



NORTHEAST INDIANA

THE PERSISTENT CHALLENGE OF ECONOMIC DEVELOPMENT

(MEDICAL DEVICES)

INTRODUCTION

This report is written in response to a request from the Northeast Indiana Regional Foundation to investigate the potential to establish an independent economic development cluster based on the manufacture of medical instruments in Northeast Indiana. The report was prepared by Talking Points, LLC and The Coman Company.

Northeast Indiana (NEI), as defined in this report is comprised of ten counties:¹ Adams, Allen, DeKalb, Huntington, LaGrange, Noble, Steuben, Wabash, Wells, and Whitley. There are currently 176 companies in NEI specializing in the life sciences sector, including 91 companies in the medical devices specialization.² The region also hosts a vibrant grouping of defense companies with whom the medical device industry shares some key, talented workers. “Northeast Indiana is home to over 160 defense/aerospace prime suppliers and contractors. These companies are on a growth curve expecting to add over 4,000 new and replacement workers in the next five years. This work is very technical, requiring systems and software engineers, managers, technicians, and other highly trained and educated workers.”³

The findings of this report are derived from interviews with a variety of stakeholders and focus groups, as well as a review of previous studies.⁴ While we refer frequently

¹ Please note that some of the figures and past studies cited in this report were based on data from an 11 county region. Until very recently, Grant County was a part of NEI.

² IHIF Regional Asset Mapping Report, 2009.

³ Talent Opportunity Success (TOpS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

⁴ *Inter Alia*: Talent Opportunity Success (TOpS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne) ; IHIF Regional Asset Mapping Report (2009); BioCrossroads (2009), BioCrossroads – BC Initiatives, Inc./CICP Foundation; NEI Opportunity Assessment (2009), Northeast Indiana Regional Foundation; Whittaker Report

throughout the report to previous studies and reports from other entities, it is not our purpose to travel over the same ground, but rather to understand their results and recommendations and determine what, if any, local impact resulted. We shall not, therefore, delve deeply into basic economic research and statistical analyses as such are readily available from a variety of sources, other than to seek to understand their obvious significance in an effort to identify strategies and activities that can enhance and expand the role of the life sciences, and specifically the medical device industry in NEI.

*The fact that NEI lies within easy commuting distance from the center of one of the world's most important and profitable medical device manufacturing clusters in Warsaw, Indiana, was much discussed throughout the preparation of this report. Many people who work in Warsaw live in NEI, thus boosting NEI's tax base. **In fact, it is immediately self-evident that many NEI companies already belong to a cluster - the medical device cluster centered in Warsaw.** Companies in the ten counties supply Warsaw with needed inputs and NEI should do everything it can to continue to support and increase Warsaw's dominance in the orthopedic medical device industry.*

The more we studied the realities of the medical device industry and the regional dynamics that directly affect NEI, the more we also came to believe that the region should broaden its focus from medical devices alone with the thought of growing indigenous life sciences businesses, such as health information technology. The intent is to move forward in NEI, and to that end, support for Warsaw, while of continuing importance, should not be the controlling factor for success.

NEI should therefore concentrate its efforts on both supporting the existing Warsaw medical device cluster and developing and growing its own pockets of opportunity in life science. This report represents the first time NEI has invested resources to understand its cluster assets in key industries. Our task then is to better define areas for development and identify the stakeholders who can make things happen in the future to support Warsaw's success as well as grow other bioscience areas.

(2007), Northeast Indiana Regional Foundation; North East Indiana Opportunity Assessment (2009), NKF Consulting; Battelle Memorial Institute study for Indiana Health Industry Forum on the Kosciusko County region (2001); A Governor's Guide to Cluster-Based Economic Development, ISBN: 1-44877-356-8, National Governors Association (2002)

FINDINGS: SUMMARY

Snapshot: *The closing of International Harvester during the recession of 1981 and the corresponding loss of thousands of jobs devastated the region, illustrating the danger of reliance on a single employer and underscoring the importance of rational economic development. The availability of well-paying jobs in traditional manufacturing, long the strength of the region, has declined, and many skilled manufacturing workers have had to accept lower paying jobs. While certain elements of the high tech sector, specifically the aerospace and defense industries, have demonstrated impressive development the region, low levels of local educational attainment continue to inhibit NEI's growth and cannot now even satisfy the requirements of the defense industries already present. NEI's workforce is not keeping pace with national gains in educational attainment while the knowledge-based economy is demanding greater skill levels in virtually every sector.*

- Despite the presence of many medical device companies in the region, there is no organized and independent medical device cluster at present in NEI. The medical device cluster in nearby Warsaw, of which many NEI-based companies already are *de facto* members, provides a logical opportunity to build on NE Indiana's existing skill-sets in related industries, such as advanced materials, to create and build upon ancillary or support businesses (components/parts manufacture, packaging (sterilization services), shipping, IT, software, personnel management, testing, certification services, adhesives, patient monitoring systems, handheld devices, food supplements, regulatory/quality consulting and transportation/distribution logistics). According to the Community Research Institute's "Summary of Business Dynamics 2008-2009" for NE Indiana ... most of the events related to the Medical Device or Related Industry were by companies which have a diverse product line. Many are manufacturers who produce for the auto, defense or aerospace or other industries in addition to supplying some of their product line to the medical area.
- A medical and health oriented (biosciences) cluster cannot exist in a vacuum. Common educational and leadership needs in medical devices, aerospace, defense and food processing clusters need to be identified, plans for action created and carried out as a cross-functional effort, i.e. leveraging across sectors.
- The region does not have a broad national reputation for entrepreneurship. Pockets of entrepreneurship and medical device success exist in NE Indiana, but no broad-based group of companies generates a buzz about the industry. Current successful leaders in this industry can mentor new entrepreneurs for home-grown success.

- Rather than concentrate exclusively on medical devices, and thus too narrowly focus economic development efforts, consider expanding the region's outreach by both using a broader definition of bioscience as well as leveraging lateral opportunities across defense, advanced manufacturing and other industries. A traditional definition of the "medical device" industry (see Figure 1, below) will inhibit NEI's approach to building an independent cluster. "Medical Devices and Equipment" is a sub-set of the "Biosciences" or "Life Sciences" that also include: Agricultural Feedstock & Chemicals, Drugs & Pharmaceuticals, and Research, Testing & Medical Laboratories.⁵ In fact, again according to Battelle, the "research, testing, and medical lab subsector" accounts for 35% of total bioscience employment with medical devices and equipment slightly behind with 33%.⁶
- "While northeast Indiana's workforce is known for its strong work ethic, it is also known for its relatively low level of educational attainment. Primary research with regional employers through the strategic skills initiative revealed that there is a growing concern among employers that their employees do not have the skills required in the modern manufacturing environment, causing companies to lose opportunities for expansion and growth. Company executives say they struggle to find new employees who possess the requisite skills to meet the qualifications for their jobs. The foundational skills of reading, math, and computing are most often cited, together with higher level skills of critical thinking, the ability to assess and solve problems, the ability to work in teams, and the ability to use new technologies."⁷

The last point constitutes an especially glaring weakness in the region's ability to attract new businesses in high tech fields. However, there are other, less tangible barriers to development that should be of major concern to regional stakeholders. Over the past twenty years there have been several organized efforts to foster development, but many failed to be proactive on a tactical basis.

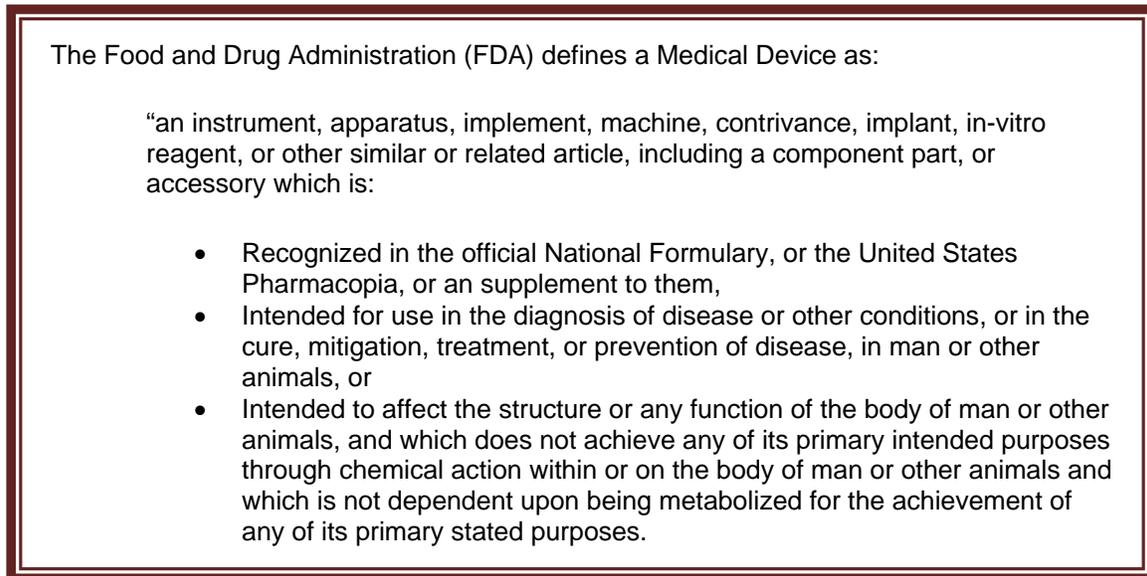
⁵ State Bioscience Initiatives, 2008, Battell Technology Partnership Practice.

⁶ Ibid.

⁷ Talent Opportunity Success (TOpS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

WHY MEDICAL DEVICES?

Figure 1: Definition of Medical Devices



Source: Frost & Sullivan⁸

Why has there been so much interest in NEI in the development of a “medical device cluster?” Taken as a whole, the medical device industry appears to be relatively recession-proof, at least where the large cap companies are concerned. “While many other industries have watched revenues and jobs slip away as a result of the recession, so far the medical device industry has continued to show both strength and growth. If current trends continue, large companies will likely emerge from the downturn with even greater strength than they had before.”⁹ A recent survey by the Emergo Group Inc., a Texas-based consulting firm, revealed that 61% of respondents expect their overall sales to increase next year, and 84% anticipate that their company will employ the same number of or more employees one year from now. Moreover, only 17% responded that they were ‘somewhat negative’ or ‘negative’ in their personal outlook on the medical device industry in 2009.¹⁰ Pessimism may have grown, however, due to

⁸ The U.S. Medical Device Outlook 2007, N1a5-54, Frost & Sullivan.

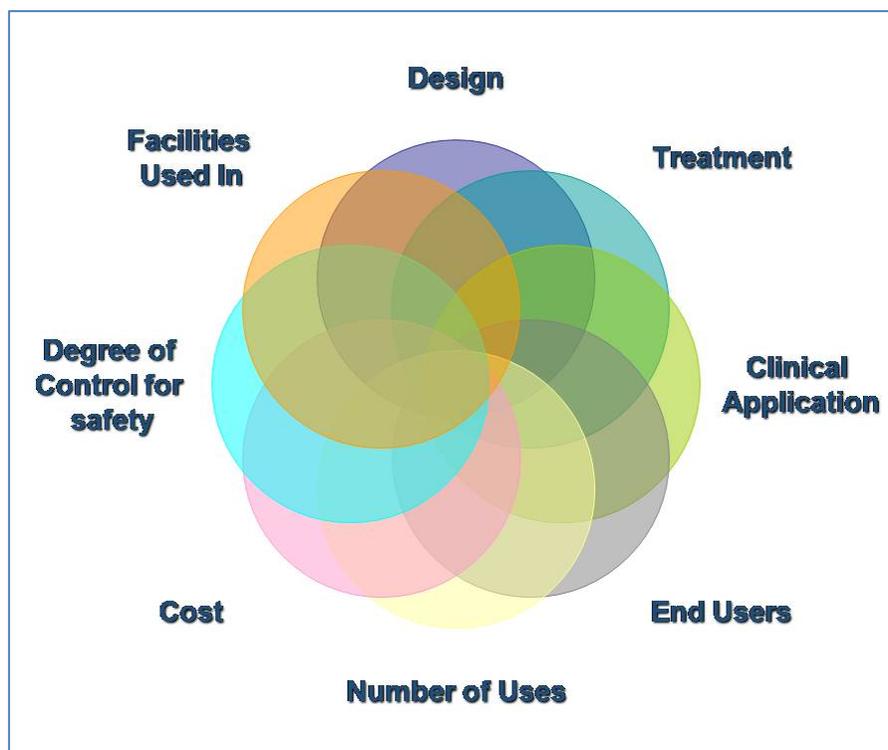
⁹ Bucking the Trend, Steve Halasey, Medical Device & Diagnostic Industry, February 2009.

¹⁰ Device Industry’s Vitals Are Strong, Shana Leonard, Editor, Medical Product Manufacturing News, November/December 2008 issue.

legislation currently under consideration in the U.S. Congress to levy new taxes on medical device manufacturers. Under one plan the industry would be subject to new taxes in the billions of dollars to help pay for health care reform.¹¹

“Medical devices are classified using any of the following classifications. No particular method of classification is standard and complete in itself, as there is always some overlap in the below mentioned parameters.”¹² (See Figure 2)

Figure 2: Parameters of Medical Device Classification



Source: Frost & Sullivan

The spectacular success in the medical device industry enjoyed by near-by Warsaw, Indiana, elicits an understandable desire to better understand the strategic role our region plays in sustaining and growing the role of the Warsaw cluster.

¹¹ www.IndianaBusiness.com report, October 19, 2009

¹² Ibid.

On the surface, therefore, medical devices appear to be a promising avenue for exploration for independent regional development. Deeper analysis, however, results in a less optimistic conclusion.

Figure 3: NEI Predictive Matrix Output

NORTHEAST INDIANA PREDICTIVE MATRIX OUTPUT	
Weighted Total	Target Industry
760	Transportation & Logistics
730	Advanced Materials
650	Financial Services
650	Medical Devices
595	Food Processing
540	Health Care
535	Tactical Communications
525	Hospitality/Tourism
520	Aviation/Aerospace
515	Production Technology
490	Motor Vehicle Parts
460	Recreational Vehicles
410	Printing and Publishing
390	Sustainable Energy
280	Wood Products

Source: Whittaker Associates

Our preliminary findings indicated that at present ***there is not sufficient critical mass*** to create or support an independent medical device cluster in NEI, despite the presence, at last count, of 91 medical device companies in the region.¹³ This is in contrast to an IHIF Asset Mapping effort that refers repeatedly to the group of medical

¹³ IHIF Regional Asset Mapping Report, 2009

device related companies in the area as an “existing cluster.”¹⁴ This report goes on to say that “opportunities appear to exist to expand research and development for medical devices statewide, particularly through partnerships with companies in the Warsaw cluster.”¹⁵ We believe that to call the existing group of life sciences companies in NEI a “cluster” is to ignore the definition of the term – a group of companies engaged in similar business activities is not perforce a cluster. (See “CLUSTERS” on p. 13 for a definition.)

It is fair to speculate that this group of companies comprises a nascent cluster but heretofore has lacked an organizing force, such as exists in Warsaw in the form of large, predominant enterprises that are natural leaders with the wherewithal to devote to cluster development. As an example, one might take the defense/aerospace industry with over 160 prime suppliers and contractors in NEI, led by such giants as BAE Systems Controls, Northrop Grumman, General Dynamics, Raytheon, ITT Communications Systems, and Ultra Electronics – USSI.¹⁶

The existing medical device company concentration in near-by Warsaw, Indiana, may provide a logical opportunity to build on NE Indiana’s existing skill-sets in related industries, such as advanced materials, to create ancillary or support businesses (components/parts manufacture, packaging, shipping, IT, software, personnel management, testing, certification services, adhesives, patient monitoring systems, handheld devices and food supplements). According to the Community Research Institute’s “Summary of Business Dynamics 2008-2009” for NE Indiana ... most of the events related to the Medical Device or Related Industry were by companies which have a diverse product line. Many are manufacturers who produce for the auto,

¹⁴ IHIF Regional Asset Mapping Report, 2009 (p. 15) This excellent report also focuses on building a life sciences environment and provides several common sense suggestions for improving the region’s performance in this area. Networking is a vital component of this process and provides a means to keep involved entities “informed of legislative and program developments at the state and local level” inasmuch as these issues can have significant impact on companies. Another suggested tactic is to “network with existing venture capital firms locally and throughout the Midwest.” (p. 13) The report underscores the fact that critical issues facing the life sciences industry “are different than those facing Indiana’s traditional industries” and makes solid recommendations for closely monitoring industry wide developments. (p.13)

¹⁵ Ibid.

¹⁶ Talent Opportunity Success (TOpS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

defense or aerospace or other industries in addition to supplying some of their product line to the medical area.

A medical and health oriented (biosciences) cluster cannot exist in a vacuum. Common educational and leadership needs in medical devices, aerospace, defense and food processing clusters must be identified. All of these form what is termed a *knowledge based economy*.

CREATING A KNOWLEDGE ECONOMY – SOME BENCHMARKS

Knowledge is fueling economic growth and social development in every region of the world. New ideas and innovation are spreading faster than ever. Certain conditions must exist to nurture and grow such an economy. Stakeholders must have an intimate knowledge of and the will to take advantage of the presence within the region or State of established and successful scientific and educational institutions, and human resources. Success requires a major investment of financial and human resources to become globally competitive in attracting knowledge rich activities and stimulating creativity.

Singapore provides a viable example of how to grow a knowledge economy, although its milieu differs significantly from NEI in that it has a highly centralized planned economy with direction flowing from the top down while NEI must work in the opposite direction, i.e. actively seeking government and economic support, as well as convincing high tech entities already in the region to buy into an economic development plan.

Before describing the Singapore experience with building a knowledge economy we want to make it clear that while we realize that NEI cannot approach the resources and investment levels of a prosperous nation state, the example is intended to illustrate what can happen when an agreed upon game plan is followed up by collaboration across the board.

In 2000 Singapore launched a National Biomedical Science Strategy, with a systems based approach to development comprising:

- A Ministerial Committee to ensure political consensus through policy and program development
- An International Advisory Committee (IAC) through which key academic and industrial players were brought in to advise on worldwide research and industry trends, to offer critique on current initiatives, to guide development, and to provide ethical and legal inputs
- The Biomedical Sciences Group (BMSG) which provides planning and management across the entire value chain

An estimated \$2 billion was set aside for the initial five-year development period to fund new institutes, academic research and training, as well as funding and tax incentives for companies of all sizes. In addition, US\$600 million was made available for investments in world class firms carrying out R&D in Singapore.

To be successful three primary components were deemed necessary for a biomedical sciences initiative: provisions for infrastructure; tax and capital incentives; and education and workforce initiatives.

Results have been impressive: Singapore has become a “regulatory haven: for stem cell research, patents are well protected, and intellectual property rights have been strengthened. Singapore has set aside valuable real estate to house “Biopolis (the physical catalyst for the life sciences strategy) and “Fusionopolis” for the information and communications technologies and media cluster.

While NEI’s capabilities are not on such a grand scale, it is clear that Singapore has recognized the same potential in the biological sciences and has systematically developed a structure to achieve its economic development goals.

In the creation of a knowledge economy certain factors are already present in NEI that could make significant contributions to economic development and should therefore be leveraged:

- Proximity to relevant academic centers, e.g., IPFW
- A core of successful entrepreneurs in the industry; a base of existing firms that have mastered key skills needed in the industry as a portion of their business, e.g., NIIC companies and NIIC graduates
- An attractive physical environment
- Access to an excellent interstate transportation system

Many of the crucial elements of attractiveness for the knowledge economy are the same as those factors that attract business in general – political stability, predictable macro-economic management, market potential, costs of production, de-regulated markets, communications infrastructure, etc.

The vision and dynamism of key individuals, current and potential stakeholders, is vital to success. The importance of people is central – specifically, talented people who must be attracted if this endeavor is to realize success. Such people are highly mobile and sought after, and there is work to be done to make NEI attractive to them. Another factor of even greater importance to a knowledge based economy is effective networking possibilities – both within the community itself and through connectivity with other knowledge-rich places. The academic and entrepreneurial community could make a significant contribution here.

An expanding environment for creating and managing knowledge recasts a wide range of policy issues, including public investment priorities, program design, dissemination of research results, technology transfer, and the form and scope of private controls on information and knowledge. Tension arises from the fact that governments, universities, and private companies operate in different ways and under different rules, yet there are compelling reasons to encourage rapid movement of knowledge across sector and institutional borders. Those chasms must be bridged for success.

Closer to home, NEI might look to Akron, Ohio. According to a November 2008 press release from the Ohio Business Coalition, “Ohio aims to become a global hub for biomedical research, commercialization and innovation after the recent launch of the BioInnovation Institute located in Akron, Ohio. According to the Ohio Business Development Coalition, the nonprofit organization that markets the state for capital investment, the BioInnovation Institute will bring together Ohio’s world-class organizations, researchers and educators in the polymer industry and biomaterials and biomedical fields to generate the next generation of life-enhancing innovation for the 21st century.” (See Appendix for the full text of the press release)

The key importance of stakeholder collaboration/networking is the salient factor here and should be instructive for NEI. According to the above-mentioned press release, these include, Akron Children’s Hospital, Akron General Health System, Northeast Ohio Universities Colleges of Medicine and Pharmacy, Suman Health System, University of Akron, the John S. and James L. Knight Foundation, and the Ohio Third Frontier Project. Over \$100 million have been provided for the start-up. “The project is the state’s largest-ever commitment to expanding high-tech research capabilities and promoting innovation and company formation that will create high-paying jobs for generations to come.”¹⁷

Economic development stresses three major focus areas: the attraction of business, the retention of business and entrepreneurial growth and development. Each sector impacts the other with strong ties to one another. An economic development cluster is not a hastily assembled group of entities seeking to affix the term cluster to itself but an aggregation of ideas, people and technology built upon strong comparative advantage. As we consider the potential for a medical devices cluster in NEI, all of these factors must be taken into account.

A particularly good sign that such collaboration is beginning to take place in NEI is the recent launch of “a new statewide initiative aimed at creating and growing more information technology companies that will provide innovative solutions for Indiana’s

¹⁷ Ohio Business Coalition PRNEWSWIRE, November 12, 2008.

\$69 billion health and life sciences sector...” by TechPoint, together with the law firm of Ice Miller LLP and 30 leading information technology, health care and life sciences experts.¹⁸

This new effort is aimed at identifying “opportunities for increased use of information technology in the health and life sciences sector. The initiative will also identify research in academia and in the marketplace that can be commercialized or “spun out” with venture capital and other funding sources.

“ALHIT plans to leverage Indiana’s nationally recognized strength in health care and life sciences as well as opportunities created under the American Recovery and Reinvestment Act of 2009 (ARRA) to advance the creation of new information technology companies. Currently, there are about 70 IT-related health and life science businesses in Indiana.”¹⁹

CLUSTERS²⁰

“The single most important operating principle of competitive clusters is the ability to network extensively and form networks selectively. Networking is the process that moves and spreads ideas, information, and best practices throughout a cluster and imports them from other places.”²¹

The concept of clusters has come to define how economic developers discuss their comparative advantages and weigh the merits of one industry over another. All seek to leverage what already exists and develop nascent opportunities. The term cluster was popularized by Dr. Michael Porter of Harvard University. Already famous in business strategy circles, Porter looked into what made certain geographic areas, particularly in developed economies, hubs of renowned capability and capacity in key industries. Examples abounded- wineries in California, high fashion leather goods in Italy or high performance auto companies in Southern Germany.

¹⁸ Advancing Life Sciences & Health Care Information Technology (ALHIT), <http://techpoint.org>

¹⁹ Ibid.

²⁰ The primary source for this section is Porter, Michael, “Clusters and the New Economics of Competition”, *Harvard Business Review*, November-December 1998.

²¹ A Governor’s Guide to Cluster-Based Economic Development, ISBN: 1-44877-356-8, National Governors Association, 2002

Each cluster met the definition that Porter had structured: “geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. Clusters also extend downstream to channels and customers and laterally to manufacturers of complimentary products. Many clusters also include governmental and other institutions that provide specialized training, education, information, research and technical support.”

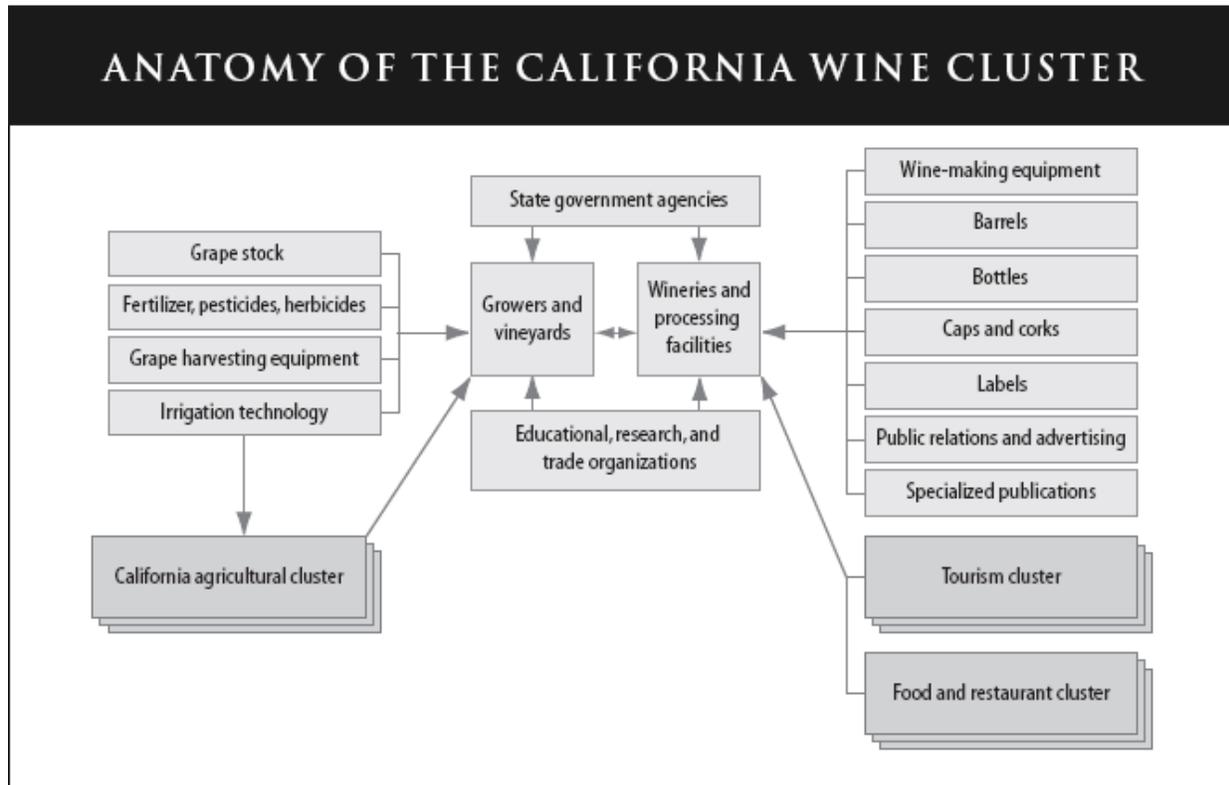
By integrating key components of an industry’s value chain, clusters both support the individual members, e.g., supplier availability, workforce availability, etc., and help to foster a greater competitive environment. Clusters also help to drive innovation as different companies feed off of one another, developing new technology, processes and practices to improve and deliver products and services. Figure 4 below details how multiple forces came together to build, support and promote the California wine cluster.

The logic is solid and the meaning is clear- California leverages multiple companies, entities, institutions and people within a cluster to grow grapes, harvest them and produce wine. It also builds upon that to induce tourism and attract serious foodies who rhapsodize about the appropriate pairings of Merlot versus Cabernet Sauvignon.

But how is this digression relevant to our study of Northeastern Indiana? First, it’s interesting to note that Porter in this original article mapped a variety of select US clusters. One was Warsaw, Indiana for orthopedic devices. Warsaw’s market domination and success was noted over ten years ago and continues today. Clearly, companies and entities within Northeastern Indiana already form a part of a successful cluster, but it is the orthopedic medical device cluster based in Warsaw.

What NEI can do is twofold: continue to support the orthopedic industry in any way it can and further develop areas of potential within medical devices and services that may or may not be relevant to orthopedics. This strategy helps Warsaw to defend its commanding lead in a competitive industry while pursuing and expanding upon existing successes in other key areas such as Health IT. While NEI does not have a medical device cluster in the strict sense of Dr. Porter’s definition, it does have concrete opportunities which it can leverage in the future. In short, the imperative for NEI is the basic “blocking and tackling” that is the sales process in any industry.

Figure 4: A Sample Cluster- The Wine Industry



Source: Porter, Michael, “Clusters and the New Economics of Competition”, *Harvard Business Review*, November-December 1998.

EDUCATION AND DEMOGRAPHICS

“The single most important resource of any cluster in today’s economy is its human capital. Access to a labor pool that knows how to apply its knowledge to the business of the cluster is a key to success. The challenge for states is to effectively interject the right level of cluster context into post-secondary education and the appropriate degree of specialization into higher institutions to meet the needs of clusters that operate in diversified regional economies.”²²

²² A Governor’s Guide to Cluster-Based Economic Development, 2002, National Governors Association

While northeast Indiana's workforce is known for its strong work ethic, it is also known for its relatively low level of educational attainment at a time when businesses are becoming more technology-dependent, meaning that "they need more highly skilled, educated, and talented employees ..."²³ Primary research with regional employers through the strategic skills initiative revealed that there is a growing concern among employers that their employees do not have the skills required in the modern manufacturing environment, causing companies to lose opportunities for expansion and growth. Company executives say they struggle to find new employees who possess the requisite skills to meet the qualifications for their jobs. The foundational skills of reading, math, and computing are most often cited, together with higher level skills of critical thinking, the ability to assess and solve problems, the ability to work in teams, and the ability to use new technologies."²⁴

"Changing demographics and preferences only reinforce the critical nature of a skilled labor supply ..."²⁵ and there are indications that NEI's workforce availability may be adversely affected by this phenomenon. U.S. Census statistics show that between 2001 and 2008 NEI suffered a net LOSS THROUGH MIGRATION of 10,457, i.e. more people migrated out of NEI than migrated in. While there was a LOSS of 18,043 people moving OUT of the region, only 7,586 moved in, and ALL of the latter were immigrants from other countries. (See Figure 5.)

During the same period, NEI employment dropped in all industries with the exception of professional and business services, education and health services, and leisure and hospitality which altogether employ only a few thousand more people than the region's traditional backbone – manufacturing, which dropped from 91,269 in 2001 to 73,352 in 2008 representing a loss of 17,917 jobs or nearly 20%.²⁶

The loss over eight years of over 18,000 people offset by an influx of less than half of that number is a sign that people are looking for jobs elsewhere than NEI. The fact that only one percent of the region's population, according to these figures, is of foreign origin during a period that witnessed a large influx of immigrants to the country as a whole seeking employment is another indicator that jobs are lacking, perhaps especially

²³ Ibid.

²⁴ Talent Opportunity Success (TOPS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

²⁵ A Governor's Guide to Cluster-Based Economic Development, 2002, National Governors Association

²⁶ Employment by County and Aggregate Region by Sector, BLS QCEW.

for the unskilled.²⁷ This point is underscored by the fact that "... the defense/aerospace sector of the region continues to grow and has identified the potential availability of 4,000 new and replacement high technology jobs for the region during the next five years ..." but "...the question is not whether these companies will fill these job opportunities, but whether they will find the talent required to meet the demand and grow right here in northeast Indiana."²⁸

In short, NEI residents with viable job skills continue to look outside the region for jobs. One interviewee put it succinctly: "It's hard to find people. I hire people out of Indianapolis where there is a high interest in medical informatics. There are a lot of good quality people who end up trying to get out of the area. They have stars in their eyes, and they want to head for the West Coast."

The problem was nicely summed up by NKF Consulting: "We heard that Defense Manufacturing and Medical Devices clusters have found that there aren't enough engineers in the region to scale a sizeable manufacturing operation. We heard about the Center for Innovation and Technology plus High Tech High Schools being started in the region and we believe this is a very progressive step in building talent for the future. But to provide that upcoming talent with employment opportunities the region needs to grow a critical mass of industries that would employ such talent. Since this sounds like a chicken-and-egg situation, NE Indiana should focus on innovation and entrepreneurship to build home-grown businesses in these two target industries with just as much vigor and resource deployment as external business attraction ... NE Indiana should create a ... microclimate of innovation and encourage its home grown talent or even attract entrepreneurs from outside by providing them the right combination of **workforce, resources, cost structure and access to capital.**²⁹ (*Emphasis ours*)

²⁷ According to more recent information from the Community Research Institute, the percentage of foreign born population has begun to grow.

²⁸ Talent Opportunity Success (TOPS), proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

²⁹ North East Indiana Opportunity Assessment, NKF Consulting, 2009.

Figure 5: NEI Population
Components of Population Change
2000 & 2008 Population Estimates

	TOTAL POPULATION CHANGE				MIGRATION			POPULATION			
	NATURAL INCREASE	BIRTHS	DEATHS	NET	INTL	INTL AS A % OF 2008 POPULATION	DOMESTIC	RESIDUAL	2000	Jul-08	
Adams County	360	2,684	5,179	2,495	(2,144)	76	0.2%	(2,220)	(180)	33,625	33,985
Allen County	18,674	22,259	43,960	21,701	(1,920)	5,607	1.6%	(7,527)	(1,665)	331,849	350,523
DeKalb County	1,599	1,949	4,730	2,781	(163)	133	0.3%	(296)	(187)	40,285	41,884
Huntington County	(505)	690	3,913	3,223	(1,007)	70	0.2%	(1,077)	(188)	38,075	37,570
LaGrange County	2,263	4,116	5,956	1,840	(1,674)	303	0.8%	(1,977)	(179)	34,909	37,172
Noble County	1,326	2,727	5,883	3,156	(1,218)	1,134	2.4%	(2,352)	(183)	46,275	47,601
Steuben County	154	1,273	3,500	2,227	(920)	169	0.5%	(1,089)	(199)	33,214	33,368
Wabash County	(2,254)	15	3,221	3,206	(2,145)	(4)	0.0%	(2,141)	(124)	34,960	32,706
Wells County	364	807	2,892	2,085	(283)	13	0.0%	(296)	(160)	27,600	27,964
Whitley County	1,960	1,079	3,446	2,367	1,017	85	0.3%	932	(136)	30,707	32,667
10-County Northeast Indiana	23,941	37,599	82,680	45,081	(10,457)	7,586	1.1%	(18,043)	(3,201)	651,499	675,440
Grant County	(4,794)	288	6,840	6,552	(4,717)	106	0.2%	(4,823)	(365)	73,403	68,609
11-County Northeast Indiana	19,147	37,887	89,520	51,633	(15,174)	7,692	1.0%	(22,866)	(3,566)	724,902	744,049

Population Change = Natural Increase plus Net Migration plus Residual

Source: Population Estimates, U.S. Census

The workforce/education problem has been highlighted in nearly every report on NEI that we have seen, and some steps are being taken to correct the situation, but they are for the time being aimed primarily at satisfying the needs of one industry – the 4,000 new jobs projected for the Defense/Aerospace industry. This effort is admirable, and the TOpS 2015 plan focuses heavily on education,³⁰ but it is only a beginning.

That being said, it is probable that the bio-science industry also will benefit from the actions arising from the TOpS 2015 project, which is funded by the Lilly Endowment. In this connection \$5 million in Endowment funds are to be invested over the next three years in K – 12 education, in addition to capital and other school-district borne associated costs. These students can support companies across a spectrum of industry.

³⁰ Talent Opportunity Success (TOpS, proposal to Lilly Endowment Inc. from the Community Foundation of Greater Fort Wayne.)

At the end of the day, through TOpS investment NEI will be able to boast having the largest concentration of New Tech high schools in the United States.

- Six school districts in NEI are working with the national New Tech Network to launch STEM-focused New Tech High Schools in 2009-2011. These include Fort Wayne Community Schools (launched Wayne New Tech in August, 2009); Adams Central School District in Adams County in 2010; East Allen School District in Allen County in 2011; Huntington County Schools in 2010; Lakeland School District in LaGrange County in 2010, and; Whitley County Consolidated Schools in Whitley County in 2011. This will constitute the largest concentration of New Tech High Schools (much less STEM-focused) of any region in the country. There will also be a regional New Tech training facility established in Fort Wayne Community Schools. NEI will be the first in the country to formally define “STEM New Tech” and the curriculum related thereto.
- NEI is initiating a region-wide professional development initiative for all school systems in the region to expand the use of project-based methods of instruction (PBL) and development/use of strong STEM curriculum. Goal is to establish sustainable “embedded professional development” programs in all schools to strengthen PBL and STEM efforts.

There are other bright spots related to education:

- \$2.6 million is being invested in new advanced manufacturing equipment at a new regional technology center (The Steel Dynamics-Keith Busse Technology Center) at Ivy Tech – to open this December.
- \$4.5 million is being invested at IPFW to support two new endowed professorships in Systems Engineering and Wireless Communications – and development of new labs to serve both degree areas.

Such efforts are admirable and demonstrate that the region’s educational shortcomings are recognized. ***But competition for skilled workers is high, and without a concerted effort to foster home-grown businesses and to attract entrepreneurial interest from outside, workforce education alone will not suffice*** because talented workers will look for jobs elsewhere.

LEVERAGING PAST STUDIES AND CURRENT REALITIES

The challenges and opportunities affecting NEI have been long recognized, but from all indications there has been little progress toward resolving and seizing them. The fact that this project was undertaken, the latest of a long string of related studies and projects, is indicative that the catalyst for major change has yet to be found, either locally, within the state, or nationally. Where is the spark that will ignite the torch?

A good starting point is an analysis of NEI's strengths, opportunities, weaknesses, and threats (SWOT Analysis). (See Figure 6) In line with our previous comments on the NEI – Warsaw relationship, it will be noted immediately that the region's proximity to Warsaw is listed both as strength and a "threat."³¹ There is a geographical and industrial continuum between them that is equally important for both, but as has been illustrated NEI should also target indigenous pockets of opportunity.

Even as a source of support services to the medical device industry, we wonder if local entrepreneurs have devoted as much energy to attracting business from the Southeast Michigan Medical Device cluster as they have from Warsaw.

Similarly, "lack of coordinated organization/leadership" is listed as a weakness and its corollary, "set your own course; build confidence" as an opportunity. This, we believe, should be a major take-away from this project, and this view was borne out by several key stakeholders:

- "Attitude – People don't understand the dynamics of change and the opportunities that come up with change."
- "What's the driving force (behind the cluster)? There's been no natural leader."
- "Companies in NEI are not looking at the long-term perspective ... The region will not be where it needs to be in 10 – 20 years if it does not have a core group that builds the product now ..."

Health IT / EMR: While most of the points shown in the SWOT analysis are self-explanatory, Health IT / EMR requires some emphasis, given its significant growth potential, a fact recognized by the recent formation of ALHIT. (Please see page 14, above.)

The IHIF asset mapping report singled out health IT "... as a promising area for future development, with a notable strength in informatics."³² The location of PearlDiver, Inc. in Ft. Wayne could be a marker for the expansion of the Health Information Technology / Electronic Medical Records industry in NEI. PearlDiver is a growing company that delivers searchable information services to the medical industry, with considerable emphasis on informatics for orthopedics. TriPratix, LLC is another Health IT provider in Ft. Wayne that provides systems integration services.

³¹ In this instance, "threat" is a technical term relating to the S.W.O.T. analysis.

³² IHIF Regional Asset Mapping Report, 2009 (p.2)

EMR is a sector poised for a large growth spurt. “In 2009, Electronic Medical Record (EMR) is the bread and butter concern of the health information technology marketplace. Government initiatives (most recently stimulus bill EMR provisions) and cost concerns are key drivers of EMR and will continue to drive purchases of EMR systems in the near future. Technologies such as patient monitoring systems and handheld devices will need to adapt to EMR systems to thrive. Those seeking to understand the health IT market will need to build products that address the need for EMR, or work around existing systems, and an understanding of EMR products in the marketplace is critical.”³³

Equally critical and complementary to EMR is EHR (Electronic Health Records). “The EMR is the legal record created in hospitals and ambulatory environments that is the source of data for the EHR. The EHR represents the ability to easily share medical information among stakeholders and to have a patient’s information follow him or her through the various modalities of care engaged by that individual. Stakeholders are composed of patients/consumers, healthcare providers, employers, and/or payers/insurers, including the government.”³⁴ One company already working in NEI in this area, as well as EMR, is Medical Informatics Engineering.

³³ Kalorama Information, January 1, 2009

³⁴ Dave Garets and Mike Davis, Electronic Medical Records vs. Electronic Health Records: Yes, There Is a Difference, HiMSS Analytics, LLC, 2006

Figure 6

S.W.O.T. ANALYSIS FOR NEI

<p>Strengths:</p> <ul style="list-style-type: none"> • Manufacturing expertise • Adjacent to Warsaw industry • Central Location • Transportation assets • Patient Care Leader • Indiana's reputation in industry • Attractive Lifestyle, low COL • Innovation Center 	<p>Opportunities:</p> <ul style="list-style-type: none"> • Market: Health IT / EMR • Market: Warsaw and statewide existing industry • Market: Materials machining • Set your own course; build confidence • Possible orthopedic shift to biologic emphasis
<p>Weaknesses:</p> <ul style="list-style-type: none"> • Undereducated workforce • Supplier orientation • Reliance on Warsaw OEMs to drive development efforts • Lack of coordinated organization / leadership • Matching capital supply and demand • Weak communications 	<p>Threats:</p> <ul style="list-style-type: none"> • Adjacent to Warsaw Industry • Possible regulatory clampdown on prices • Possible orthopedic shift to biologic emphasis • Becoming "order-takers" • Complacency

"Despite all the dire talk in healthcare circles about the impact of the recession on capital spending, since health IT has been identified by the... administration as a key component of its economic stimulus plan, that sector is poised for unprecedented growth ... Kalorama Information forecasts the EMR market to grow by 14.1 % annually from \$9.5 billion in 2007 to almost double that, \$18.4 billion in 2012. The emerging personal health record trend will have a vast impact on the EMR market and on healthcare in the upcoming year and beyond."³⁵ Moreover, the stimulus spending plan includes "a healthy \$20 billion in IT spending that will largely be funneled through CMS to provide incentives for EMR adoption."³⁶

³⁵ www.glgroup.com

³⁶ FierceHealthIT, Weekly News for Health IT Leaders, February 23, 2009.

As of 2006 less than 10 percent of American hospitals had a fully integrated EMR system.³⁷ Again, enter the stimulus plan due to which many hospitals and physicians may be able to update their systems. **Indiana now is in a leadership position in EMR growth.** Lead by the Indiana Health Information Exchange ... (created by the BioCrossroads) ... the ...state is home to not one but four operating health information exchange organizations. This represents a remarkable development as many states in the U.S. today don't even have a single health information exchange that's nearing implementation much less operational."³⁸

Kalorama predicts that the following companies will be players in the HIT/EMR industry: Google, Microsoft, General Electric, McKesson, Siemens, Allscripts, Quality Systems, Inc., Cerner, eClinical Works, and Eclipsys.³⁹ Unsurprisingly, the conventional wisdom is that the large companies will play a large role in this arena.

Radio Frequency Information Devices (RFID) also should experience significant growth in the health industries. The Federal Drug Administration "... sees RFID technology as critical for the long-term safety and integrity of the U.S. drug supply. RFID allows pharmaceutical packages to be tracked, traced and authenticated throughout the chain of distribution..."⁴⁰ Other potentially widespread applications include medical devices, such as the SurgiChip tag, "...an external surgical marker that is intended to minimize the likelihood of wrong-site, wrong-procedure and wrong-patient surgeries"⁴¹, approved by the FDA in 2004. Another type is the "... implantable radiofrequency transponder system for patient identification and health information."⁴²

At the Dormer School of Business at IPFW, educators recognized this opportunity as well, creating a RFID lab at the BEST Institute. According to IPFW's website, it will be the only lab like this in the state with a conveyor system donated by Shuttleworth and

³⁷ <http://www.midwestbusiness.com/news/viewnews.asp?newsletterID=19657>, May 21, 2009

³⁸ Ibid.

³⁹ www.glgroup.com

⁴⁰ Patricia Kaedling, RFID medical devices – Opportunities and challenges. <http://wistechnology.com/articles/2384>, October 19, 2005

⁴¹ Ibid

⁴² Ibid

RFID readers and printers to perform research and publications on the environmental challenges and ROI of RFID.⁴³

Northern Apex Corporation of Ft. Wayne has developed a product to enable RFID read, thermal print report and touch screen interface for medical device filter verification, as well as RFID enabled critical information about the wound healing process.

Solstice Medical, LLC of Ft. Wayne is marketing a line of leading edge ultra high frequency identification tag technology for reusable surgical devices.

Manufacturing support in the form of sophisticated materials machining is an already recognized NEI strength and represents an important support for the medical device and orthopedics industries. “This is an area of continued opportunity for the region. As more opportunities for the production of generic medical devices emerge, these companies will be well-positioned to provide contract manufacturing services for new players ...”⁴⁴

Innovation is the lifeblood of entrepreneurship, and imagination is the only limitation on innovation. The heavy concentration on orthopedics in Warsaw and NEI should not foreshorten the horizon for economic development possibilities in the bio-sciences industry. The region has the wherewithal to think about ultrasound, portable ultrasound, new 3-D visualization techniques (software), robotics and extreme miniaturization (nanotechnology), and neuro-technology. Many interviewees also have zeroed in on the growing need for local sterilization facilities, and “... new methods will be required for sterilization of (the) active electrical components (that would be incorporated into advanced medical devices) that would be damaged if sterilized with irradiation methods.”⁴⁵



⁴³ <http://www.ipfw.edu/bms/centers/best/rfidlab.shtml>

⁴⁴ IHIF Regional Asset Mapping Report, 2009 (p.12)

⁴⁵ Wayne Rogers, Imagining the Future of Medical Devices, Medical Device Link, 2009

The Ft. Wayne Metropolitan Statistical Area (MSA) ranked in the middle (172 out of 392) of an entrepreneurship index, comparing it to other MSAs across the country. This is not the worst position, but it's not the best either. **NEI needs to aim higher than average.**⁴⁶

A more recent report⁴⁷ compares the ranking of 136 metropolitan areas, including Ft. Wayne, with populations of between 300,000 and 3.5 million according to four indicators “that are positively associated with growth in per capita income: Skilled Workforce and R&D, Technology Commercialization, Racial Inclusion and Income Equality, and Locational Amenities.”⁴⁸ Out of the 136 metropolitan areas, Ft. Wayne ranks 126th out of 136 (1 is the highest ranking) for technology commercialization; 53rd for business dynamics; and 121st for Individual entrepreneurship. It is significant also to note that in the category of Skilled Workforce and R&D, Ft. Wayne's ranking dropped from 89th in 2005 to 104th in 2007. The variables used to determine this ranking “describe the quality of the regional labor force by its educational level (percentage of population with graduate or professional degrees and percentage of population with bachelor's degrees) and occupational level (percentage of population in professional and managerial occupations),”⁴⁹ as well as other variables that describe the level of innovative activity in a region that closely correlates with advanced education and occupations. This serves once again to underscore the fact that NEI is served poorly by a relatively low level of educational achievement.

The fact that this study was commissioned is an indication that regional stakeholders clearly recognize the challenges that face them. There have been some successes in the past, notably ICOR, which was established as a partnership between the city of Fort Wayne, the Alliance and the Northeast Indiana Innovation Center (NIIC) in 2005 with \$50,000 annual support from each. The goal of ICOR was to strengthen Fort Wayne/Allen County's position in orthopedics through attraction (the Alliance's primary objective), of start-ups (NIIC's primary objective) and creation of a sector strategy.

⁴⁶ The Innovation-Entrepreneurship NEXUS, A National Assessment of Entrepreneurship and Regional Economic Growth and Development, April 2005, Advanced Research Technologies, LLC, Powell, OH, p. 63.

⁴⁷ Regional Dashboard of Economic Indicators 2009: Comparative Performance of Leading, Midwest, and Northeast Ohio Metropolitan Areas, Cleveland State University, July 2009, <http://www.futurefundneo.org/page10474.cfm>

⁴⁸ Ibid

⁴⁹ Ibid p. 62

The ICOR initiative attempted to meet some of the challenges we have identified and enjoyed some successes during the time it was in existence, but it ceased operations after two years. ICOR:

- Started an outreach program to attract companies to the area. One company, PearlDiver was successfully attracted to Ft Wayne, the Orthopedic Design & Technology conference was also attracted through ICOR's efforts;
- Facilitated a trip to the world's largest medical device exhibition (Medica in Dusseldorf, Germany);
- Created a value chain model of the industry to identify existing FTW/Allen County companies and supply chain gaps; frequent interaction with regional firms to encourage networking/connections between firms; met with Memphis BioWorks and InMotion Orthopedic Research Center to learn from their experience
- Start-up businesses - supported entrepreneur's start-up of Knight Mechanical Testing;
- Worked with Paragon Medical and IU Medical School to facilitate use of cadaver lab at IUSM for product development tests;
- Developed relationships with orthopedic-focused venture capitalists; connected regional entrepreneurs with sector-specific sources of venture capital. Included trips to New York City and Memphis to introduce region to national Venture Capital and investment banks with an orthopedics/medical device focus; EDF Ventures and Spring Mill Ventures made routine stops at NIIC;
- Organized an orthopedic innovation conference that attracted over 100 attendees with NIIC; established a quarterly "lunch and learn" program for NIIC companies;
- Built strong relationships with Warsaw orthopedic companies where we were able to easily access industry leaders - introduced FTW companies to orthopedic firms;
- Liaison with related statewide programs - BioCrossroads (Indiana Seed Fund), Indiana 21st Century Fund, Eli Lilly and Company.

The persistent challenge that today confronts those individuals and entities responsible for promoting the region's economic growth is to determine why the strategy recommendations contained in the IHIF report and other, previous works have not been adopted. What are the barriers to the invigoration, innovation, and growth of the life sciences sector?

The current economic environment does not favor small-cap companies, a group on which NEI must concentrate. Large cap companies enjoy considerable advantages in weathering a recessionary period. They have "generally stronger balance sheets, which

do not require deleveraging to the extent their smaller (still growing) competitors need. Another is their lesser dependence on discretionary spending.”⁵⁰

How, then, is NEI to overcome barriers to development and growth? As one person put it, “Let’s just roll up our sleeves and begin the hard work!” As noted above, a cluster is not simply a group of companies engaged in similar business activities. Clusters are distinguished by a gestalt realization that a rising tide lifts all boats. Clusters also require dedicated leadership and direction, something NEI currently lacks. Besides the enormous influence of the Warsaw cluster, one reason may be that the medical-device related companies in the region are relatively small and lack the manpower to dedicate the people with leadership skills to cluster development efforts. They have only a few key people, and these must devote their time to running their businesses. Large cap companies, on the other hand can more easily afford to “lend” the time of executives to engage in cluster activities.

The creation of an entity dedicated full time to cluster development will be critical to the life sciences in NEI. Such an entity need not be densely staffed and salaries could be paid from a private funding pool provided on a mutually agreed basis by those interested in cluster development. Such a plan would require enthusiastic efforts to recruit companies into the cluster and careful selection of qualified individuals to the position. In order to jump start such an effort, NEI might consider seeking a state or federal grant to cover first year expenses.

⁵⁰ Bucking the Trend, Steve Halasey, <http://www.chooseneindiana.com>

But not everyone sees small company size as a disadvantage. “The economic recession may have an impact on investments in emerging technologies, hospital purchasing trends, patient preferences for care, and even the types of care provided,” says Frost & Sullivan’s (Industry Advisor for Medical Devices) Venkat Rajan, “But that is not to say there are not opportunities for growth and innovation. Challenges give rise to new opportunities and innovative problem solving.

“When things are going well, there is often a reluctance to alter practices and strategy. But as healthcare providers and medical device manufacturers begin to struggle, they could seek to launch new practices and technologies that streamline the provision of care,” he explains. “Issues that were once merely concerning may be amplified in importance, and could become the difference between maintaining the organization’s bottom line and business failure.

Rajan believes the individuals and entities that are most ready to adapt and take advantage of new opportunities should come out of the recession stronger and more ready to compete in the industry for the long term. Meanwhile, he says, stodgy, weaker firms working under older paradigms will fall away.

“The measure of a company’s potential for success isn’t necessarily what products it offers, but the type of solution it is able to provide,” adds Rajan.

Source: See Footnote 40

Climate of Opportunity: We agree wholeheartedly with the suggestion from NKF Consulting that “NE Indiana should create a ... microclimate of innovation and encourage its home grown talent or even attract entrepreneurs from outside by providing them the right combination of workforce, resources, cost structure and access to capital.”⁵¹

NEI possesses many advantages that might be better exploited. **Quality of life** is one of them. One interviewee, on a pessimistic note, told us that “we might have an excellent comparative cost of living, but so do hundreds of other regions.” That may be true, but there are 1,000’s of other regions that do not. Therefore, the glass is half-full rather than half-empty. How many people who already work in Warsaw prefer to live in NEI?

⁵¹ North East Indiana Opportunity Assessment, NKF Consulting, 2009

Venture capital is critical to start-ups, and the Midwest has performed poorly attracting such capital, especially since the recent economic downturn. “And venture capitalists do far fewer deals in the Midwest than in Silicon Valley or New England. Or in New York City, Los Angeles or Texas”, according to first-quarter MoneyTree Report by PricewaterhouseCoopers and the National Venture Capital Association.

“Of the \$3 billion invested nationwide during the quarter, just \$14 million was invested in Indiana and \$25 million in Ohio, the report said. But venture capitalists invested \$175 million in Texas during the same period.”⁵²

This means there is a lot of competition for scarce resources. Capital is available (See Appendix C for a list of NEI venture capital sources), but only for those who can present a compelling case that their idea deserves it. According to Bill Todorovich, assistant professor of small business and entrepreneurship at Indiana University-Purdue University Fort Wayne, only a small fraction of those seeking start-up capital come forward with well-developed business plans.⁵³

No matter how good the idea or product, without a well constructed business plan that demonstrates real money-making potential, it will not receive financing. This strongly suggests that NEI should consider offering services to assist entrepreneurs in writing and presenting their ideas. One major benefit of the region is its talent pool of experienced orthopedics executives. Having a strong management team greatly increases the possibility of any plan getting funded, therefore would be entrepreneurs should not overlook these individuals.

In tandem with venture capital is a **focus on small businesses**. The future of NEI success as both a buttress to Warsaw and developing opportunities in its own right depends on entrepreneurial success. Most, if not all, NEI bio-sciences stakeholders are small businesses. A survey of existing businesses by the Regional Partnership to determine exact needs would be useful, followed by liaison with the Northeast Indiana Innovation Center to fill holes identified in such survey and then collaboration with them and other groups (chambers, Rotary, etc.) to foster connections between and among the businesses. This is already happening, but innovation is the key to clusters. The more the pot can be stirred, the better.

⁵² “Financiers see little allure in Midwest”, Marty Schladen, *Fort Wayne Journal Gazette*, September 7, 2009

⁵³ Ibid

One example of innovation being brought to a regional outreach level is The Northeast Indiana Innovation Center's [NIIC] goal is to develop ideas and grow businesses. The Center nurtures technology businesses during start-up, early development, and the growth stages. Several key services assist nascent, emerging growth, and established business success related to the biosciences:

- Management consulting: The Center for Entrepreneurial Excellence supports new ventures through comprehensive business development services with entrepreneurs, covering ideation, planning both in the venture, start-up, spin-off, stage-gate product development and product line expansion phase of development. In addition, NIIC has collaborative educational partnerships for service learning, applied student projects, and student consulting projects through, on site residency of the, Taylor University's accelerated MBA program.
- Bioscience incubation space: The Biomedical Technology/Advanced Security wing of the Innovation Center houses laboratory-based suites. Wet lab space is also available. A Biomedical Common Equipment Rooms serve all bio-tech residents.
- IPFW RFID Lab: The RFID lab stimulates the commercialization and application of new RFID technologies. The RFID Lab has equipment and software (e.g., RFID printers and readers, RFID access portals, conveyors, enterprise software) to explore applied RFID solutions. This lab provides a focal point for collaboration among IPFW students, RFID companies in logistics, warehousing, and health care among others, and firms that use RFID applications.
- Funding access: NIIC Capital Ventures addresses financial issues in new ventures through its LEAP Fund. It is a capital access program operated by the Innovation Center and complements private sector match funding for the capital needs of promising clients through gap financing pre-seed and start-up stage funding, asset-based leasing, and working capital loans.
 1. Gap financing: For uses such as prototype development, feasibility studies, and business plan creation. It is usually tied to a specific project and may be as large at \$50,000.
 2. Asset-based leasing: Provides up to \$25,000 for a client to lease equipment needed while resident at the Innovation Center.
 3. Revolving working capital loans: These loans counter the cyclicity of the technology sales cycle may range from \$5,000 to \$15,000.

Investments are made through the Innovation Center's LEAP Fund. To date, nearly \$500,000 has been committed to the fund, of which, a \$250,000 funding commitment has been made by the City of Fort Wayne. The Fund provides no return of capital to investors; all profits and ROI revolve and are reinvested into the Fund.

- Educational partnerships: Entrepreneurs and students work together at NIIC in several ways: Internships, applied and service project-based learning, and classroom "hands- on" training. Interns are available from a selection of institutions:

Indiana Tech, IPFW, Ivy Tech, Manchester College and Taylor University. Huntington University houses a virtual incubation program through a management agreement with the NIIC. This program is called Venture Works.

A recent announcement about future physical growth at the Center may open up heightened opportunities for the bioscience industry: “The plans include a 25,000-square-foot Global Design and Technology Center and a 17,000-square-foot Center for Leadership in Advanced Manufacturing Performance. Innovation Center officials said those buildings are expected to be complete by the end of next year [2010].”⁵⁴

⁵⁴ *Fort Wayne Journal Gazette*, October 20, 2009.

GOING FORWARD: PLAN FOR ACTION

Vision Statement: Northeast Indiana is one of the nation’s best locations for technical support and start-ups in the biosciences with particular expertise in biosciences and Health IT.

Mission Statement: Create and support a technical and entrepreneurial environment that makes NEI product and service organizations preferred suppliers for most bioscience device companies in the U.S.

Organization:

Steering Team: Industry experts who understand the market needs, have deep contacts in the industry, the credibility to make calls and the stature in the community to drive our key messages. Proposed members:

(To come)	Lutheran Health Network
Buck, Toby	Paragon
DeTore, Art	Parkview Hospital
Emerick, Brian	Micropulse
Horner, Doug	Medical Informatics
Kusisto, Ray	Ortho NE
LePan, Karl	Innovation Center
Marr, Rob	C&A Tool
Myers, Bob	Fort Wayne Metals
Ryan, Sean	IPFW
Schwartz, Herb	Schwartz Biomedical
Sharma, VK	Trine University
Young, Rob	Pearl Diver

The Steering Team has clearly stated the need for quick and visible responses as a key to the success of this strategic plan. The following set of objectives and action items is configured to drive that success in two phases: 1) A “Start-up” set of actions to be done as the role of Market Maker is defined and recruited. 2) A sub-team set of responses and actions that begin work in key areas of immediate need. The workforce action items are defined well beyond the recruiting of a Market Maker because workforce items are critical to define and start; there needs to be a clear direction early in those efforts. **Note:** The work that needs to be done to build a Bioscience Cluster is not something that can be hired-out, delegated and passively handled by bioscience professionals in NEI. Everyone has a stake in the effort if it is to succeed.

Strategic Responses:

1. Show that there are immediate steps (“start-up actions”) being taken to move the region ahead in biosciences to jump-start forward movement in this industry
2. Pro-actively manage workforce issues in biosciences and unify the educators and trainers behind the bioscience and other technical cluster needs
3. Define and recruit a catalytic “market maker” who bridges industry needs and Northeast Indiana capabilities, enhancing capabilities in the process
4. Enhance communications to the public and key leaders about the potential of the bioscience market and the gaps that need to be filled in Northeast Indiana to tap that market

Action Items:

Work Area	Objective	Action item	Due Date
Start-up Actions	Obj: Build inter-Cluster teamwork	Define the Bioscience Core Team for 1/1/10 - 12/31/11; identify chair and leads for (A) Workforce, (B) Market Catalyst, (C) Communications	12/8/2009
Start-up Actions	Obj: Build inter-Cluster teamwork	Define industry leadership Core Teams for bioscience, defense and food processing clusters	12/10/2009
Start-up Actions	Obj: Build inter-Cluster teamwork	Map a unified method to manage the Clusters and communicate with industry and media; identify lateral needs of the Clusters and common action items	12/18/2009
Start-up Actions	Obj: Build inter-Cluster teamwork	Map the industry segments and technical focus of the Core Team members; identify gaps and recruit as needed	12/18/2009
Start-up Actions	Obj: Build inter-Cluster teamwork	Identify mechanism to support tactical activities of the three clusters	1/6/2010
Start-up Actions	Obj: Build inter-Cluster teamwork	Announce 3 Cluster plans (Chamber event? It has no events listed after December – open)	01/12/10 (approx)
Start-up Actions	Obj: Catalyze the NEI market	Define the Bioscience Market Maker: Goals, reporting mechanisms, funding, recruiting	1/15/2010

Work Area	Objective	Action item	Due Date
Start-up Actions	Obj: Catalyze the NEI market	Recruit the Bioscience Market Maker	3/1/2010
Start-up Actions	Obj: Unify education efforts across Clusters	Create a competency grid for professionals and craft employees who can serve each of the new Clusters: Bioscience, aerospace/defense and food processing	12/15/2009
Start-up Actions	Obj: Unify education efforts across Clusters	Identify area youth leaders who can advance bioscience or engineering careers	12/15/2009
Start-up Actions	Obj: Unify education efforts across Clusters	Convene the tech high school leaders and the 3-Cluster education leads to: (A) Define competencies and resources for high school students in these clusters; (B) Frame-up an engineering professional group or other youth group for engineering in the tech high schools	1/8/2010
Start-up Actions	Obj: Unify education efforts across Clusters	Convene the lead technical and engineering stakeholders for the universities, tech schools and public schools in a session to communicate the needs and facilitate action items to move ahead as a region	1/15/2010
Start-up Actions	Obj: Unify education efforts across Clusters	Recruit a team to investigate and, if possible, start an engineering charter school in Fort Wayne or a strong bioscience emphasis at a tech high school	2/1/2010
Start-up Actions	Obj: Unify education efforts across Clusters	Inventory multi-year industrial needs for engineering and craft positions among the medical/health device/service companies in the region	2/1/2010

Work Area	Objective	Action item	Due Date
Start-up Actions	Obj: Investigate bioscience mega-region	Investigate the way that the Warsaw/NEI/SE-Michigan region could be defined as a bioscience mega-region; identify "competition" worldwide	1/15/2010
Start-up Actions	Obj: Investigate bioscience mega-region	Develop an NEI Orthoworx SWAT Team to identify market opportunities that align with NEI strengths	1/15/2010
Start-up Actions	Obj: Investigate bioscience mega-region	Detail existing supply ties to nearby medical/health device clusters in Indiana and Michigan (drives BRE possibilities for NEI firms)	1/30/2010
Start-up Actions	Obj: Investigate bioscience mega-region	Create NEI bioscience communication materials for neighboring clusters	2/15/2010
Start-up Actions	Obj: Investigate bioscience mega-region	Conduct the ambassador trip to SE Michigan	2/26/2010
Market Making	Obj: Enhance data in E-Pulse	Examine NEI E-Pulse questionnaire for database building to capture more critical bioscience trends	12/20/2009
Market Making	Obj: Enhance data in E-Pulse	Propose and adopt E-Pulse questionnaire changes to provide as focus on bioscience for those clients who are appropriate	1/15/2010
Market Making	Obj: Enhance data in E-Pulse	Assemble and finalize the list of target interviews for Bioscience E-Pulse universe	1/15/2010
Market Making	Obj: Enhance data in E-Pulse	Train interviewers and economic developers on the new questionnaire direction for CRM information for bioscience	2/1/2010
Market Making	Obj: Enhance data in E-Pulse	Complete first wave of E-Pulse interviews with industry base	8/1/2010
Market Making	Obj: Enhance data in E-Pulse	Run first report on economic development potential for bioscience based on E-Pulse input	8/15/2010

Work Area	Objective	Action item	Due Date
Market Making	Obj: Enhance data in E-Pulse	Steering Team analyzes E-Pulse report and formulates next steps for greater capital investment, jobs	9/15/2010
Market Making	Obj: Enhance data in E-Pulse	Plan ambassador trip to SE Michigan by Bioscience leaders (like a Chamber city visit)	1/30/2010
Market Making	Obj: Enhance data in E-Pulse	Conduct ambassador trip with SE Michigan bioscience firms	2/26/2010
Market Making	Obj: Enhance data in E-Pulse	Debrief SE Michigan trip; follow-up	3/5/2010
Market Making	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Determine feasibility of forming a university-based consortium which could provide royalty-free licenses for new technologies to members	4/1/2010
Market Making	Obj: Develop the supply chain	Identify supply chain gaps in NEI through input from the industry	4/1/2010
Market Making	Obj: Develop the supply chain	Convene small group "advanced" session with best new supply chain prospects and education, policy and industry reps; purpose is to move them ahead in the effort to supply the industry	4/15/2010
Market Making	Obj: Develop the supply chain	Run a bioscience suppliers conference to encourage new entries into the system (especially current NEI firms)	5/1/2010
Market Making	Obj: Develop the supply chain	Create a legislative discussion forum with elected officials or their reps to create a unified call for policy action (possibly combine with supplier session for a bigger draw)	5/1/2010
Market Making	Obj: Develop the supply chain	Identify current NEI commercial interests that could fill the gaps	6/1/2010

Work Area	Objective	Action item	Due Date
Market Making	Obj: Create a BioCrossroads / Orthoworx outreach team to identify and develop market opportunities	Develop an Orthoworx SWAT in NEI to identify market opportunities that align with NEI strengths	2/15/2010
Market Making	Obj: Create a BioCrossroads / Orthoworx outreach team to identify and develop market opportunities	Finalize opportunities from Orthoworx	4/1/2010
Market Making	Obj: Build a technical camaraderie among the Fort Wayne residential audience affiliated with biosciences	Develop a young professionals (engineering/scientific) organization to build the local the social network (and loyalty); tie to experienced retired execs from the industry	3/15/2010
Market Making	Obj: Build a technical camaraderie among the Fort Wayne residential audience affiliated with biosciences	Hold first session of the young professionals group	5/1/2010
Market Making	Obj: Increase R&D spend in NEI	(Awaiting recruitment of Market Maker)	On-going
Workforce	Obj: Define workforce needs across the tech/engineering spectrum in NEI	Match industry needs with education capacities through the cross-cluster task force	3/1/2010

Work Area	Objective	Action item	Due Date
Workforce	Obj: Define workforce needs - tech/engineering in NEI	Build communications plan around bioscience job needs	3/15/2010
Workforce	Obj: Define workforce needs across the tech/engineering spectrum in NEI	Develop articulation agreements to allow for college credits to be earned in high school for craft and engineering programs	3/15/2010
Workforce	Obj: Define workforce needs across the tech/engineering spectrum in NEI	Do gap analysis in current education offerings versus needs in the industry	4/1/2010
Workforce	Obj: Define workforce needs across the tech/engineering spectrum in NEI	Create remediation plans in conjunction with higher education task force	6/1/2010
Workforce	Obj: Inventory/enhance resources for classroom education	Define funding opportunities/targets for craft training and the way that a regional approach strengthens grant applications	2/1/2010
Workforce	Obj: Inventory/enhance resources for classroom education	Create an educational resource base for bio-sciences speakers and internships	2/1/2010
Workforce	Obj: Create an aggressive outreach to youth	Identify opportunities to enhance high tech high school ties to bioscience	2/1/2010
Workforce	Obj: Create an aggressive outreach to youth	Build a high school counselor network that moves young people toward the bioscience and service sector as a career	2/1/2010

Work Area	Objective	Action item	Due Date
Communications	Obj: Develop/execute a regional communications plan with industry influentials	Finalize message block	1/8/2010
Communications	Obj: Develop/execute a regional communications plan with industry influentials	Recruit and train key stakeholders for our regional bioscience message	2/1/2010
Communications	Obj: Develop/execute a regional communications plan with industry influentials	Engage local media for editorial boards about the industry	1/15/2010
Communications	Obj: Develop/execute a regional communications plan with industry influentials	Identify and secure speaking engagements; place stories	Ongoing
Communications	Obj: Ensure that employees in bioscience and related businesses know the economic development messages for the industry	Create template communications that local companies in the region can use in their corporate communications to support the region	1/15/2010

Work Area	Objective	Action item	Due Date
Communications	Obj: Ensure that employees in bioscience and related businesses know the economic development messages for the industry	Create and distribute a newsletter/web column about the industry for “insiders”	3/1/2010
Communications	Obj: Engage affinity groups in economic development and engineering/tech fields to communicate our key messages	Identify entrepreneur affinity groups or other leadership efforts that can carry the NEI message; join the groups (Venture Club of Indiana, Indiana Economic Development Council)	1/15/2010
Communications	Obj: Engage affinity groups in economic development and engineering/tech fields to communicate our key messages	Identify engineering trade groups; identify meetings and communication opportunities	2/1/2010
Communications	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Work with bioscience companies and the Innovation Center to develop network of knowledgeable executives and entrepreneurs who can advise start-ups	Ongoing

Work Area	Objective	Action item	Due Date
Communications	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Inventory a short list of most strategic publications in the industry to target	1/15/2010
Communications	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Gather editorial calendars for media sweet spots; make contact with editors to start the relationship; determine key editorial needs	2/15/2010
Communications	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Send first editorial item based on media analysis (above)	5/1/2010
Communications	Obj: Make connections to create and attract high-potential bioscience companies and product lines	Establish plans for a presence at appropriate industry conferences to raise national/international awareness (define 'presence'; not suggesting trade show booth)	05/01/10 (start)

APPENDICES

APPENDIX A: Major Employers By Targeted Industry- Medical Devices⁵⁵

Company	County/Counties	Product/Services	Employment
C & A Tool Engineering	DeKalb, Whitley	Metalworking Machinery Manufacturing for Medical Device Industries	530
Fort Wayne Metals Research Products Corp.	Allen	Wire for Medical Devices	514
Symmetry Medical Inc.	Noble	Orthopedic & Surgical Instruments	163
Micropulse	Whitley	Medical Devices for Cardiovascular and Orthopedic Applications	160
Pyromation	Allen	Temperature Sensors for Medical	150
Metal Spinners Inc.	Steuben	Metal Spinning	124
Group Dekko ¹	Noble	Therapeutic Medical Equipment and Devices	89
CNC Industries	Allen	Precision Machining; Medical	60
triPractix	Allen	Electronic Medical Records and Communication	57
BKB Manufacturing	Wabash	Tools for Cutting Chrome, Titanium, and Steel	55
Custom Magnetics	Wabash	Transformers and Coils	45
Medical Informatics Engineering	Allen	Personal Health Record Software System	44

⁵⁵ Source: www.chooseneindiana.com

Stroufe Healthcare Products	Noble	Cast Boots and Orthopedic Soft goods	44
Fort Wayne Mold & Engineering	Allen	Metalworking Machinery Manufacturing	42
Calico Precision Molding LLC	Allen	Molded Rubber Products; Medical	39
Precimed	Whitley	Orthopedic Supplies	30
Vita Nonwovens	Allen	Nonwoven Fiber for Medical Industry	25
Nemcomed	Allen	Implants and Research & Development	20
Panoramic	Allen	Dental X-Ray Machines	20
Production Technology	Allen	Dental X-Ray Machines	20

APPENDIX B: “Ohio Becoming Global Hub for Biomedical Research and Commercialization”⁵⁶

SOURCE Ohio Business Development Coalition (November 12, 2008)

COLUMBUS, Ohio, Nov. 12 /PRNewswire/ -- Ohio aims to become a global hub for biomedical research, commercialization and innovation after the recent launch of the BioInnovation Institute located in Akron, Ohio. According to the Ohio Business Development Coalition, the nonprofit organization that markets the state for capital investment, the BioInnovation Institute will bring together Ohio's world-class organizations, researchers and educators in the polymer industry and biomaterials and biomedical fields to generate the next generation of life-enhancing innovation for the 21st century.

The result of public-private partnerships from organizations throughout the state, the BioInnovation Institute will create a nationally distinctive center of excellence by drawing talent from across the globe, increase annual funding for Ohio's polymer industry and biomedical research, increase investment by national firms into the state and bring thousands of new jobs to Ohio by 2018.

"The BioInnovation Institute in Akron is uniquely positioned to meld the state's traditional strengths in research and education in both the polymer industry and biomedical excellence to create transformational new technologies with a direct impact on the people we collectively serve," said William H. Considine, chairman of the BioInnovation Institute and president and chief executive officer of Akron Children's Hospital. "Our vision of making Akron, and the state of Ohio, a national leader in the biomedical field is absolutely attainable given our intellectual, educational, research and commercial strengths."

Founders of the BioInnovation Institute include Akron Children's Hospital, Akron General Health System, Northeastern Ohio Universities Colleges of Medicine and Pharmacy (NEOUCOM), Summa Health System and The University of Akron. Faculty members will include researchers, physicians and educators from the partner organizations.

The John S. and James L. Knight Foundation led the funding effort to create the BioInnovation Institute with a \$20 million grant. Supporting partners have secured \$80 million overall for the project. The state of Ohio also has contributed more than \$8 million through the Ohio Third Frontier Project, a 10-year, \$1.6 billion initiative to help

⁵⁶ SOURCE: Ohio Business Development Coalition (November 12, 2008)

catalyze connections between companies and academia. The project is the state's largest-ever commitment to expanding high-tech research capabilities and promoting innovation and company formation that will create high-paying jobs for generations to come.

"Ohio leads the world in advanced materials capability and is rapidly becoming a global leader in the bioscience industry. The cross fertilization of knowledge between these two industries has the potential to lead to commercial innovations that will dramatically improve lives. It will also stimulate new capital investment in our economy," said Ed Burghard, executive director of the Ohio Business Development Coalition. "Companies are attracted to the bottom-line benefits generated from the superior work-life balance found in Ohio. Ohio's low-cost, low stress communities and combination of micropolitan and metropolitan cities provides executives and employees the resources and time to make any ambition achievable. Ohio truly is the state of perfect balance."

About the Ohio Business Development Coalition

The Ohio Business Development Coalition is a nonprofit organization that markets the state for capital investment. The OBDC provides marketing strategy and implementation to support Ohio's economic development efforts. For more information on business development or business relocation, visit www.ohiomeansbusiness.com.

APPENDIX C:**Venture Capital Firms****Main Street Venture Fund**

200 East Main Street, Suite 540
Fort Wayne, IN 46802

Phone: 260.425.1623

<http://www.mainstreetventurefund.com/investments.htm>

Indiana Seed Fund (BioCrossroads) (directed toward emerging Indiana life science companies)

300 N. Meridian Street
Suite 950

Indianapolis, IN 46204

317-238-2450

www.biocrossroads.com

CID Capital (life sciences, information technology, manufacturing technology, business services)

One American Square, Ste. 2850

Indianapolis, IN 46282

Phone: 317-269-2350 Fax: 317-269-2355

Website: www.cidcap.com

Gazelle TechVentures (Indiana venture capital and entrepreneur resources)

11611 N. Meridian St., Ste. 310

Carmel, IN 46032

Phone: 317-275-6800 Fax: 317-275-1100

Website: www.gazellevc.com

Cambridge Ventures LP (within 200 miles of Indianapolis)

4181 E. 96th St., Ste. 200

Indianapolis, IN 46240

Phone: 317-814-6192 Fax: 317-844-9815

Website: www.cambridgecapitalmgmt.com

Lilly Ventures (Biotechnology, Medical Technology, Healthcare IT)

D.C. 1088

Lilly Corporate Center

Indianapolis, IN 46285

Phone: 317-651-3050 Fax: 317-651-3051

Website: www.lillyventures.com

Lynx Capital Corporation (to minority owned businesses in Indiana)

4181 E. 96th St., Ste. 200

Indianapolis, IN 46240

Phone: 317-814-6193 Fax: 317-844-9815

Website: www.cambridgecapitalmgmt.com

Purdue University Trask Venture Fund /Office of Technology Commercialization (Purdue development mechanism to assist faculty/staff/students)

3000 Kent Ave.
West Lafayette, IN 47906
Phone: 765-494-2610 Fax: 765-496-1277
Website: www.otc.purdue.edu

Spring Mill Venture Partners (information technology and life science)

11611 N. Meridian St., Ste. 310
Indianapolis, IN 46032
Phone: 317-713-7550
Website: www.springmillvp.com

ARCH Development Partners LLC (partners with universities to create startups focused in biotechnology, wireless software, and technology infrastructure)

20 N. Wacker Dr., Ste. 2000
Chicago, IL 60606
Phone: 312-442-4400
Website: www.archdp.com

Blue Chip Venture Co. (Technology Companies serving the media and marketing industries, healthcare companies; software companies, Technology-enable business service companies)

1100 Chiquita Center
250 E. 5th St.
Cincinnati, OH 45202
Phone: 513-723-2300 Fax: 513-723-2306
Website: www.bcvc.com

Chrysalis Ventures (Healthcare and Technology)

101 S. Fifth St., Ste. 1650
Louisville, KY 40202
Phone: 502-583-7644 Fax: 502-583-7648
Website: www.chrysalisventures.com

KB Partners (Technology Products and Services, Medical P&S, Industrial Technology, Commercial Real Estate, Consumer Products)

1101 Skokie Blvd., Ste. 160
Northbrook, IL 60062
Phone: 847-714-0444 Fax: 847-714-0445
Website: www.kbpartners.com

River Cities Capital Funds (Information Technology and Healthcare)

221 E. Fourth St., Ste. 1900
Cincinnati, OH 45202-4151
Phone: 513-621-9700 Fax: 513-579-8939
Website: www.rccf.com

Twilight Venture Partners LLC (life science)

One Indiana Square, Ste. 2550
Indianapolis, IN 46204
Phone: 317-423-1171
Website: www.twivp.com

Village Ventures (consumer media and retail, health care and financial services)

555 N. Morton
Bloomington, IN 47404
Phone: 812-336-8841 Fax: 812-332-2352
Website: www.villageventures.com

AGS Capital, LLC (manf and other)

9850 East 30th Street
Indianapolis, IN 46229
Phone: 317-895-2701 Fax: 317-895-2710
Website: www.ags-capital.com

Business acquisition:**The Ellis Company**

4130 Engleton Drive
Fort Wayne, IN 46804
260-459-1533
Fax: 260-459-1630
www.elliscompany.com

Arlington Capital, LLC

200 E Main St Ste 720
Fort Wayne, IN

Obsidian Enterprises, Inc. (manufacturing and transportation)

111 Monument Circle, Ste. 4800
Indianapolis, IN 46204
Phone: 317-237-4122 Fax: 317-237-0137
Website: www.obsidianenterprises.com

Monument Advisors (by size-microcap)

111 Monument Circle, Ste. 4500
Indianapolis, IN 46204-5172
Phone: 317-656-5065 Fax: 317-656-5060
Website: www.monumentadv.com

Hammond, Kennedy, Whitney, & Company, Inc. (by size- \$20-\$200 Million)

8888 Keystone Crossing, Ste. 600
Indianapolis, IN 46240
Phone: 317-574-6900 Fax: 317-574-7515
Website: www.hkwinc.com

Centerfield Capital Partners LP (location Indiana, Manufacturing, Business Services, Healthcare, Transportation and Distribution) (note: subordinated debt, acquisition, buyout, and recapitalizations)

3030 Market Tower
10 W. Market St.
Indianapolis, IN 46204
Phone: 317-237-2323 Fax: 317-237-2325
Website: www.centerfieldcapital.com

Periculum Capital Company, LLC

111 Monument Circle, Suite 1022
Indianapolis, IN 46204-5176
Phone: 317-636-1800, fax: 317.636.1801
www.periculumcapital.com

EDF Ventures

425 N. Main St.
Ann Arbor MI 48104-1147
Phone: 734-663-3213 fax: 734-663-7358
www.edfvc.com

Stepstone Business Partners, LLC

351 West 10th St., Suite 311
Indianapolis, IN 46202
Phone: 317-635-9070 Fax: (317) 635-7422
www.stepstonebusinesspartners.com

Clarian Health Ventures, Inc.

P.O. Box 1367
340 West 10th Street, Suite 2100
Indianapolis IN 46206
Phone: 317-963-7800 Fax: 317-963-7801
www.clarianhealthventures.com

Pappas Ventures

P. O. Box 110287
2520 Meridian Parkway, Suite 400
Durham NC 27713
Phone: 919-998-3300 Fax: 919-998-3301
www.Pappasventures.com

Burrill & Company

One Embarcadero Center, Suite 2700
San Francisco CA 94111-3776
www.burrillandco.com
Phone: (415) 591-5400 Fax: (415) 591-5401

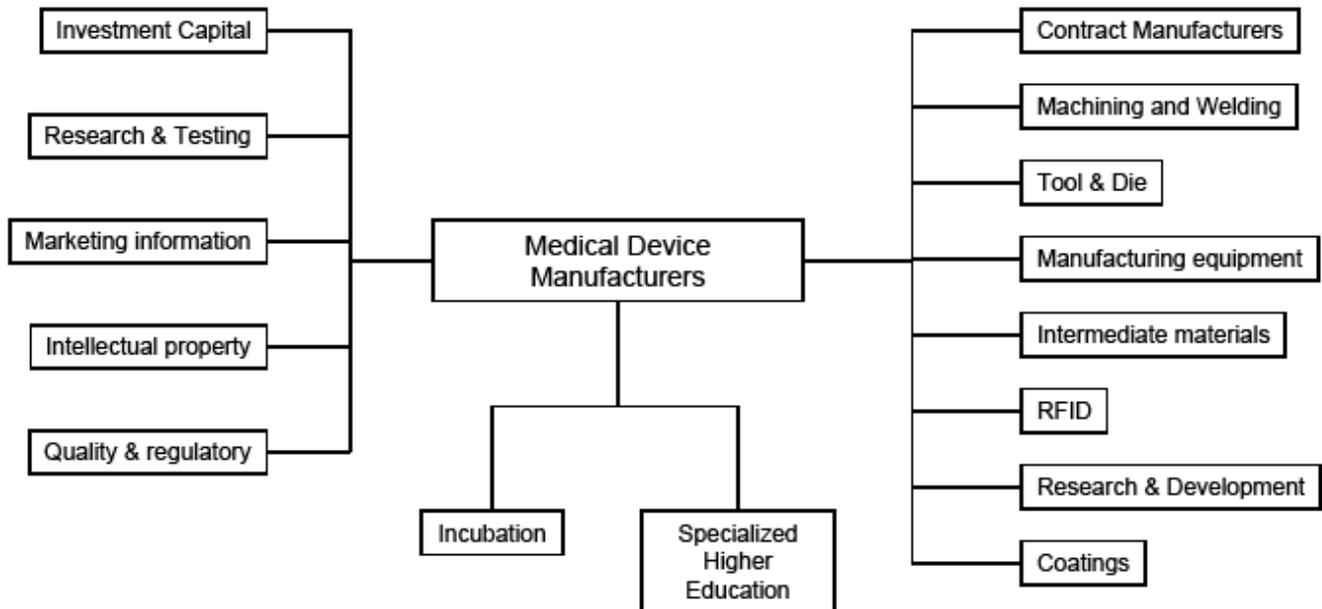
Indiana Investment Fund

Curt Rossman
Credit-Suisse
Manager, Indiana Office
10 West Market Street, Suite 1035
Indianapolis IN 46204
e-mail: curt.rossman@credit-suisse.com
www.indianainvestmentfund.com

APPENDIX D:

Bioscience Organizational Assets in NEI

Northeast Indiana Medical Device Cluster



Northeast Indiana Bioscience Industry

Current Company Listing (* indicates NIIC client)

Specialized Educational Institutions <ul style="list-style-type: none">• Indiana Institute of Technology• Indiana University School of Medicine, Fort Wayne Medical Education Center• Indiana University-Purdue University Ft Wayne• IVY Tech Community College of Indiana• TRINE University• University of Saint Francis
Research & Development <ul style="list-style-type: none">• LifeLink Technologies*• New Paradigm Concepts*• Schwartz Biomedical* (BioPoly RS*, BioAvascular Solutions*)• Sites Medical
Specialized Healthcare Providers <ul style="list-style-type: none">• Fort Wayne Cardiology• Fort Wayne Orthopaedics• Indiana Ohio Heart• Lutheran Hospital• Orthopaedics Northeast• Parkview Hospital
Investment Capital and Advisors <ul style="list-style-type: none">• Innovation Center LEAP Fund *• Mainstreet Venture Fund• Ruffolo Benson• True North Strategic Advisors
Intellectual Property <ul style="list-style-type: none">• Aptimise• Baker & Daniels• Barnes & Thornburg
Marketing Information <ul style="list-style-type: none">• Pearl Diver *
Business incubation <ul style="list-style-type: none">• Northeast Indiana Innovation Center

Regulatory and Quality Consulting

- Laboratory Accreditation Bureau

Research and Testing

- Knight Mechanical Testing
- N.E. Indiana Research Alliance
- Northeast Indiana Research
- Parkview – Stucky Research Center
- Sherry Labs
- University Park Research

Medical Product Manufacturers

- Health Equipment Manufacturers
- Panoramic Corporation
- SorbaShock *

Contract Manufacturing

- C&A Tool Engineering, Inc.
- Custom Magnetics
- Dekalb Molded Plastics
- Freemont Plastics
- Gettig Technologies
- Group Dekko (DEKKO Medical)
- Hower Tool (Akron Equipment Co.)
- Kilgore Manufacturing Company
- LH Industries
- Micropulse
- Nemcomed
- Oakview Tooling
- Plastic Processors
- Precimed
- Pyromation
- Stamets Tool & Engineering
- Symmetry Ultrex

RFID Tagging Systems

- Northern Apex
- RP Global Systems*
- Solstice Medical*

Coatings

- BioAdvantek, Inc.
- Fort Wayne Anodizing

Manufacturing Equipment

- Carver
- Moyer Process & Control
- PolyMod Technologies
- Wabash Metal Products

Former NIIC clients that have moved out of NEI: LacPro, Orthopediatrics LLC

Former NIIC clients that are out of business: Zieben Engineering