in the country in 2008. The location quotient, which represents the employment concentration of a given industry in a region relative to that for the nation (where a location quotient of 1.0 is the reference point), for the Detroit automotive industry is 6.1. The city also has a sizable life-sciences industry – including pharmaceutical and medical equipment manufacturing – indeed, the third largest by employment in the Midwest after Chicago and

1 National Business Incubator Association, "Soft Landings International Incubators Announced," NBIA Insights, 4 (2009), http://www.nbia.org/insights/0907.php

2 This case study is based on an interview conducted with the chief of staff of TechTown on March 22, 2012.

Minneapolis.[3]

TechTown resides in the New Amsterdam historic district of New Center, which lies two miles north of the Detroit central business district and two miles from the Canadian border. New Center lost more than 30 percent of its population from 2000 to 2010.[4] Over the 2006-to-2010 time period, the five-year average unemployment rate in New Center was 13.6 percent, compared to 7.9 percent for the country as a whole.[5]

In the 1990s, Wayne State University's then-President Irvin D. Reid began plans for how the university could become a catalyst for regenerating Detroit's New Center neighborhood. These plans centered on the creation of a university research park surrounded by mixed-use development. The plans also included the possibility of small, technology-based startups.

These plans were considerably expanded when General Motors gave its Chevy Creative Services building to the project. This structure became the TechTown incubator and International Soft Landings Center. The donation was complemented by the Henry Ford Health Systems' contribution of office space for project personnel to begin services prior to the opening of TechTown. In 2000, TechTown became incorporated, and in 2004 it opened operations in the partly reconstructed building.

The International Soft Landings (ISL) service is situated within the TechTown organizational structure. TechTown is a separate 501(c)3 with ties to Wayne State University. It has a staff of more than 25 led by a president and CEO. Key departments include entrepreneurial programs, marketing and communications, operations, metrics and planning, and corporate and public affairs. Half of the staff members are termed "champions," which underscores the client services orientation of the program. For example there are three entrepreneurial champions in the entrepreneurial programs division, in addition to the director, and two champions involved with client intake. The ISL had a separate director, appointed in 2009 for a two-year position, but that individual left in 2011, so the ISL Center is currently managed as one of the programs and services within TechTown's offerings.

TechTown also has a 33-member board of directors chaired by the Wayne State University president. Including the university president, eight of the 33 members are Wayne State University administrators or members of the board of governors. Two are from the state economic development organization, the Michigan Economic Development Corporation (MEDC). The city of Detroit is represented, as are General Motors and Ford, small enterprises, investment firms, and local redevelopment organizations.

The initial budget for the opening of TechTown benefitted from a $2 million grant and loan guarantees of $10 million from the MEDC. These funds supported the renovation of the TechTown building. The Kresge Foundation also contributed $1.5 million for this renovation. In addition, the ISL program was founded by a two-year grant for $250,000 from the MEDC, which enabled it to hire a director and public relation support for ISL over that period.

The program has been successful in obtaining grant awards. In 2008, TechTown received awards from the Detroit City Council, Kresge Foundation, Herbert and Grace A. Dow Foundation, and the Wayne County Economic Development Growth Engine (EDGE). TechTown was part of a three-year, $9.25 million award from the New Economy Initiative and the Kauffman Foundation in 2009 to "reshape Southeast Michigan's economy

3 Anderson, P. (2011). Automation Alley's Technology Industry Report: 2011 Edition, Detroit: Automation Alley.
4 2000 Census Tracts 5201, 5325, 5326; 2010 Census Tracts 5326 & 5339
5 American Community Survey, Five-year estimates, 16 and older population.

by encouraging entrepreneurship and small businesses."[6]

TechTown has never had a professional grant writer on staff. The program works with several different grant writers on a per-project basis to perform the technical writing of specific grants. At one time, TechTown hired a fundraising professional to manage its grants, although individual grant writers were still used to develop funding applications.

The Practice in Operation

The International Soft Landings Center (ISL) targets its business assistance services to early- and second-stage startups and mature firms outside the United States. Second-stage startups typically have a CEO, a set of employees (as opposed to self- or single-employment firms), and a notable revenue level which, depending on the industry, could be approximately $1 million in sales. However, they often lack the administrative structures of a mature company, such as a complete management team. TechTown is a multi-purpose incubator that deals with retail- and service-related microenterprises, as well as more technology-intensive startups and mature firms in the ISL Center.

The ISL Center comprises about 3,800 square feet of the TechTown facility. Its operations involve three main activities: (1) hosting information-sharing activities, (2) providing incubator and other assistance services, and (3) participating in economic development activities.

Information Sharing
The ISL Center has participated in and/or organized various information-sharing workshops, delegations from other countries, or groups of American startups for opportunities to do business in other countries. These include partners from the University of Windsor's Odette Business School, the Ghana (Africa) Business Roundtable, the Michigan Indian Chamber of Commerce, the American Arab Chamber of Commerce, and the North Africa Partnership for Economic Opportunity. In all, economic developers, business executives, researchers, and government leaders from 22 countries have visited TechTown's ISL Center.

Center staff have participated in missions to other countries. For example, some took part in one to Israel organized by Wayne State University around the ILSI-Biomed 2010 conference. Staff engaged in meetings with companies and incubators interested in entering the U.S. market with the help of TechTown.

In 2008, Mexico's Ministry of Economy, in alliance with FUMEC (U.S. Mexico Foundation for Science) established a relationship with TechTown by designating it as one of six TechBAs or technology business accelerators. The relationship was designed for Mexican companies in the automotive technology sector. A TechBA performs initial recruitment and screening for these small Mexican companies.

Incubator Services
Services provided by the ISL Center include many standard incubation offerings such as physical space, coaching and mentoring, training on issues such as business plan creation and capital investment, access to legal and financial services, and printed communications. Services particular to the needs of soft-landing companies are supplied as well – for example, translation services and assistance with visa and immigration matters. The center conducts an initial assessment to understand the readiness of a foreign company for U.S. market entry. The center also helps identify potential partners in academia (such as through Wayne State

6 http://techtownwsu.org/about/history/ (accessed March 9, 2012).

University) and makes tailored linkages to individuals or organizations for these foreign companies.[7]

As with many incubators, the center uses business school students to help with market research and business planning needs of companies. Distinctive for the ISL Center is its arrangement with the University of Windsor's Odette Business School, through a 2010 memorandum of understanding, to use Canadian business students as interns to help TechTown incubator companies do business. Wayne State University students also have the opportunity to work in Canada. Funding for the Canadian business students is provided by the Odette Business School.[8]

Economic Development

The ISL Center also has engaged with economic development organizations and foreign direct investment and exporting programs. Key partnerships at the state and local levels include MEDC and the Detroit Regional Economic Partnership. TechTown has been included in nine trade missions with these organizations to China, Israel, Italy, Poland, and countries in Africa.

One outcome of this networking is U.S. Export-Import Bank designation of TechTown in 2011 as a City-State Partners Initiative participant. The designation allows U.S.-based entrepreneurs to receive loans for working capital and credit insurance to deal with international business risk. Thus the center not only has attracted international soft landings to the United States, it also helps Michigan entrepreneurs with exporting to various nations. Also collocated at TechTown is the Department of Commerce's U.S. Export Assistance Center. Each U.S. Export Assistance Center is staffed by professionals from the Small Business Administration, the U.S. Department of Commerce, the U.S. Export-Import Bank, and other public and private organizations. Together, they help businesses compete in the global marketplace.[9]

Results to Date

The ISL Center has had considerable success in attracting international companies. More than 80 foreign companies have visited TechTown. Its tenants include 47 tier-two and -three auto suppliers from Mexico as part of the TechBA program, an Israeli stem cell firm, a Canadian information technology company, and companies from the United Kingdom and Hungary.[10]

In support of these outcomes, the ISL Center has developed new capacities for working internationally. It has taken a methodical approach to networking. According to a former director of the center, "We would like to develop a network of information-sharing programs in Ontario and Quebec…We'll take it one step at a time. We want to proceed in a focused fashion to do these deals."[11] At the same time, the approach has allowed for flexibility to take advantage of opportunities such as the TechBA relationship with Mexican automotive suppliers and the Israeli biotechnology mission. Moreover, the experience with foreign soft landings has led to new capacities for helping home-grown companies engage in exporting business through the U.S. Export-Import Bank partnership and U.S. Export Assistance Center.

In addition to traditional international soft landings, TechTown is exploring innovative ways of partnering with overseas businesses. Through the U.S. Department of State, TechTown was chosen to participate in a delegation

7 Source, "Notes from Nancy", TechTown website.
8 Henderson, T (2010). Business beyond borders: TechTown signs deal with University of Windsor. *Crain's Detroit Business*, February 3, 2010.
9 http://www.sba.gov/content/us-export-assistance-centers
10 TechTown – Soft Landings International Incubator Designation Renewal Application,
11 Henderson, T., op cit.

to the Maghreb region of North Africa (Morocco, Algeria, and Tunisia) in October 2011. The delegation focused on how to promote entrepreneurship in these changing economies. To encourage entrepreneurship in these North African countries, the TechTown Incubator Prize was founded and awarded to three entrepreneurs from each country. The award, which enables travel to TechTown and inclusion in the incubator for a three-month period, is supported through scholarships from Wayne State University and travel, housing, and living stipends from the American Arab Chamber of Commerce and the U.S. Department of State. TechTown plans to pursue this cross-incubator exchange model with other incubators around the world.

Also, Wayne State has set extensive goals for positively affecting the economic health, renewal, and quality of life in its community. Observers point toward the commitment of the university to revitalize the surrounding neighborhood. Indeed, the university has set a goal of attracting 15,000 professionals to live and work in the neighborhood.[12] TechTown's embrace of retail and services microenterprises, as well as more technology-intensive businesses, contributes to this goal by supporting the types of lifestyle development needed by the community. TechTown and the International Soft Landing Center thus are part and parcel of this long-term vision.

Lessons Learned

TechTown has established an international soft landings center that focuses on early-stage and mature offshore companies by offering incubator and international assistance services. This approach differentiates it from traditional foreign direct investment efforts that tend to be reactive and untargeted in responding to economic development opportunities outside the United States.

The ISL Center utilizes many significant assets of interest to early-stage and mature foreign companies: a solid incubator program, ties to a research university, and proximity to one of the largest global concentrations of automotive firms, as well as burgeoning economic activity in the life-sciences industry. In addition, Detroit is close to Canada, which has encouraged collaborations with nearby University of Windsor. Not every city can replicate this set of attributes, but many American states have industry clusters and are located near the Canadian or Mexican borders.

Also, many of the successes of the ISL Center and the broader incubator and research and technology park have more to do with TechTown's operating model than with its geographic location. The board of directors links the parent organization with major state and local economic development organizations, as well as various departments and administrative offices of Wayne State University at the highest levels. This networking capacity has resulted in the ISL Center's ability to successfully pursue international soft-landing opportunities and add new exporting capabilities to serve its local startups and maintain its international connections.

12 Sander, L. (2009). A University in Detroit Pins New Hopes on Old Buildings. *Chronicle of Higher Education*, May 8, 2009.

Milestones

2000	TechTown is incorporated.
April 2004	TechOne business incubator facility opens.
December 2007	Kresge Foundation contributes $1.5 million to TechOne facility renovation.
2008	TechBA is established with TechTown through Mexico's Ministry of Economy, in alliance with FUMEC (U.S. Mexico Foundation for Science) for Mexican companies in the automotive technology sector.
June 2008	A 12-month partnership begins with the Michigan India Chamber of Commerce (MICC) to provide enhanced business and networking opportunities for the Asian-Indian business community in metropolitan Detroit.
Mid 2008	TechTown receives grants from the Detroit City Council, Kresge Foundation, Herbert and Grace A. Dow Foundation, and the Wayne County Economic Development Growth Engine (EDGE).
September 2008	International Soft Landings Center starts with 3,800 square feet on the first floor of the TechTown incubator and business park.
July 2009	NBIA certifies TechTown an International Soft Landings designation. Soft Landings Center director is appointed. Soft Landings Center expands to 6,000 square feet.
February 2010	Memorandum of understanding signed with the Odette School of Business at the University of Windsor in Ontario to promote cross-border business startups.
October 2011	TechTown joins U.S. Export-Import Bank's City-State Partners Initiative to provide funding for Michigan business export financing.
January 2012	Startups from Morocco, Algeria, and Tunisia receive incubation awards and scholarships to study entrepreneurship through a partnership between the U.S. Department of State, TechTown incubator, Wayne State University, and the American Arab Chamber of Commerce in Detroit.

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VIRGINIA-ISRAEL BIOSCIENCES COMMERCIALIZATION CENTER

Jan Youtie

Summary

The Virginia-Israel Biosciences Commercialization Center is an international soft landings initiative in Richmond, Virginia. The center draws on the local bioscience cluster that is anchored by the Virginia BioTechnology Research Park. The park, located in downtown Richmond next to the Virginia Commonwealth University (VCU) Medical Center, serves a range of companies including Israeli soft landings firms.

Initial connections to the Israeli scientific and entrepreneurship community, along with strong support from the Virginia Governor's Office, helped the center get under way.[1] The center's long-term dedication to the Israeli relationship has strengthened the connection and served as a source for qualified referrals. In addition, the center's ability to bring together expertise and expansion capital, along with space and proximity to research and clinical trials at the university and connections to the local Jewish community, has been an important factor in the center's success.

This practice illustrates the ability of a city to attract small foreign enterprises through targeting a particular industry and a particular country. As such, the practice is applicable to any city that can sustain this type of focus. Although many economic developers think of foreign direct investment in terms of large multinational branch facilities, this case illustrates the benefits of concentrating on small foreign startups. Maintaining long-term relationships with the Israeli scientific and entrepreneurship community and leveraging partnerships with state government and the local university are key lessons of this practice.

Background

Richmond is the capital of Virginia and the state's third largest metropolitan statistical area (MSA) after the Washington, D.C.-Baltimore-Northern Virginia MSA and the Virginia Beach-Norfolk-Newport News MSA. Richmond proper – as of 2010 – comprised more than 200,000 inhabitants, while the broader Richmond MSA encompassed 1.26 million people. The latter figure represents a 5.4 percent increase over 2000 levels. The region has a diversified economic base, with 21.5 percent of employment in educational/health care/social services; 11.7 percent in professional, scientific, and management services; 11.6 percent in retail trade; 10.3 percent in financial, insurance, and real estate; and 8 percent in manufacturing. The unemployment rate for the Richmond MSA in 2009 and 2010 was 7.7 percent and 7.8 percent, below the national average of 9.3 percent and 9.6 percent, respectively.[2]

Biotechnology is an important emerging cluster for Virginia. In 2008, Virginia had 981 establishments (where an establishment includes both branch facilities and single-facility enterprises) in the bioscience subsector, which

1 This case study is based on an interview conducted with the president and CEO of the Virginia BioTechnology Research Park on March 12, 2012.

2 Source: Virginia Employment Commission, MSA Community Profile Richmond, Va, Local Area Unemployment Statistics. February 8, 2012.

employed 20,257 workers. Sixty percent of its bioscience establishments and half of its bioscience workers were in the research/testing/medical laboratory segment; another 34 percent of bioscience establishments and 18 percent of bioscience workers were in medical devices and equipment manufacturing. During fiscal year 2008, academic research and development expenditures in the bioscience subsector were nearly $550 million, representing a 23 percent increase over fiscal year 2004 levels. Forty-five percent of these expenditures came from the National Institutes of Health (NIH). Virginia ranked 11th in total number of health-related degrees in academic year 2008 and 19th in venture capital investments in the field from calendar years 2004-2008.[3] Richmond considers biosciences—including therapeutic drugs and treatments, medical devices, and health care services—to be one of its five target industries, along with finance and insurance, creative and knowledge-based companies, advanced manufacturing, and transportation and logistics.[4]

Virginia has had a longtime interest in creating a biotechnology industry cluster, as evidenced by the incorporation in 1992 of the Virginia BioTechnology Research Park, a collaborative effort of the city of Richmond, state government, and Virginia Commonwealth University (VCU). Founded in 1838, VCU has one of the oldest medical colleges in the United States. VCU ranks 78th among the top 125 universities with medical schools in terms of R&D expenditures.[5] The Virginia BioTechnology Research Partnership Authority was created in 1993 to implement finance and development functions for the park. Envisioned as the locus of a high-tech bioscience cluster adjoining the university in downtown Richmond, the park opened in 1995 with the launch of the life-sciences incubator building. The first multi-tenant laboratory facility opened in 1996 as BioTech One. Two VCU research centers and three private-sector companies were early BioTech One tenants.[6] As of 2012, the park has more than 60 tenants employing more than 2,200 bioscience workers.

Around this same time, the Governor's Office and the Virginia Department of Commerce created the Virginia-Israel Advisory Board.[7] The board is composed of 29 members, and the secretary of Commerce and Trade and secretary of Education. The mission of the advisory board "is to serve as the bridge for Israeli companies who want to establish and/or expand their business in the United States and locate in Virginia."[8] The initial advisory board executive director held dual U.S.-Israeli citizenship. Under the auspices of the advisory board, the Virginia governor and secretary of Commerce and Trade traveled to Israel in the mid-1990s to promote economic development, cultural, and educational relationships.

While in a Washington, D.C. meeting with an Israeli medical device company, the advisory board executive director met with the former Virginia Commerce and Trade secretary who had become the president and CEO of the park in 1997, and engaged in a discussion. The Israeli company was seeking to raise capital and commercialize its product in the United States. The Virginia Commerce Department secretary offered assistance. He reviewed the firm's business plan and strategy, connected it with city officials, and gave the firm a tour of the Virginia BioTechnology Research Park. This meeting formed the basis of the Virginia-Israel Biosciences Commercialization Center.

The Virginia-Israel Biosciences Commercialization Center initially was organized as a unit of the research park.

3 Battelle/BIO State Bioscience Initiatives 2010: Virginia Profile. Biotechnology Industry Organization, www. bio.org (accessed March 19, 2012).

4 Jones, D. (2010). Jobs and Business Opportunity: Mayor Dwight C. Jones Economic Development Update, Fall 2010 http://www.richmondgov.com/EconomicCommunityDevelopment/documents/Jobs_Biz_income_richmond_city_brochure_FINAL.pdf

5 National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges, FY 2009.

6 Virginia BioTechnology Research Park, http://vabiotech.com (accessed March 19, 2012).

7 Code of Virginia, Chapter 46, Virginia-Israel Advisory Board.

8 Virginia-Israel Advisory Board, http://www.viab.org (accessed March 19, 2012).

However, organizers found that chartering the center as a separate C corporation would be more appropriate than, for example, situating it as part of the 501c3-structured incubator. The C corporation designation would enable center specialists to perform services and receive compensation, and facilitate entering into contracts with Israeli companies. Moreover, Israel had a good network of incubators and early-stage investment, but lacked funding for later-stage investments and exporting activity. This organizational structure would be beneficial to these Israeli startups' need for capital to enter and expand into the U.S. market. Funding for regulatory approval, scale-up, distribution, and establishment of a sales force are among the areas that are important for U.S. market entry and that require an infusion of capital.

The center currently is a wholly owned subsidiary of the for-profit Virginia Life Sciences Investments LLC (VLSI). VLSI was established in 2009 as a $14 million equity fund to support capital needs of later-stage biotechnology companies. The Virginia Biosciences Commercialization Center, which includes the Virginia-Israeli activities, was set up in 2007 and acquired by VLSI in 2009.

The Virginia-Israeli Biosciences Commercialization Center received initial funding from the U.S.-Israel Binational Industrial Research and Development (BIRD) Foundation. The BIRD Foundation awarded the Virginia BioTechnology Research Park and Israeli startup R&D Supports Ltd. $800,000 over two years to develop orthopedic devices for military, home care, emergency, and sports medicine markets.[9] In all, the BIRD Foundation has provided $2 million in support for assistance with Israeli startup entry into the U.S. market. The annual budget for the Virginia-Israeli center is approximately $1 million.

The Practice in Operation

VLSI and the center are managed by a board of directors. The center operates in approximately 6,000 square feet of space in the research park. Two types of operations occur at this facility: (1) outreach and trade missions, and (2) entrepreneurship assistance.

Outreach and Trade Missions

The center initially engaged in outreach through trade missions to Israel and visits with startups. In 2007 for example, the Gateway America initiative involved travel to Israel to meet with a subset of the 900 Israeli startups in the life-sciences field, focusing on firms that were at an advanced stage of development. Services available to the selected startups included conference attendance in Richmond, business and marketing assistance, connection with hospitals and distributors, clinical-trial access, and financial capital.[10]

These various engagements enabled the center to establish long-term relationships with several referral sources. The center today engages with certain research and entrepreneurship organizations, including Israeli incubators, sources of venture capital, and the Office of the Chief Scientist with the BIRD Foundation. Presently, the contacts that the center has created enable it to rely on referrals rather than further extensive outreach.

Entrepreneurship Assistance

Center operations initially followed an incubator model. However, a traditional incubator model requires relocation of the client company founder. The center incorporated a modification suitable to international soft landings in that the founder is not expected to relocate to Richmond, but rather can remain in Israel while still advancing the goal of entering U.S. markets. This traditional incubator model has thus been altered so that the center can focus on companies meriting investment.

9 Trani, E. Do Not Isolate Israel – Embrace It. *Richmond Times Dispatch*, September 23, 2007.
10 Zumberg, J. State of Virginia woos Israeli life science companies. *ISRAEL21c Newsletter*. October 18, 2007.

The decision as to which companies merit investment is based on the following criteria: (1) product in biomedical/biosciences industry (e.g., medical devices, diagnostics, therapeutics, medical software); (2) a demonstration model indicating commercialization or near commercialization readiness; (3) product pipeline; (4) globally well-protected intellectual property; (5) industry-experienced management; (6) prioritization of expansion into the U.S. market with few or no existing sales in the United States; (7) investors dedicated to entry into the U.S. market; and (8) interest in co-investment with a U.S. partner organization.[11]

The investment committee within the board of directors reviews the extent to which an entrepreneurial opportunity fits the criteria, then conducts an evaluation. The investment committee is composed of a professional staff headed by experienced people in life-science diagnostics and devices. These professionals have managed and built companies, including non-U.S.-based companies.

Results to Date

The center is currently working with nine companies:[12]

- BioCancell Therapeutics Inc.: targeted biopharmaceutical company for cancer therapy
- BioProtect Ltd.: biodegradable balloon therapy to enhance treatment of prostate cancer; spinoff OrthoSpace provides balloon therapy for muscular tears in the shoulder
- Cupron Inc.: antimicrobial technology for wound treatment
- Faneuil Medical: device to encourage spinal movement
- Gardia Medical: catheter-based delivery system for cardiovascular intervention
- ImmunArray Ltd.: diagnostic system for detecting organ rejection and autoimmune disease
- NeatStitch Ltd.: automatic stitching of entry points in laproscopic surgeries
- Virtual Ports Ltd.: endoscopic surgery tools
- Xenolith Medical: stone filters in kidney-related procedures

Many of these companies are sales or U.S. headquarters. Investment in the Israeli companies totaled $18 million as of 2011.[13] In December of 2009, one center graduate, EnzySurge, received FDA approval for its continuous therapeutic-solution-streaming for wound care. [14]

The center's success led to creation of the Clean Tech Gateway U.S.A. Program in 2011. This program hosted five companies from Israel that year. The program aims to facilitate entry into the U.S. market for small clean-tech startup companies.[15]

The center has also been successful in involving Richmond's Jewish business community. Several local Jewish business executives and retirees have served as investors in the fund. In addition, the community has extended itself to the Israeli executives in terms of local religious and cultural connections.

11 Virginia Israel Bio Sciences Commercialization Center, Call for Interviews October 7 –11 in Israel, August 2007 http://www.viab.org/bio/VIBSCC.pdf (accessed March 19, 2012).
12 http://vbcc-inc.com/the-vbcc-companies/ (accessed March 19, 2012)
13 Israel's Business Arena, January 10, 2011.
14 "EnzySurge Receives FDA Approval for SilverStream(TM) Innovative Wound Management Solution." PR Newswire, Dec 15, 2009.
15 "Israeli Clean Technology Companies Coming to Hanover County." States News Service. March 24, 2011.

Lessons Learned

The Virginia-Israel Biosciences Commercialization Center has leveraged interest by Israeli startups in entering the U.S. market with efforts to advance the local bioscience cluster to create a source of economic development opportunity. The center uses interpersonal connections established with a network of startup service providers and scientists in Israel, along with staff expertise in bioscience startups, to attract these companies to the Richmond area. These connections were formed on a strong foundation of involvement from the Governor's Office in the creation of the Virginia-Israel Advisory Board and participation in initial trade missions to Israel.

It is not uncommon in foreign direct investment initiatives for an international relationship to become repositioned as circumstances change. This case shows the benefits of a long-term association with the Israeli biosciences community, one that has paid off in providing qualified referrals to the Virginia bioscience subsector.

The center has learned that the traditional incubator model cannot be strictly adhered to in implementing an international soft landings approach. Although there are similarities to domestic incubators, this approach has some major differences – particularly noteworthy is a founder's strong likelihood of remaining in Israel, even as he or she desires to establish an operation in the United States.

Incubator space is not the most important aspect of the center, which is more concerned with its offering of experienced professionals to provide assistance services. The ability of the center to offer the range of services required by startups for entering the U.S. market—investment sources, experienced mentors, space, research connections with VCU, clinical-trial and regulatory assistance— is a major factor in its success. This approach creates a strong business relationship with the founding members of an Israeli startup

Milestones

1992	Virginia BioTechnology Research Park is incorporated.
1995	Park and incubator facility opens.
1996	Virginia-Israel Advisory Board is created.
Mid-1990s	Governor and secretary of Commerce and Trade travel to Israel.
2007	Virginia-Israel Biosciences Commercialization Center is created. Center receives $800,000 grant from U.S.-Israel Binational Industrial Research and Development Foundation. Gateway America initiative goes to Israel to meet with startups.
2009	Virginia Life Sciences Investments LLC established; acquires Virginia-Israel Biosciences Commercialization Center.
2011	Israeli startups attract $18 million in investment. EnzySurge Ltd. receives FDA approval for continuous therapeutic-solution-streaming for wound care. Clean Tech Gateway U.S.A. Program is created, modeled on the center.
2012	Nine Israeli companies occupy the center.

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APPENDIX: LITERATURE ON FOREIGN DIRECT INVESTMENT AND EXPORTING BASED ON REGIONAL INNOVATION CLUSTERS

1. Introduction

Finding ways to draw foreign direct investment (FDI) has intrigued academia and policy makers for decades. This review offers a summary of best practices in attracting FDI and expanding exports in regions of the United States, focusing on the role of industrial clusters. Our analysis of the literature is in three parts: First, we examine the benefits of FDI, including its impact on export activity. Second, we review studies on best practices in attracting FDI. Third, we review the importance of industrial clusters in this process. The review finds that clusters possess many of the attributes that multinational corporations (MNCs) deem important when they decide to invest overseas. Hence, industrial clusters provide an important tool with which regions can possibly attract FDI.

2. Benefits of FDI and Its Impact on Exports

The effects of FDI to local regions have been a subject of debate in the academic literature. Some view the introduction of MNCs to regions as a benefit to the local economy. Studies have emphasized the importance of FDI in contributing to the increase of local spillover effects and exports and also in reducing unemployment (Phelps, 2008, De Propris and Driffield, 2006, Barrell and Pain, 1997, Haskel et al., 2002, Keller and Yeaple, 2003). Spillover effects have been seen in regions where the gap in productivity levels between host firms and MNCs is less than 10 percent (Girma et al., 2001). Geographic proximity of host firms and MNCs has also been proven to have a positive impact on the absorption capacity and spillovers (Feldman, 1994, Jaffe et al., 1993). Being physically close to other firms allows for the exchange of knowledge and increase of information. Other studies, however, have focused on the damage that can result from competition for resources and markets (Aitken and Harriso, 1999). Also, some studies have pointed to an inability of some firms to benefit from spillover effects due to their underdeveloped knowledge base as well as the technological complexity of the MNC (Kokko, 1994).

According to existing studies, the host region may benefit from FDI via what Görg and Greenaway (2003) identify as four possible channels: imitation, skill acquisition, competition, and exports.

First, imitation mostly relates to the manufacturing process done locally for the MNC. Learning, as well as imitation, takes place locally and can contribute to the local economic capability of a region (Görg and Greenaway, 2003). Firms learn from one another via informal and formal knowledge sharing (Keeble et al., 1999, Keeble and Wilkinson, 2000). Geographic proximity of firms allows them to learn about one another's work. They can thus collaborate officially or try to imitate a product or a process that they learned about by co-locating (Nonaka and Takeuchi, 1995).

Second, movement of labor between the MNCs and local companies inevitably leads to knowledge and skill transfer (Görg and Greenaway, 2003, Thompson, 2002, Fosfuri et al., 2001). Moreover, studies on industrial clusters, innovation, regional economic development, and entrepreneurship have all identified knowledge

transfer as one of the most important tools for growth and human capital as the most important mechanism for such transfer (Audretsch and Lehmann, 2005, Feldman, 1999, Jaffe et al., 1993, Keeble and Wilkinson, 1999, Morgan, 1997, Nelson, 1993, Porter M.E, 2000, Porter, 1990).

Third, competition also motivates and increases local productivity. Although the strength of MNCs may be challenging to smaller regional firms, the competition with larger MNCs creates a desire to improve and to reduce inefficiency (Porter M.E, 2000, Porter, 1990, Görg and Greenaway, 2003).

Fourth, exports reflect higher firm productivity. Through collaboration as well as imitation, local firms learn how to export from MNCs, which at the time of relocation already possesses that knowledge (Görg and Greenaway, 2003, Greenaway et al., 2004). Studies find that the presence of MNCs affects the choice of local firms to export but not the proportion of their exports (Greenaway et al., 2004).

3. Best Practices in Attracting FDI

In the United States and around the world, regions have dedicated staff and resources to highlighting their assets and promoting their resources abroad to attract foreign investment. The Organization for Economic Cooperation and Development (OECD) developed a framework of successful approaches and practices for countries and regions to implement and ultimately attract foreign investment. Based on anecdotal evidence and experience, the OECD listed the following as indicators that influence a firm seeking to establish operations in a foreign country: (1) regional attributes, such as a predictable and stable stream of resources, including labor and infrastructure; and (2) nondiscriminatory policies and few bureaucratic impediments. These two factors, coupled with a "stable macroeconomic environment," have been judged by academics as the conditions necessary to establish international relationships that lead to FDI (OECD, 2003, Billington, 1999).

3.1 Regional Attributes

Regional characteristics provide important signals to firms looking to invest in an area. Studies have found that entrepreneurial ability and the quality of the social environment have a direct impact on where firms decide to invest (Presutti et al., 2011). The availability of new knowledge (De Propris and Driffield, 2006, Caves, 1996, Markusen, 1996) and skilled labor are also critical in attracting FDI.

3.1.1 R&D Capability

A region's R&D strength is a major contributing factor influencing a firm's decision on where to locate operations. For example, industries that are highly technical and rely on knowledge sharing are significantly more likely to seek regions with high R&D intensity and registered patent activity (Dunning, 1998, Chung and Alcacer, 2002). Firms looking to increase their output efficiency are especially drawn to areas with strong institutional and knowledge-based capabilities because those capabilities allow innovation into their processes as the firm becomes more embedded in the host country. Hence, regions in which R&D firms are geographically concentrated and show patterns of higher-order activities help provide signals for firms looking to invest in an area (Dunning, 1998).

3.1.2 Entrepreneurial Culture

Majocchi and Presutti suggest that there exists a strong and positive relationship between entrepreneurial activities and the rate of foreign investment. Generation of new firms largely depends on an area's ability to

encourage knowledge creation, sharing, and transfer, which can lead to innovation and the "realization of new business ideas" (Majocchi and Presutti, 2009). The authors assert that MNCs are attracted to such areas because open environments that foster idea creation and development will ultimately benefit the multinational firm through improved processes and higher-quality resources and capabilities. Studies have found that MNCs tend to invest in entrepreneurial companies that have a high level of patenting activities. (Almeida, 1996, Shan, 1997).

Multinational firms are frequently attracted to business environments with a strong entrepreneurial culture because that culture encourages a greater level of innovation and knowledge sharing, which could ultimately lead to greater creation of new firms. Regions with universities and research centers, which in many cases are the source of new ideas and spur entrepreneurship, are ideal locations for MNCs (Breznitz, 2007, Breznitz et al., 2008, Youtie and Shapira, 2008). Hence, geographic proximity to centers of knowledge, such as universities and research institutes, is an important factor in attracting FDI.

One particular example of the effects of entrepreneurship on FDI is the international "soft landing." This refers to provision of incubation and international services (e.g., translation and visa assistance) for companies located outside the United States. Foreign firms often use the international soft landing to establish a small unit for entering the U.S. market. (Lewis et al., 2011.)

3.1.3 Workforce Characteristics

It has been observed that foreign firms are especially interested in regions with high levels of unemployment (Billington, 1999, Coughlin et al., 1991b). The readily available pool of labor, coupled with the host government's desire to invest in an economically depressed area, signals to investors that the locale has potential for success. BIllington (1999) further suggests that an underutilized workforce is potentially willing to work "harder" at "lower wages" – which could ultimately provide further persuasion for foreign investment decisions.

Studies initially suggested that foreign firms viewed unions as obstacles to implementing standards and protocols and are thus more attracted to areas where unions have a smaller presence (Bartik, 1985). However, new evidence indicates that unionization has no negative effect on attracting FDI, and in fact Coughlin *et al.* established a positive relationship between unionization and the location of foreign firms. The authors found that unionization in the manufacturing industry resulted in higher rates of productivity (Coughlin et al., 1991a). Although explanations for this phenomenon have yet to be established, Billington theorizes that unionization helps to boost morale and job satisfaction, which can lead to higher rates of productivity, which can ultimately increase the rate of inward investment by foreign firms (1999).

3.2 Policies and Programs Aimed at Attracting FDI

Studies have found that, like the policies featured in the SelectUSA and the Organization for International Investment programs,[5] state intervention in the form of directed policy provides another method of attracting FDI (Cantwell, 1987). Open trade policy, which does not favor MNCs over local firms, tends to attract more FDI (Mody, 2004, Balasubramanyam et al., 1996). The quality of infrastructure, particularly communication and transportation facilities, has proven a vital component of attracting FDI and sustaining clusters (Coughlin and Segev, 2000, Coughlin et al., 1991a). Interestingly, studies have also found that the effect of investment incentives on attracting FDI to a region is small (Coughlin et al., 1991a, Head et al., 1999b).

5 The Invest in America Initiative has been absorbed into SelectUSA.

3.2.1 Quality of Labor

The availability of new knowledge and skilled labor has a direct relation to FDI. Investment in education and training and funding for science and technology support the growth and development of industrial clusters (Phelps, 2008, Young et al., 1994). Regional development agencies in the United States are heavily invested in training programs to improve the skills of the labor force. These agencies are likely to implement and promote training programs that allow firms to improve or upgrade their processes. Ultimately, development agencies favor subsidizing training of the labor force to meet hiring goals and improve the employment outlook of their region. In addition, firms are more likely to be drawn to areas having a well-developed workforce with ample opportunities for educational advancement (Fitzgerald, 2002, Harrison, 1998, Lowe, 2007)

3.2.2 Foreign Trade Zones

Foreign trade zones (FTZs) were established to provide a supportive business environment for companies engaged in international trade. Companies can bypass customs payments on goods brought into the zone for various activities during the production cycle. Moreover, there is no time limit on when the goods and materials are brought into the zone, and taxes are levied when the final product leaves the zone to be sold on the U.S. market. If the final product is re-exported, the firm is exempt from taxes levied on materials brought in for production. As a result of these exemptions, firms can minimize costs associated with production and enjoy the same customs advantages as offshore firms (MacLeod, 2000). Because of these rules, FTZs create supportive business environments with abundant employment opportunities.

There are two types of FTZs: general purpose zones and subzones. General purpose zones are typically industrial parks or ports and can be utilized by more than one firm. These firms tend to be small to medium-size businesses that require space for limited assembly, processing, distribution, and warehousing. Subzones, which are sponsored by general purpose zones, are dedicated spaces for a specific firm. These areas generally allow more intensive manufacturing and production activities (MacLeod, 2000).

Almost all U.S. states have at least one FTZ, and because of this pervasiveness, states cannot competitively leverage the zones to attract investment. However, simulated scenarios that eliminated FTZs demonstrated significant declines in FDI. In other words, at the state level, the presence of FTZs has had little to no effect in increasing the rate of FDI; however, when aggregated at the national level, they have been found to be largely beneficial to the U.S. economy by attracting foreign investment away from other countries (Head et al., 1999b, Swenson, 1997).

3.2.3 Tax Incentives

Early studies were unable to establish a relationship between taxation and foreign investment (Wheeler and Mody, 1992, Friedman et al., 1992, Woodward, 1992). However, subsequent investigations revealed that high corporate tax rates do, indeed, deter FDI (Head et al., 1999a, Coughlin et al., 1991b). Interestingly, the Head *et al.* study theorizes that when the taxes levied have a clear relationship to beneficial services, they are less likely to deter foreign firms (1999a). For example, if a region can dedicate a tax for a training program or infrastructure improvements, the firm is theoretically more willing to pay it.

In terms of providing tax incentives, Morisset and Pirnia (1999) demonstrated that these programs have a significant impact on the decision of export-intensive firms to locate in an area. Regions tend to have better success rates in attracting industries in which taxes factor largely into the cost structure of the product and

operations are not completely tied to a geographic area and can be easily moved (Loree and Guisinger, 1995, Wells, 2001). Tax incentives are not uniform in their appeal – startups tend to favor programs in which initial costs can be reduced through incentive programs, whereas more established firms will be more attracted to programs that protect their profit margins (Rolfe et al., 1993). Morisset and Pirnia further suggested that small firms are more attracted to tax incentives than are large firms for two reasons: (1) Small firms are unable to match the extent to which they can absorb the effects of taxes into their cost structure; and (2) they might not have the human resources or sophisticated expertise to take advantage of tax avoidance policies and mechanisms (Morisset and Pirnia, 1999, Coyne, 1994).

Industrialized countries tend to provide tax incentives through tax write-offs for capital investment costs to encourage foreign investment. By offering tax write-offs, countries can encourage firms to look at the investment as a long-range plan, as opposed to an opportunity for large but short-term financial gains. In addition, by making investments refundable, governments can convey to the investor their willingness to share in the risk of investment decisions (Morisset and Pirnia, 1999). These countries tend to offer incentives tied to such investment because they increase the likelihood that firms will expand their existing capability rather than directing money toward the creation of new firms elsewhere.

3.2.4 Infrastructure Investments

Well-developed physical infrastructure has been found to have a strong positive relationship to a foreign firm's decision to locate in a given area. Coughlin *et al.* (1991b) observed that regions in the United States with well-developed transportation networks were more successful at attracting foreign investment than areas with less-developed infrastructure. However, Wheeler and Mody (1992) found that this variable is not as critical in the United States as it is in other countries. This is mainly due to the fact that ease of access is not a significant issue because the United States has a highly developed transportation network and infrastructure. Other studies corroborate Coughlin *et al.*'s findings and suggest that well-developed transportation networks will broaden a firm's access to potential markets and support firm activities more efficiently (Friedman et al., 1992). The presence of such facilities plays into a firm's desire to attract a wide and talented labor pool, provide easy access to the job site, and increase the firm's exposure to targeted markets (Friedman et al., 1992).

3.2.5 Trade Missions

States have relied on international offices with full-time employees or contract representatives to promote international investment and export opportunities for local firms. These missions have allowed governments to highlight their regional capabilities, provide information on how business is conducted in the area, and encourage export business for local firms in their home state (Wilkinson and Brouthers, 2000, Kotabe, 1993). Establishing international offices has allowed states to expand their global network and provide consistent and timely information regarding their economy and the advantages they can provide in the context of the world economy.

Studies have determined that states with an established dependence on international markets can effectively utilize foreign offices to attract FDI (McMillan, 2009, Wilkinson and Brouthers, 2000, Wilkinson, 2006, Vila, 2010). For example, in the 1980s, in an attempt to counter the effects of the declining textile industry, South Carolina opened international trade offices in Germany and Japan. That same year, Fuji Film, Bosch, and BMW—major German and Japanese corporations—invested in the state. In addition, Pennsylvania has attributed strong interest in investment by foreign firms to its international trade offices. The state has one

of the largest international networks of offices and representatives, as well as one of the country's largest budgets for attracting foreign investment (Vila, 2010).

However, there is also evidence suggesting that states can successfully attract FDI without international offices or representation. For example, although Tennessee has no foreign trade or investment office in Japan, it has been successful in attracting several investments by Japanese firms. The increased presence of foreign investment can be attributed to Nissan's opening a Tennessee factory in the 1970s. Although its decision to locate there was based on financial and tax incentives, subsequent investment and activities related to the plant occurred because of the established industry and could not be attributed to promotional activities abroad or even financial inducements (Kotabe, 1993). Ultimately, foreign offices are largely successful in terms of public relations and keeping the channels of communication open. However, there is little statistical significance indicating their effectiveness in terms of attracting inward investment (Kotabe, 1993, Wilkinson and Brouthers, 2000).

4. Industrial Clusters and Attracting FDI

According to the academic literature, clusters are concentrations of firms with specific characteristics that can lead to economic development and sustainability (Markusen, 1996, Markusen, 1985, Piore and Sabel, 1984, Porter, 1990). The advantage of a location within a cluster is the ability to learn from and collaborate with other firms in the industry. This collaboration contributes to a region's innovation base and encourages economic sustainability, and can be viewed through basic knowledge transfer and social network analysis. Hence, regional clusters are important in any policy directed at FDI. It is important to point out, however, that MNCs tend to develop clusters of firms around them; but these are supplier-based and therefore are not sustainable (Markusen, 1996, Phelps, 2008). Hence, studies of best practices for attracting FDI should focus on existing sustainable clusters, where studies have shown gains to firms from both the same industry as the MNCs as well as across industries (Phelps, 2008, De Propris and Driffield, 2006, Bronzini, 2007).

Clustering provides innumerable benefits for attracting FDI. Investment decisions, especially in advanced industries, have been shown to be affected largely by access to knowledge and the extent to which it can be shared. MNCs' subsidiaries have tapped into local knowledge and invested heavily in high-level local patenting firms (Almeida, 1996, Shan, 1997). Moreover, since the 1970s, an onslaught of policies to ease international trade restrictions has helped create an environment in which spatial transaction costs were greatly minimized. As a result, market conditions emerged as a significant factor in determining the location of investment decisions, which ultimately led to an increased spatial clustering of firms in related industries (Dunning, 1998). Clustering helped signal that multinational firms seeking to locate in the area would benefit from knowledge sharing, support facilities, shared service centers, distribution networks, and established demand patterns (Dunning, 1998, Maskell, 1996).

Investment decisions, especially in advanced industries, have been shown to be affected largely by access to knowledge and the extent to which it can be shared, in contrast to access to natural resources (Shan, 1997, Dunning, 1998). Wheeler and Mody (1992) assert that agglomeration can signal that the area has a stable, well-developed infrastructure, that there is some degree of industrialization already, and that FDI, regardless of the extent, is already occurring.

The literature suggests that firms choosing to locate within a cluster can increase their ability to learn from and collaborate with other firms in the industry. For example, a cluster of manufacturers allows firms to gain access to market knowledge and a skilled labor pool, engage in technology transfer, and build networks and

relationships with immediate suppliers (List, 2001). These collaborations contribute to the innovation base in the region, which can also support economic sustainability. These characteristics highlight the importance clusters play in attracting foreign investment. Moreover, studies have found that MNCs with technological strength have a higher level of absorptive capacity and are able to tap into local knowledge clusters (Frost, 2001, Cantwell and Janne, 1999).

Foreign investment also tends to occur in areas where similar inflows are already taking place. This phenomenon is further amplified when firms choose to locate in regions where the foreign investment has occurred in the same industry (Head et al., 1999a, Majocchi and Presutti, 2009). However, additional investigations have indicated that collocation of foreign firms is supplier-based and, as a result, is not sustainable in the long run (Markusen, 1996, Phelps, 2008). Regions that have specific policies and programs to attract firms but lack an established industrial base fail to persuade firms to locate in the area. The benefits of locating within an established cluster are more beneficial than subsidies or incentives offered by the host government (Devereux and Maffini, 2007).

5. Conclusions

Studies have identified industry clusters as engines of growth. In today's global economy, clusters have become a visible location of FDI. In particular, clusters provide mechanisms through which a region can increase its FDI and, hence, its ability to export. Firms considering investment overseas value regions that are rich in R&D and have (1) new knowledge and the ability to transfer it, (2) entrepreneurship, and (3) a skilled labor force. Hence, a policy to encourage foreign investment should focus on strengthening clusters by highlighting these attributes.

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