BUFFALO NIAGARA REGION INDUSTRY CLUSTER PROFILE

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UNDERSTANDING REGIONAL STRENGTHS

A Study of Key Industry Clusters in the Buffalo Niagara Region

(Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming Counties)

December 2005

Prepared For:

ECIDA

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EXECUTIVE SUMMARY

The Buffalo Niagara region is an eight-county area[1] in western New York, on the shores of Lake Erie and Lake Ontario. The region shares a border with Canada, located just southeast of Toronto. The Buffalo Niagara region is home to about 1.6 million people, with about 60% of the region's population residing in Erie County. Further, about 67% of the region's 675,000 jobs are located in Erie County.

Employment in the region declined an average of 0.1% per year during the 1998 to 2003 period, compared to an average annual increase of 0.3% in New York State and 0.6% throughout the United States. Even prior to the recession that struck throughout the United States from 2001 to 2003, employment growth in Buffalo Niagara was lagging the rest of the country. The challenge for the region is how to maximize the existing labor and other resources of the region so as to foster improved economic performance, especially as measured by employment growth and capital investment.

A major step in crafting a region's economic development strategy focuses on what types of industries to target for growth and retention. Industry targets may be chosen to meet varying community goals ranging from diversifying the economic base to increasing the average wage to utilizing natural and labor resources more fully and encouraging continued capital investment. A community's economic development efforts should focus on those industries in which the community has some clear competitive advantages. Further, industries selected need to be economically, environmentally and socially acceptable to the community.

This study is based on the concept of industry clusters. Industry clusters are geographic concentrations of interconnected companies and institutions in a particular field. Ideally, clusters also include the institutions and professional organizations that provide research assistance and support to the industry.

This study identifies five industry clusters that present strong opportunities for the future growth and vitality of the Buffalo Niagara region. Once key clusters were identified, further research compared industry employment concentration in the Buffalo Niagara region to the national economy. Where concentration of an industry is greater than the national economy, it is presumed that the production of goods and services is more than sufficient to meet local demand, and is therefore exported – either physically or financially. Where industries are highly concentrated it is presumed that a high degree of specialization among firms exists, a feature of competitive industry clusters.

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[1] The Buffalo Niagara region includes Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming counties.

The following table summarizes the total employment and employment concentration for each of the five industry clusters and five industry subclusters included in this study. In addition, the Buffalo Niagara region's employment concentration rank out of the 50 largest metropolitan areas is included.

INDUSTRY CLUSTER SUMMARY DATA
Buffalo Niagara Region

Industry Cluster	Cluster Employment	Employment Concentration	Concentration Rank
Food and Food Processing	16,400	2.6%	1
Information Technology	5,400	0.8%	47
Life Sciences	8,500	1.3%	19
Medical Products	2,500	0.4%	22
Pharmaceuticals	2,100	0.3%	19
Research	3,900	0.6%	19
Machinery	17,400	2.7%	6
Transportation Equipment	14,300	2.2%	2
Automotive	10,900	1.7%	2
Aircraft and Aerospace	3,400	0.5%	18

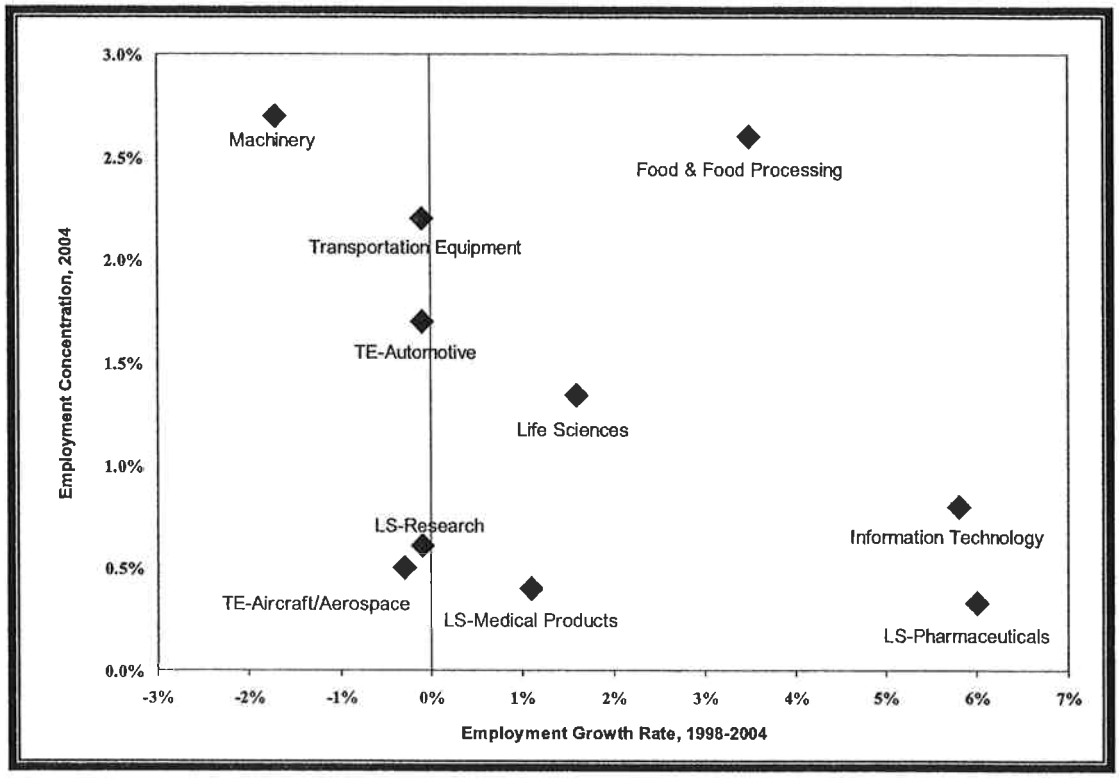
Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

While a few of the five industry clusters exhibited strong employment concentrations but slow or no employment growth in recent years, it was decided there is value in recognizing large employment sectors of the local economy. These industry clusters are important to study and understand in order to target business support and retention efforts.

The Buffalo Niagara region ranks among the top ten metropolitan areas for employment concentration in the Food and Food Processing, Transportation Equipment and Machinery industry clusters. The Buffalo Niagara region does not rank as high in the Life Sciences and Information Technology industry clusters; however, these industry clusters provide new and unique opportunities to diversify the economic base of the region. The outlook for growth in the Life Sciences and Information Technology industry clusters is positive.

The following chart depicts the average annual employment growth rate over the past six years and the current employment concentration for each of the five industry clusters and five industry subclusters. In general, the prime opportunities for a region exist in those industry clusters that are exhibiting strong employment growth. Further, it is important to note those industries that have current strong concentrations of employment, as retention efforts related to those industries should be a key component of the region's economic development strategy.

EMPLOYMENT GROWTH RATE AND EMPLOYMENT CONCENTRATION
Buffalo Niagara Region
All Industry Clusters



Focus group discussions provided valuable insight into each industry cluster as it exists in the Buffalo Niagara region. In addition to specific insights for each industry cluster, some common themes emerged providing insight into overall opportunities and business advantages, as well as challenges to future growth.

Opportunities and Business Advantages

Higher Education – The higher education system in the Buffalo Niagara region provides an excellent support system for businesses in the region. There are approximately 30 two-year and four-year higher education institutions in the Buffalo Niagara region. Of these, there are 15 regional higher education institutions with a total enrollment of more than 1,000 students each, including eight institutions that are part of the State Universities of New York (SUNY) system and seven independent or private institutions. All 30 institutions have a combined enrollment of over 100,000 students and more than 20,000 graduates annually.

Access to Skilled Labor – With a labor force of nearly 795,000 people, the Buffalo Niagara region's workforce represents one of New York's greatest assets. The region enjoys a large, well-educated population and an abundant supply of entry-level and

experienced labor. Indeed, 86.4% of the adult population has graduated from high school, ranking the region #24 out of the 45 largest metropolitan areas. The region boasts a diverse employment base that is highly productive and brings with it a very strong work ethic.

Quality of Life – The Buffalo Niagara region boasts an attractive quality of life and should be promoted. The Buffalo Niagara region offers numerous entertainment venues ranging from major league sporting events to theatre and other cultural attractions to a wide variety of winter and summer outdoor recreational activities. Independent rankings put Buffalo Niagara on par with much larger cities in cultural and entertainment rankings. For example, *AmericanStyle*, a nationally distributed lifestyle magazine aimed at art enthusiasts and collectors, named Buffalo one of the nation's Top 10 Arts Destinations for the third consecutive year in its annual readers' poll in 2004.

Low Cost of Living – The Buffalo Niagara region offers the second lowest median home price out of the 133 metropolitan areas included in the National Association of Realtors' quarterly report. The median home price in the Buffalo Niagara region rose to $93,000 in 2004 compared to the national median price of $184,100.

Population Center – Many businesses locate near large population centers to minimize distribution costs and minimize the time to market. The Buffalo Niagara region is located within 500 miles of 55% of the United States population (including large east coast population centers) and 62% of the Canadian population (including nearby Toronto).[2]

Proximity to Customer Base – The Buffalo Niagara region is located in geographic proximity to the major trading centers of the Northeast and is a bi-national gateway for commerce. Over 51 million people live within 300 miles of the Buffalo Niagara region.

Transportation Connections – Many businesses rely on the transportation infrastructure to move end products to clients and customers. The Buffalo Niagara region has one of the most highly developed rail systems in the world, encompassing nearly 1,000 miles of rail and including one of the largest railheads in the United States. Further, the Buffalo Niagara region is linked to Canada through seven different ports of entry.

Quality Transportation Networks – The *2005 Urban Mobility Study* by the Texas Transportation Institute reveals that peak period travelers in the Buffalo Niagara region experience 13 hours of delay annually due to congested roads, earning the region a rank of 65 out of 85 areas. The national average is 47 hours of annual delay per peak period traveler.

Access to Foreign Markets – The Buffalo Niagara region's proximity to Toronto provides unique opportunities to tap into the Canadian market. For example, seven major auto producers have manufacturing facilities in Ontario, within 70 to 90 miles of the Buffalo Niagara region, providing opportunities for Buffalo Niagara companies to begin or

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[2] Buffalo Niagara Enterprise, *Buffalo Niagara Location Advantage Fact Sheet*, www.buffaloniagara.org.

increase their role as a supplier to these Canadian companies. On a more worldwide scale, China, Japan and Asia have entered an age of unprecedented economic growth and present growth opportunities for several of the industry clusters.

Challenges

High Taxes – While the quality of life in the Buffalo Niagara region provides an opportunity to attract and retain businesses, high taxes and poor government fiscal policy are a challenge for the region.

High Energy Costs –The Buffalo Niagara region has high energy costs making it hard for large energy users to be competitive.

High Workers' Compensation Rates – Along with high taxes, businesses in the Buffalo Niagara region are affected by the high cost of workers' compensation insurance in the State of New York.

Foreign Competition – Most United States industries are facing pressures from increasing import competition. Buffalo Niagara region businesses are not immune from this competition and are also facing pressures from external competition and imports.

Image – Focus group participants indicated the Buffalo Niagara region is unfairly perceived as a less than desirable place to live and do business. This perception needs to be improved to reflect the many advantages of the Buffalo Niagara region.

Workforce Retirees – Some regional businesses will be affected by a large share of the workforce retiring within the next five years. It may be difficult to replace the skilled workers with new employees due to a lack of skill sets in younger workers.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive position. The following is a brief summary of the mission of each strategic initiative which is actively being pursued by the Buffalo Niagara Partnership NOW campaign.[3]

1. *Buffalo Permitting Reform* - Complete the streamlining of Buffalo's Department of Permit and Inspection Services and continue to examine the process of development.

[3] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW,* 16th Quarterly Report, April 2005 – June 2005.

2. *Commercialization of Life Science Technologies* – Increase and accelerate the results from technology transfer and commercialization of cutting edge research, leading to the successful creation of new enterprises, growth companies, and ultimately, to a critical mass of life science activities that make the Buffalo Niagara region a global competitor and hot bed for innovation in the 21st century.

3. *Cross Border Facilitation* – Seeking Canadian and U.S. authorization of and resource allocation for "shared border management" and further facilitation of trade and travel between the U.S. and Canada in the Buffalo/Fort Erie, Lewiston/Queenston corridor.

4. *Downtown Buffalo Neighborhood* – Facilitate the creation of vibrant downtown Buffalo residential neighborhoods with the amenities, services and look which create a unique urban lifestyle.

5. *Local Development Delivery System* – Integrate the region's Industrial Development Authorities, local development corporations and other related entities into a closely-knit collaborative network that is customer friendly and development savvy.

6. *Local Tax* – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how Erie County government can provide services in a more fiscally responsible and effective manner.

7. *Low Cost Hydropower* – Preserve the amount of low cost hydropower available for new and existing industrial consumers and expand the pool of commercial and industrial consumers eligible for such power.

8. *Regional Land Use* – Establish a regional land use/infrastructure plan. Establish an entity to oversee and implement the plan with the appropriate authority and utilizing all necessary tools.

9. *Regional Tourism* – To enhance the bi-national region as an international tourism destination by improving cooperation and coordination among tourism-related for-profit and not-for-profit entities and tourism promotional agencies and by influencing local, state/provincial and federal governments to change policies, regulations and laws as required facilitating this enhancement.

10. *Shovel Ready Land* – To increase the region's competitiveness by creating a site portfolio containing enough real estate product for the target industry sectors and those local industries in growth mode.

11. *Workforce Development* – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

Conclusion

While there are opportunities and challenges for all businesses in the Buffalo Niagara region, each industry cluster provides a focus for efforts to foster and develop businesses in the region. Economic development goals may range from bolstering the employment base and capital investment in one industry cluster to increasing employment in a number of industry clusters in order to diversify the economic base. These goals are not mutually exclusive; the desired outcome is to bring or maintain the balance of the local economy. The decision of which industry clusters to actively pursue needs to consider the community's goals for industry specialization and economic diversification.

While there is value in the data and information contained in this report in and of itself, the true importance of any industry cluster study is in the role that it plays in the formation of economic development strategy. Ideally, industry cluster data and information is used in a multi-level approach to community positioning, broken into a series of strategic steps and execution steps.[4] Specifically, these steps include:

Strategic Step 1: *What companies or industries do we want?*

Based on an analysis of existing industry clusters and market trends that may support the growth of emerging industry clusters, determine what types of businesses the community would like to target for both retention and recruitment efforts.

Strategic Step 2: *What needs do these companies have?*

Numerous factors play into a company's decision to expand or relocate its operations. The savvy economic developer will know what these locational factors are and will recognize that these factors differ by industry.

Strategic Step 3: *How do we meet their needs better than our main competitor cities?*

While it is important to know who your competitors are for various industries, it is also important to know how your business climate compares. By documenting your competitive position through detailed business advantages and disadvantages, you are

[4] Developed by Development Research Partners and ccintellect, a Denver-based marketing company.

developing a framework for implementing solutions to your most pressing business issues.

Execution Step 1: *Identify recruitment versus retention opportunities.*

Just because you want an industry to grow and expand in your community does not mean that you will be successful. Be honest. If your location does not meet the needs of the industry better than you competitors, you may need to shift your efforts from a marketing and recruitment strategy to a retention and product development strategy.

Execution Step 2: *Develop authentic messaging.*

Use what you know about your community and what the industry needs to develop marketing messages that are authentic and believable. Do not try to sell your community as some place that it is not. Be able to prove your statements.

Execution Step 3: *Develop focused marketing & PR efforts.*

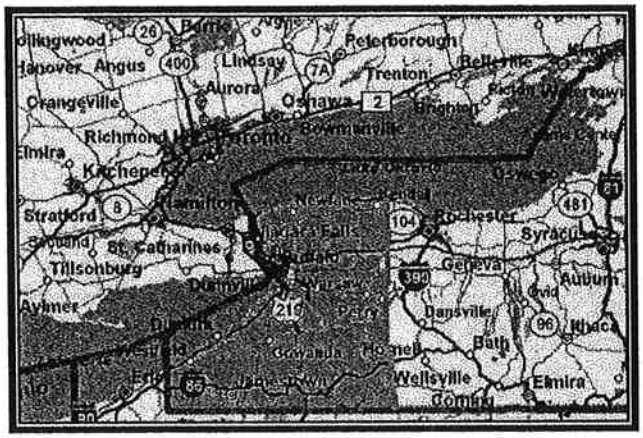
Armed with the decisions and information on the types of industries desired and why your community offers a better location than your competitors, determine the best means for reaching the industry decision makers. Is it website, printed materials, magazine or newspaper ads, personal visits or some combination of methods?

This study completes Strategic Step 1 and Strategic Step 2. While much of the work on Strategic Step 3 has been completed, more specialized comparisons between the Buffalo Niagara region and the key competitors for each industry need to be made. Once that is completed, it is time for the Buffalo Niagara region to begin executing the economic development plan in a deliberate fashion.

The economy is a constantly changing, dynamic force. Market conditions are not static. The development of the ideal, balanced economy is just that – an ideal. Developing a balanced economy requires frequent review of economic conditions and opportunities and challenges to maximize growth potential and success. Through constant monitoring of the most recent data and experience available, and frequent adjustments in economic development efforts, your community will move towards the creation of the ideal, balanced economy.

INTRODUCTION

The Buffalo Niagara region is an eight-county area[1] in western New York, on the shores of Lake Erie and Lake Ontario. The region shares a border with Canada, located just southeast of Toronto. From the mountainous terrain in the southern counties to the shores of the Great Lakes to the fertile land in the eastern parts of the region, the Buffalo Niagara region is home to about 1.6 million people. About 60% of the region's population resides in Erie County, primarily in the core city of Buffalo. Further, about 67% of the region's 675,000 jobs are located in Erie County. The eight-county region has strong concentrations of employment in the government, manufacturing, health care and retail trade sectors.



The Buffalo Niagara region has a long history as a prime location for steel companies and various manufacturing operations. As steel operations have dwindled throughout the region, the challenge is how to maximize the existing labor and other resources of the region so as to foster improved economic performance, especially as measured by employment growth and capital investment. Based on an analysis of the Quarterly Census of Employment and Wages (QCEW) data by the New York State Department of Labor, employment in the eight-county region has declined an average of 0.1% per year during the 1998 to 2003 period, compared to an average annual increase of 0.3% in New York State and 0.6% throughout the United States. Even prior to the recession that struck throughout the United States from 2001 to 2003, employment growth in Buffalo Niagara was lagging the rest of the country. From 1998 to 2000, employment increased an average of 0.9% per year in Buffalo Niagara compared to the 2.3% average annual growth rate achieved in New York State and the nation.

While steel is no longer as important to the Buffalo Niagara region economy as it had once been, the manufacturing industry remains a dominant economic sector. In 2004, the manufacturing industry in the Buffalo Niagara region accounted for about 14% of the total employment base compared to the national average of 11%. However, these percentages have been dropping over time. As recent as 2001, manufacturing accounted for about 16% of the Buffalo Niagara employment base compared to the national average of 13%. Indeed, manufacturing is changing – moving from more traditional "assembly

[1] The Buffalo Niagara region includes Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming counties.

line" manufacturing formats to greater use of advanced manufacturing techniques and capital-intensive processes. This means that greater output can be achieved with fewer workers.

Although manufacturing employment has been shrinking across the country, it is still a key industry due to generally high wages, large multiplier impacts on area employment and earnings and high export potential. While it is probably not reasonable to expect that employment in Buffalo's manufacturing base can be expanded during this new manufacturing era, it is critical for the region to hold on to what they have and explore opportunities for maintaining and enhancing the competitive positions of existing manufacturing companies.

A major step in crafting a region's economic development strategy focuses on what types of industries to target for growth and retention. Industry targets may be chosen to meet varying community goals ranging from diversifying the economic base to increasing the average wage to utilizing natural and labor resources more fully. A community's economic development efforts should focus on those industries in which the community has clear competitive advantages. Further, selected industries need to be economically, environmentally and socially acceptable to the community.

This study is based on the concept of industry clusters, which are geographic concentrations of interconnected companies and institutions in a particular field. These industry clusters drive wealth creation within a region, primarily through the export of goods and services. An industry cluster may consist of industries that share the same or similar workforce, factors of production or infrastructure. It may also be defined by the production of similar outputs, complementary output or other interdependent relations. Ideally, clusters also include the institutions and professional organizations that provide research assistance and support to the industry.

This study explores five key industry clusters currently operating in the eight-county Buffalo Niagara region. How many industry clusters should be pursued as targets? The answer to this question depends upon the community's priorities, resources, political will and the current level of economic diversity.

First, target industry efforts require manpower and financial resources to conduct a wide variety of economic development activities ranging from business retention visits to exhibiting at trade shows to recruitment missions. Financial and personnel resources may limit the number of clusters actively pursued.

Second, a successful target industry program requires the involvement and support of business leaders already operating in the industry cluster within the community. Their input is essential to better understand the strengths and weaknesses of the existing industry cluster as well as the prospects for growth. The industry clusters pursued as targets may be dictated by the availability and willingness of these "community bishops."

Finally, the current composition of the economic base needs to be considered. Economic development goals may range from bolstering the employment base of one sector to

increasing employment in a number of sectors in order to enhance the diversity of the economic base. These goals are not mutually exclusive; the desired outcome is to bring or maintain the balance of the local economy. The decision of which industry clusters to actively pursue needs to consider the community's goals for industry specialization and economic diversification.

Targeting industries based on the idea of industry clusters provides focus to an economic development program in four key areas. First, an understanding of existing industry strengths helps to create an identifiable regional image and message, improving marketing programs. Second, retention campaigns can be focused on protecting existing industries and resources. Third, recruitment strategies can be focused on cluster companies and their suppliers or service providers. Finally, cluster analysis may identify industries that the community does not currently have a strong concentration in but also present unique, new opportunities for developing the regional economy.

This study includes the following for each of the key industry clusters:

- Description
- National outlook
- Buffalo Niagara region cluster profile
- National competitors
- Locational attributes
- Industry cluster insights

Previous Target Industry Efforts

Several major studies have been conducted through the years to better understand industry strengths in the Buffalo Niagara region. Battelle conducted a series of studies for the Erie County Industrial Development Agency (ECIDA) in 1984 (Battelle studies).[2] The Battelle studies provided an analysis of current and short-term economic conditions in Erie County (Phase I) and estimates of how the national economy was expected to grow over the next 16 years (Phase II). Phase I documented the historic growth and contraction of regional industries while Phase II identified target industries and developed strategies for growth opportunities.

More recently, the Institute for Local Governance and Regional Growth at the University of Buffalo prepared a draft regional economic development strategy for the ECIDA

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[2] Battelle, *Phase I Report, An Analysis of Current and Short-Term Projections of Economic Conditions in Erie County*, January 1984.
Battelle, *Phase II Report, Erie County Economic Adjustment Strategy Study*, December 1984.

(University study).[3] Based on a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats), the University study suggested the Buffalo Niagara region focus its economic development strategy on the following-five broad industry clusters: life science (bioinformatics), professional/business support services, advanced manufacturing, tourism and logistics. Recommendations were based on "new economy" principals such as globalization, technological advancement, knowledge, the changing nature of work, innovation and networking.

Empire State Development, the New York State economic development agency, currently identifies 12 major industry clusters in the State of New York (State study).[4] Empire State Development uses industry clusters as a framework for understanding the state and regional economies, and guiding economic development policy and initiatives. The cluster-based analysis is used in the development of business marketing, export promotion, workforce policy development, regional economic planning and other activities. Each of the 12 industry cluster profiles provides a formal definition of the cluster, a summary of national and international market trends affecting the cluster, trends in New York cluster employment, and a summary of the cluster's presence in the state's economic development regions. The five-county Western New York region is one of the State economic development regions that overlaps with the eight-county Buffalo Niagara region used in this industry cluster study.

While the State study industry cluster definitions are different from the industry cluster definitions used in this study, the State study does indicate which State-defined industry clusters have strong employment concentrations in the five-county Western New York region. The following table provides a list of the State study industry clusters:

New York State Industry Clusters
1. Bio Medical*
2. Business Services
3. Communication & Media Services
4. Computer Hardware & Electronics
5. Distribution*
6. Financial Services
7. Food Processing*
8. Industrial Machinery & Systems*
9. Materials Processing*
10. Optics & Imaging
11. Software Industries
12. Transportation Equipment*

*The State study indicates a five-county Western New York regional strength.
Source: Empire State Development, www.nylovesbiz.com.

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[3] Institute for Local Governance and Regional Growth, University at Buffalo, *Securing the Future: A Distinctive and Compelling Role for the Buffalo Niagara Region in the New Economy of the 21st Century*, October 23, 2003.

[4] Empire State Development, www.nylovesbiz.com.

Significant changes in the economic base and economic conditions throughout the Buffalo Niagara region and nation have occurred since the Battelle studies were published. While the University study provided a general look at regional industry clusters, the ECIDA requires a more in-depth cluster study analysis of regional clusters to successfully carry-out economic development efforts. The State industry clusters study provides insight into some regional strengths, but a comprehensive focus on the Buffalo Niagara region is needed. It is important to update, review and detail the data and trends specific to the economic base of the Buffalo Niagara region prior to identifying industry targets.

Therefore, this industry cluster project begins with an in-depth data analysis to determine what industry clusters exist in the Buffalo Niagara region. Summary data and industry cluster profiles provide an understanding of the clusters and a framework for future economic development efforts.

Methodology

This research effort uses a cluster methodology similar to that developed by Michael E. Porter, Professor of Business Administration at the Harvard Business School. According to Porter, "Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition."[5] Clusters typically include private companies operating in a given industry, suppliers to these companies, governmental institutions involved in the industry, universities and other educational settings, and relevant trade associations.

Given the global nature of today's economy, company location may be expected to be of diminished importance. However, cluster methodology shows that the opposite is true. According to Porter, "What happens inside companies is important, but clusters reveal that the immediate business environment outside companies plays a vital role as well." The enduring competitive advantages in a global economy are often heavily local, arising from concentrations of highly specialized skills and knowledge, institutions, rivals, related businesses, and sophisticated customers.

Clusters continually evolve as new companies and industries emerge or decline. They can maintain competitive strength for decades or lose their competitive edge due to both external and internal forces. Because industries ebb and flow in strength, it is important to examine industry clusters historically to understand how to support and promote the cluster.

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[5] Michael E. Porter, "Clusters and the New Economics of Competition," *Harvard Business Review*, November-December 1998.

Many of the industries discussed in this report are the topic of national reports and rankings. In some cases, the employment figures or rankings presented in this report may be contrary to other studies. This may be due to the definition of the cluster (as defined by groupings of industry classification codes), the data source, the time period of the data, and/or the geographic definitions.

The industry cluster definitions used in this report were developed based on the economic structure of the Buffalo Niagara region and current economic conventions. Business and employment growth in the industry clusters from 1998 through 2004 is examined to determine industry strength.

Industry clusters for the Buffalo Niagara region were identified through the examination of employment concentration data. Measurement of major Buffalo Niagara region employment concentration levels at the four-digit Standard Industrial Classification (SIC) and corresponding North American Industry Classification System (NAICS) code level provided an indication of the strength of major industries.[6] Further research compared 4-digit SIC industry employment concentration in the Buffalo Niagara region to the national economy. Where concentration of an industry is greater than the national economy, it is presumed that the production of goods and services is more than sufficient to meet local demand, and is therefore exported – either physically or financially. Where concentration of an industry is greater at the Buffalo Niagara region level than the national average, it is presumed that a high degree of specialization among firms exists, a characteristic of competitive industry clusters.

Detailed 4-digit SIC industry categories, displaying a high degree of concentration, were aggregated into groups of related businesses to form clusters. The identification of these clusters was important to gain an understanding of the composition of the economic base. In addition, a few industry clusters were included that may represent potential industries that could be developed in the region. The following descriptions of 11 industry clusters include those that are either currently operating in Buffalo Niagara and have high employment concentrations or represent potential clusters for the region.

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[6] The North American Industry Classification System (NAICS) is an industry classification system that groups establishments based on the activities in which they are primarily engaged. NAICS uses a six-digit coding system to identify 1,170 industries and their placement in the hierarchical structure of 20 sectors. The NAICS system was introduced in 1997 as a replacement for the Standard Industrial Classification (SIC) system that has been used in the United States since 1938 and was last revised in 1987. Economic data using the NAICS system is slowly replacing data based on the SIC system.

BUFFALO NIAGARA INDUSTRY CLUSTERS

Industry Cluster	Existing or Potential	Cluster Description
Distribution	Existing	Businesses involved in the general distribution of goods including trucking, warehousing, water transportation and air courier businesses. Wholesale excluded.
Financial Services	Potential	Includes a wide variety of depository and non-depository institutions, as well as security and commodity brokers, insurance carriers and agents, collection agencies and credit reporting services.
Food and Food Processing	Existing	Businesses involved in the production and processing of fruits, nuts, potatoes, dairy and processed foods.
Industrial Gases and Chemicals	Existing	Businesses producing and providing industrial gases and chemicals for a wide variety of uses.
Information Technology	Potential	Businesses providing custom computer programming services, prepackaged software, computer integrated systems design and other computer related services.
Life Sciences	Potential	The Life Sciences cluster includes three distinct areas: medical products, pharmaceuticals and medical research.
Machinery	Existing	Businesses involved in manufacturing any type of machinery such as conveyors, cranes, machine tools, metalworking, pumps, power transmission, and computer equipment.
Metal and Steel Mfg and Products	Existing	Businesses involved in the production, forming and shaping of metal and steel for a wide variety of uses.
Plastic and Rubber Mfg	Existing	Businesses manufacturing goods made from plastic and rubber.
Transportation Equipment	Existing	The Transportation Equipment cluster includes two distinct areas: automotive and aircraft/aerospace.
Wood and Wood Products	Existing	Businesses involved in the creation of wood products ranging from primary operations such as logging, sawmills and millwork to the manufacturers of the final wood products.

It was decided that five of the above clusters would be chosen for further analysis. As a guide for narrowing the list of 11 industry clusters to five, an industry cluster ranking analysis was developed based on qualitative input as well as quantitative measures. To

begin the ranking analysis, various criteria were ranked according to its importance to the economic development goals of the community. Based on the input received from numerous business leaders, the following weights were assigned to varying economic development goals:

Community Goal	Weight
Projected Strong Long-term (3 or more years) Job Growth Rates	15.4%
High Employment Multiplier Impacts	15.3%
Industry Leverages Current Regional Strengths	14.1%
Large Current Employment Base	12.7%
High percentage of Production Exported from State (Strong Base Industry)	10.3%
High Average Annual Salary	9.3%
Projected Strong Short-term (1-2 year) Job Growth Rates	6.8%
High Level of International Exports	6.7%
Attracts Venture Capital Funds	5.7%
"Politically" Attractive	3.8%

Using a combination of qualitative and quantitative data, the 11 industry clusters were then ranked according to each criterion and, using the above weights, the five clusters that best met the community's goals were identified. In addition, the final selection also considered whether other studies related to the industry cluster have recently been completed or are currently underway. In this manner, it became possible for the Buffalo Niagara region to gain significant market intelligence on a broad array of industries.

The five selected clusters offer strong growth potential and/or a high degree of employment concentration. While some industry clusters exhibited strong employment concentrations but slow or no employment growth in recent years, it was decided there is value in recognizing large employment sectors of the local economy. These industry clusters are important to study and understand in order to target business support and retention efforts.

The following table presents the ranking results and selection notes regarding whether the cluster was selected for further study. A full list of the NAICS and corresponding SIC codes used to define each of the five selected clusters are included in **Appendix A**.

BUFFALO NIAGARA INDUSTRY CLUSTER RANKING RESULTS

Industry Cluster	Selection Notes
Distribution	Work on this cluster already underway by other groups examining distribution and logistics. A 2004 study by James Cartin, a private consultant in rail transportation strategies, focused on the viability of current rail infrastructure to support the Buffalo Niagara region's position as a logistics center.
Financial Services	Work on this cluster already underway by other groups examining back office operations. A study of the back office industry was completed by Moran Stahl & Boyer for the Buffalo Niagara Enterprise in 2004.
Food & Food Processing	SELECTED. The Buffalo Niagara region has a long history in the food processing industry and continues to exhibit strength in the industry.
Information Technology	SELECTED. Although not a current strength, this industry cluster represents an opportunity for future growth.
Life Sciences	SELECTED. This emerging cluster already has numerous resources committed to its continued growth and development.
Machinery	SELECTED. The Machinery and Transportation Equipment clusters rely on advanced manufacturing techniques in order to help them grow.
Tourism	A study reviewing the region's tourism industry is currently underway by the Center for Community Economic Development through the College of Hospitality and Tourism Management at Niagara University.
Transportation Equipment	SELECTED. The Buffalo Niagara region has past strength in the automotive industry and potential to develop new strength in aerospace-related fields.

It is important to note that the four clusters that were not selected for further study at this point should be the target of on-going business retention efforts. These clusters include Industrial Gases & Chemicals, Metal & Steel Products, Plastic & Rubber Manufacturing, and Wood & Wood Products. These clusters may represent opportunities for future analysis and study.

Community leaders and business professionals in each of the five selected industry clusters participated in focus group sessions conducted by Development Research Partners in March 2005. The focus group sessions were conducted to gain additional insights into the Buffalo Niagara region businesses operating in each cluster. While the

information gathered during the focus group meetings provides valuable insight into the industry clusters, the information is not meant to be comprehensive or all inclusive, representing the opinions of a few businesses in the industry cluster.

Geography

The Buffalo Niagara region includes eight western New York counties—Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming. County-level data is included in this report when appropriate in **Appendix B**.

The employment concentration for each industry cluster in the Buffalo Niagara region is ranked and compared to the industry cluster employment concentration in each of the 50 largest metropolitan areas (based on population). Generally, the Buffalo Niagara region "competes" with large metro areas for company expansions and relocations; however, some industry clusters compete with smaller communities that have strong competitive positions.

INDUSTRY CLUSTERS

Five Buffalo Niagara industry clusters that offer strong growth potential and/or a high degree of employment concentration were selected based on the industry cluster research and a cluster ranking exercise.

The five industry clusters included in this study are listed below in alphabetical order. The Life Sciences industry cluster is divided into three distinct subclusters and the Transportation Equipment cluster is divided into two distinct subclusters, which are examined individually and as a consolidated industry cluster.

- Food and Food Processing
- Information Technology
- Life Sciences
  1. Medical Products
  2. Pharmaceuticals
  3. Research
- Machinery
- Transportation Equipment
  1. Automotive
  2. Aircraft and Aerospace

A key idea in the development of industry clusters is to focus on "basic" industries, or industries which attract new dollars into the region. The manufacturing industry is regarded as a primary, basic industry. It is important to note that four of these industry clusters includes a manufacturing component. The exception is the Information Technology cluster, which is more service-oriented. Still, Information Technology is increasingly regarded as a basic industry for many regions to the extent that the services delivered by the IT companies are provided to customers outside of the region.

An important effort underway in the Buffalo Niagara region is to encourage manufacturing companies to adopt advanced manufacturing techniques, which is focused on imbedding technology in the manufacturing process or the product produced. This report defines the industry clusters by a similar end product or service. Therefore, we do identify advanced manufacturing as an industry cluster. Rather, it is recognized that manufacturing companies operating across all product groups may be most successful if they adopt advanced manufacturing techniques.

While each of the five clusters and five subclusters will be presented individually and discretely, it should be recognized inter-relationships exist between the five industry clusters and many other industries. Whether it is the use of similar machinery, technologies, skilled workers, suppliers, clients or infrastructure, many connections between the clusters exist.

Food and Food Processing

Description

The Food and Food Processing industry cluster includes those companies involved in the production and processing of food items. The cluster includes food producing businesses that produce everything from vegetables to fruit and nut crops to businesses engaged in dairy farming. The cluster also includes all types of food processing businesses encompassing everything from meat packing plants to companies that produce ice cream, breakfast foods, pet food, cookies and chocolate. The industry cluster is defined by nine 6-digit and two 3-digit North American Industry Classification System (NAICS) codes or eight 4-digit and one 2-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Food and Food Processing industry cluster can be found in **Appendix A**.

National Outlook

There are 1,699,735 people employed in 101,800 businesses in the Food and Food Processing industry cluster in the United States. Growth in employment and the number of businesses in this industry cluster was slower than the national growth rate for all industries from 1998 to 2004. During the six-year period, total employment in this industry cluster increased an average of 0.8% per year, compared to 1.7% for all industries nationally. The number of Food and Food Processing businesses increased 1.6% per year, compared to 3.8% for all industries nationally.

After the farmer harvests it and before it reaches your dinner table, food travels through the food processing industry. For example, grain is harvested and shipped to a food processing plant to be combined with other ingredients to produce cereal. Largely unaffected by the economic downturn, growth in this mature industry cluster has remained slow-and-steady. "People have to eat, so even during recessions, the volume doesn't change much and capital spending remains fairly steady."[7] Employment is expected to continue to grow at a slow-and-steady average rate in the future while capital spending will be directed toward plant upgrades, expansions, line consolidations and anything that will increase production efficiency. The Food and Food Processing industry cluster has followed a slow-and-steady growth pattern and is expected to continue this trend in the future.

Trends in the Food and Food Processing industry cluster include diversification in products, value-added foods, untapped niche markets and convenience food products that can be consumed quickly or away from home. These food industry trends are described further:

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[7] Bridget McCrea, "Industry Outlook: Food Processing, Feeding the Masses," *Plants Sites & Parks*, November 2004, www.bizsites.com.

- Diversification: Instead of producing one distinct product, food processing businesses are expanding into different markets. For example, in addition to producing cereal products a company may expand into the snack market.

- Value-Added: Adding value to a primary ingredient can open up new markets. For example, instead of simply producing cheese, a company adds value to the product by shredding and packaging the cheese as an end product.

- Niche Markets: Niche markets, especially in ethnic and gourmet foods, will provide untapped growth potential for companies. For example, the tortilla market has realized explosive growth in the last few years.

- Convenience Food: Time-strapped families and individuals are cooking less at home and eating away from home more. Time-saving food products and food products provided to food service providers (such as pre-cut fruit and breaded meat products) are opening up new frontiers for food processors. For example, washed and cut lettuce has seen a huge growth in demand. Convenience foods with patented food processes provide growth potential for food producers. Food products designed for restaurants, vending machines and other food service providers are growing in demand.

Constant demand and new market opportunities for the Food and Food Processing industry cluster point to a competitive market with long-term outlook for slow growth.

Buffalo Niagara Region Cluster Profile

The Buffalo Niagara region is the top area in the country for the Food and Food Processing industry cluster with the highest employment concentration out of the 50 largest metropolitan areas in the nation. Below are examples of the major Food and Food Processing businesses located in the Buffalo Niagara region:

- Carriage House Companies
- Cliffstar Corp.
- Fieldbrook Foods Corp.
- Freezer Queen Foods
- Friendship Dairies
- General Mills
- Henry & Henry
- Mayer Bros., Inc.
- Nestle Purina Factory
- Niagara Milk Cooperative, Inc.
- Perry's Ice Cream
- Pfeiffer Foods, Inc.
- Rich Products Corp.
- Sorrento Lactalis
- Tyson Foods, Inc.

Between 1998 and 2004, Food and Food Processing average annual employment growth of 3.5% in the Buffalo Niagara region was stronger than national average annual employment growth of 0.8% for this industry cluster. Industry cluster employment growth in the Buffalo Niagara region was also above the average annual employment growth rate of 0.6% for all industries during the same time period.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and the United States
Food and Food Processing Industry Cluster

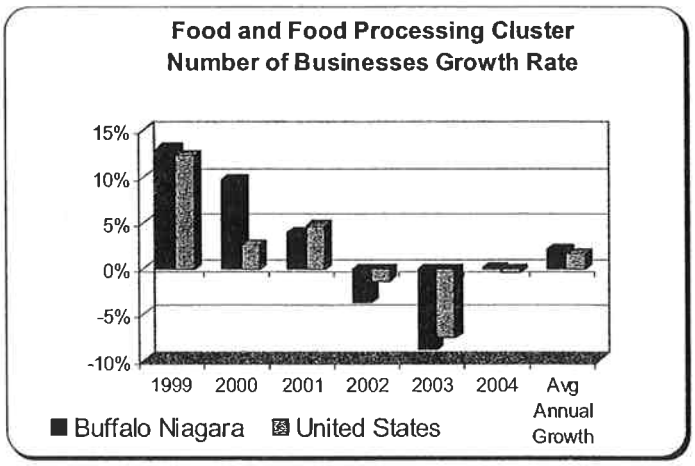
	Number of Businesses	Employment
Cluster		
Buffalo Niagara	2.1%	3.5%
U.S.	1.6%	0.8%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Businesses

About 1,200 Food and Food Processing businesses were located in the eight-county Buffalo Niagara region in 2004. The number of businesses grew 2.1% per year from 1,026 businesses in 1998 to 1,203 in 2004 compared to 1.6% average annual increase nationally in this industry cluster. Detailed business and employment data for each industry cluster for the six-year period from 1998 to 2004 is provided in **Appendix C**.

This industry cluster has strong concentration of companies at both ends of the size spectrum. With about 83% of Food and Food Processing businesses employing less than 10 people compared to 75% for all businesses that employ less than 10 people in the Buffalo Niagara region, this industry cluster has an above average share of small businesses. Dairy producers in the region contribute to the large number of small businesses in this industry cluster. Interestingly, the percent of Food and Food Processing businesses employing over 100 people is also higher than average with 3.3% of Food and Food Processing businesses employing over 100 people, compared to 1.6% for all businesses in the region. Chautauqua and Erie counties have the largest number of Food and Food Processing businesses with 23% and 22% of the number of businesses, respectively.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

SHARE OF BUSINESSES BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Food and Food Processing Industry Cluster

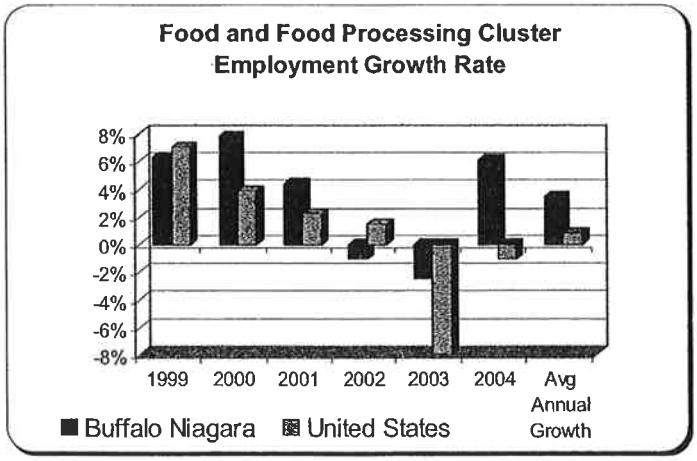
Employees	Cluster		All Businesses	
	Businesses	% of Total	Businesses	% of Total
10	1,003	83.4%	47,426	75.3%
10-99	132	11.0%	10,048	15.9%
100-249	25	2.1%	793	1.2%
250-499	9	0.7%	161	0.3%
500+	6	0.5%	98	0.2%
Unknown	28	2.3%	4,550	7.2%
Total	1,203	100.0%	63,016	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on the number of businesses in the NAICS-defined industry cluster, the dairy farm sector has the largest number of businesses. Detailed sector analysis data is provided in **Appendix C**.

Employment

The Food and Food Processing industry cluster employed about 16,400 people in the eight-county Buffalo Niagara region in 2004. Employment in this industry cluster comprises about 2.6% of the Buffalo Niagara region's total employment base, compared to a 1.4% concentration nationally. Employment in the Food and Food Processing industry cluster has grown an average of 3.5% per year, increasing from 13,417 employees in 1998 to 16,446 in 2004.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

Dairy farms, canned fruits & specialties and dry, condensed & evaporated dairy products sectors added the most employees from 1998 to 2004 and currently have the greatest number of employees.

TOP FIVE INDUSTRY SECTORS BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Food and Food Processing Industry Cluster

SIC 4-Digit Code	Industry Sector	Employment	% of Cluster Employment in the Region
2033	Canned fruits and specialties	2,301	14.0%
0241	Dairy farms	2,277	13.8%
2023	Dry, condensed and evaporated dairy products	1,500	9.1%
2051	Bread, cake and related products	1,207	7.3%
2013	Sausages and other prepared meats	1,077	6.5%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Detailed sector analysis data is provided in **Appendix C**.

Nearly 45% of the Buffalo Niagara region Food and Food Processing industry cluster employment is located in Erie County while another 23% is located in Chautauqua County. From 1998 to 2004, Chautauqua County experienced the highest employment growth with a gain of 1,800 Food and Food Processing employees. Detailed county-level data is provided in **Appendix B**.

EMPLOYMENT BY COUNTY, 2004
Buffalo Niagara Region
Food and Food Processing Industry Cluster

County	Employment	% of Total
Erie	7,374	44.8%
Chautauqua	3,804	23.1%
Genesee	1,333	8.1%
Niagara	1,214	7.4%
Wyoming	778	4.7%
Allegany	701	4.3%
Cattaraugus	640	3.9%
Orleans	602	3.7%
Total	16,446	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Wages

Total industry cluster payroll in the Buffalo Niagara region was $602.4 million in 2003. The average annual wage for employees in the Food and Food Processing industry cluster in the Buffalo Niagara region was $36,628 in 2003 compared to $33,253 nationally in this industry cluster.

OCCUPATIONAL SALARIES, 2003
Buffalo Niagara Region
Food and Food Processing Industry Cluster

Occupation	Average Annual Salary
Food Batchmakers	$20,520
Farming, Fishing and Forestry Occupations	$22,830
Food Cooking Machine Operators	$24,980
Butchers and Meat Cutters	$31,840

Source: U.S. Bureau of Labor Statistics, http://stats.bls.gov.

Industry Resources

The infrastructure to support the Food and Food Processing industry cluster comes from a variety of sources including private companies, higher education institutions, professional associations and government. A list of resources for the Food and Food Processing industry cluster is included in **Appendix D**.

National Competitors

Of the 50 largest metropolitan areas in the country, the highest concentrations of Food and Food Processing employment are found in the Buffalo Niagara, Milwaukee and Cincinnati metropolitan areas. The Buffalo Niagara region has the highest employment concentration and the eighth highest number of total employees in this industry cluster.

TEN HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Food and Food Processing Industry Cluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Buffalo Niagara, NY	**16,446**	**2.6%**	**1,203**	**1.9%**
2. Milwaukee, WI	10,786	1.5%	400	0.7%
3. Cincinnati, OH	11,559	1.5%	297	0.4%
4. Oakland, CA	13,976	1.5%	441	0.4%
5. Chicago, IL	49,709	1.4%	1,142	0.4%
6. Dallas, TX	23,762	1.3%	555	0.3%
7. Los Angeles, CA	45,526	1.2%	1,351	0.3%
8. Portland, OR	10,438	1.2%	749	0.8%
9. Fort Worth, TX	8,366	1.2%	255	0.3%
10. Charlotte, NC	9,383	1.2%	235	0.3%
United States	1,699,735	1.4%	101,801	0.8%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on total employment at individual business sites, some of the largest Food and Food Processing businesses in the country are:

- Coca-Cola Company - Atlanta, GA
- Tyson Fresh Meats, Inc. - Sioux City, SD
- Smithfield Packing Company, Inc. - Tar Heel, NC

A list of the nation's twenty largest employers in the Food and Food Processing industry cluster is included in **Appendix E**.

Locational Attributes

Identifying factors important to Food and Food Processing industry businesses as they make location decisions can provide insight into how the industry cluster can grow through retention and expansion efforts. The Food and Food Processing industry cluster relies on the following locational attributes to operate a successful business:

- Natural gas – low cost and good access
- Quality transportation networks and proximity to major highways
- Low labor costs
- Close to customer base – especially for highly processed foods
- Close to raw product

With advances in refrigeration and transportation technologies, a location in the heart of the city is not as important as it once was. Lower land costs, monetary incentives and/or subsidies and an able workforce attract new Food and Food Processing companies.

Industry Cluster Insights

Many opportunities and challenges for each industry cluster became apparent in the focus group discussions. The following focus group opportunities and focus group challenges provide insight into growing the Food and Food Processing industry cluster in general and specific to the Buffalo Niagara region. In addition, other business advantages related to this cluster are discussed. Finally, this section notes the strategic initiatives that are currently underway that address some of the challenges facing this industry cluster.

Focus Group Opportunities

Dairy - According to the United States Department of Agriculture, New York State produces the third highest volume of milk in the country. With the high concentration of dairy farmers in the Buffalo Niagara region, dairy-related food processing has a distinct advantage in locating near the source of this primary ingredient.

Grain – Food processing businesses utilizing grain located in the Buffalo Niagara region can receive grain by barge from the Midwestern United States and Canada since the Buffalo Niagara region borders both Lake Erie and Lake Ontario.

Population Center – Many food processing businesses locate near large population centers to minimize distribution costs and the time to market for perishable items. The Buffalo Niagara region is located within 500 miles of 55% of the United States population (including large east coast population centers) and 62% of the Canadian population (including nearby Toronto).[8]

Workforce – According to focus group participants, the Buffalo Niagara region's workforce provides a strong industrial labor base with a strong work ethic.

Quality of Life – Focus group participants indicated the Buffalo Niagara region is attractive to employers and employees because of the low cost of housing, quality schools and excellent healthcare.

Patent Processes – Food and Food Processing businesses have the opportunity to patent specific food processing techniques. Once the processing is patented, the food business has a unique opportunity to process, market and sell the product without direct competition.

Business Advantages

In addition to the opportunities noted in the focus group sessions, data provided by the Buffalo Niagara Enterprise suggest the following business advantages for the Food and Food Processing industry cluster.[9]

Close to Customer Base – Over 51 million people live within 300 miles of the Buffalo Niagara region.

Quality Transportation Networks – The *2005 Urban Mobility Study* by the Texas Transportation Institute reveals that peak period travelers in the Buffalo Niagara region experience 13 hours of delay annually due to congested roads, earning the region a rank of 65 out of 85 areas. The national average is 47 hours of annual delay per peak period traveler.

The Buffalo Niagara region has one of the most highly developed rail systems in the world, encompassing nearly 1,000 miles of rail and including one of the largest railheads in the United States. Further, the Buffalo Niagara region is linked to Canada through seven different ports of entry.

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[8] Buffalo Niagara Enterprise, *Buffalo Niagara Location Advantage Fact Sheet*, www.buffaloniagara.org.

[9] All Business Advantages bullet points based on data included in the Buffalo Niagara Enterprise, *Buffalo Niagara Location Advantage Fact Sheet*, www.buffaloniagara.org.

Low Labor Costs – The Buffalo Niagara service area has low labor costs relative to state and national figures and to other northeastern and Great Lakes metropolitan areas of comparable or greater size.

Focus Group Challenges

High Energy Costs – Food processing businesses are large consumers of electricity, natural gas and water. The Buffalo Niagara region has high energy costs making it hard for these large energy users to be competitive. According to the Department of Energy, Energy Information Administration, New York State has the 12th highest industrial natural gas prices and the 11th highest industrial electricity prices in the United States.[10]

High Workers' Compensation Rates – Focus group participants indicated that there is a high cost for workers' compensation insurance in the State of New York. According to the Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004,* Buffalo ranks 35th out of 50 metro areas for workers' compensation premium rates (where a low ranking indicates high rates).[11]

While New York State has had historically high workers' compensation rates, reforms signed into law in 1996 have gradually reduced workers' compensation rates. In 1996, New York State's workers' compensation premium rates ranked the fourth highest in the nation, according to the Oregon Department of Consumer and Business Services *Premium Rate Ranking* report. 1998 saw a welcome drop in that ranking to 10th in the nation. In 2004, New York State's workers' compensation premium rates ranked it the 18th highest in the nation, a significant drop from the 1996 ranking. While not the lowest, New York State workers' compensation reforms appear to be making a difference.

High Price of Steel – The price of steel is currently very high making it expensive to build new food processing facilities. While this is a challenge for Food and Food Processing businesses needing new facilities, there may also be opportunities to reuse existing underutilized or empty facilities.

Foreign Competition – Most United States industries are facing pressures from increasing import competition. Food and Food Processing industry cluster businesses are not immune from this competition and are also facing pressures from external competition and imports. For example, focus group participants indicated powdered milk imports from Australia have impacted the United States powdered milk market.

Workforce Retirees – Food and Food Processing businesses indicated there will be a large share of the workforce retiring within the next five years. It may be difficult to replace

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[10] New York State industrial natural gas prices were $8.68 per 1,000 cubic feet in 2004 while the U.S. average was $6.41. New York State retail industrial electricity costs were $6.62 per kilowatt-hour year-to-date in January 2005 while the U.S. average was $5.08. www.eia.doe.gov.

[11] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

the skilled workers with new employees due to a lack of skill sets in younger workers. Mechanics, welders, pipe workers and program logic controller (PLC) operators will be needed.

Logistics – Food and Food Processing businesses indicated truck and rail transportation costs are high. The trucking industry is facing driver shortages and rising diesel fuel prices. Companies can utilize rail for long distance shipping if a rail line or rail spur is nearby, but rail carriers have been experiencing a shortage of rail cars for shipping.[12]

Milk Prices – The pricing of milk in the United States is part market-determined and part publicly administered through a wide variety of pricing regulations. Although located near a large milk source, dairy businesses are in a very competitive pricing environment due to federal and state regulations, interstate compacts, cooperatives and future and option contracts.

Business Closings - Many Food and Food Processing businesses have closed their local operations in the Buffalo Niagara region in the past six years, including Wonder Bread, Kaufman's, ConAgra, Nabisco, Lenders Bagels and Multi-Foods. Company mergers and acquisitions, restructuring, inefficient operations and changing consumer tastes contributed to many of the closings.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive position. The following is a brief summary of the mission of the strategic initiatives that are most relevant to the Food and Food Processing industry cluster.[13]

Buffalo Permitting Reform - Complete the streamlining of Buffalo's Department of Permit and Inspection Services and continue to examine the process of development.

Cross Border Facilitation – Seeking Canadian and U.S. authorization of and resource allocation for "shared border management" and further facilitation of trade and travel between the U.S. and Canada in the Buffalo/Fort Erie, Lewiston/Queenston corridor.

Local Development Delivery System – Integrate the region's Industrial Development Authorities, local development corporations and other related entities into a closely-knit collaborative network that is customer friendly and development savvy.

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[12] *The Grand Rapids Press*, "Trains Find New Popularity as Trucking Costs Rise," April 24, 2005.

[13] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW,* 16th Quarterly Report, April 2005 – June 2005.

Local Tax – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how Erie County government can provide services in a more fiscally responsible and effective manner.

Low Cost Hydropower – Preserve the amount of low cost hydropower available for new and existing industrial consumers and expand the pool of commercial and industrial consumers eligible for such power.

Shovel Ready Land – To increase the region's competitiveness by creating a site portfolio containing enough real estate product for the target industry sectors and those local industries in growth mode.

Workforce Development – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

Information Technology

Description

The Information Technology industry cluster includes those companies involved in computer services, including computer programming services, software development, data processing, Internet service and computer facilities management. The industry cluster is defined by eight 6-digit North American Industry Classification System (NAICS) codes or seven 4-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Information Technology industry cluster can be found in **Appendix A**.

National Outlook

There are 2,044,000 people employed in 194,800 businesses in the Information Technology industry cluster in the United States. This industry cluster grew rapidly from 1998 to 2004. During the six-year period, total employment in this industry cluster increased an average of 4.5% per year while the number of businesses increased 6.9% per year. While not the double-digit growth rates of the 1990's, growth in the Information Technology industry cluster has remained above the average growth rate for all industries of 3.8% for 1998-2004.

Due to slack demand, the glory years of double-digit growth rates of the 1990s have slowed. For example, delays in Microsoft Corporation's next PC operating system until at least 2006 have made some software buyers reluctant to purchase anything new, for fear it will be outdated when Microsoft finally delivers.

Many software development businesses are outsourcing a significant portion of their operations to foreign countries. Software businesses can hire developers in countries such as Canada, China, India and Russia for a fraction of the domestic cost.

While software demand has slowed, there are several areas presenting growth opportunities in the Information Technology industry. The Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley) mandated a number of reforms to improve corporate responsibility, enhance financial disclosures and combat corporate accounting fraud. Sarbanes-Oxley is a new set of laws that dramatically changes the way companies audit and report their financial data to the investment community and the Securities and Exchange Commission. Demand for software to assist companies in complying with the financial documentation and reporting requirements of Sarbanes-Oxley has skyrocketed. Demand for software applications that help companies handle the paperwork and business processes required to comply with the Sarbanes-Oxley financial reporting regulations will continue to drive new growth in the Information Technology industry cluster.

Open-source software is beginning to put pricing pressures on traditional software suppliers. Open-source software provides the user with access to the source code, giving the user the ability to modify the code and software program. The modified software can be distributed and reproduced for free or minimal fees.

Demand for software and information technology related to heightened security needs will also drive the growth of the Information Technology industry cluster. Both software security applications that protect computer systems and the larger security issues of homeland security will contribute to Information Technology demand.

While growth in the Information Technology industry cluster will be tempered by slower business spending, growth opportunities exist in Sarbanes-Oxley, open-source and security software applications.

Buffalo Niagara Region Cluster Profile

While not the largest industry cluster, the Information Technology industry cluster has shown healthy growth rates during a time of recession. This industry cluster provides a new opportunity to diversify the economic base of the region.

Buffalo-Niagara Falls made Intel's 2005 list of *Most Unwired Cities*, which ranks the top 100 U.S. cities and regions for the greatest wireless Internet accessibility.[14] At number 56, the Buffalo Niagara area has a significant number of hotspot locations where people can use wireless-enabled notebook PCs without a traditional wired connection. Also, according to the Beacon Hill Institute *Metro Area and State Competitiveness Report 2004,* the Buffalo metro area has the 5th highest high-speed broadband lines per 1,000 residents out of the top 50 metro areas.[15] Local wireless networks, wireless email devices and Internet penetration are also significant in the Buffalo Niagara area. This capability is very attractive to computer users and Information Technology businesses.

The Buffalo Niagara region ranks 47th out of the 50 largest metropolitan areas in the country for the Information Technology industry cluster in terms of employment concentration. Below are examples of major Information Technology businesses located in the Buffalo Niagara region:

- Active Intelligence Corp.
- Advanced 2000, Inc.
- Compsys Technologies, Inc.
- Comptek Research, a Division of Northrop Grumman
- Computer Task Group, Inc.
- Electronic Data Systems Corp.
- Energecs, Inc.
- Keystone Solutions US, Inc.
- PC Computing LLC

The average annual employment growth rate of 5.8% between 1998 and 2004 for Information Technology in the Buffalo Niagara region was stronger than the national employment growth rate of 4.5% per year for this industry cluster. Industry cluster

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[14] Intel, *Most Unwired Cities Survey*, 2005, www.intel.com.

[15] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

employment growth in the Buffalo Niagara region was also above the average annual employment growth rate for all industries of 0.6% during the same time period.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Information Technology Industry Cluster

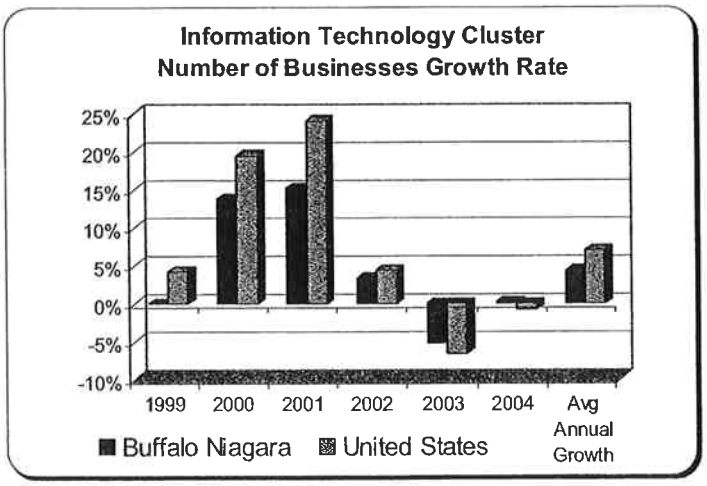
	Number of Businesses	Employment
Cluster		
Buffalo Niagara	4.3%	5.8%
U.S.	6.9%	4.5%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Businesses

About 650 Information Technology businesses were located in the eight-county Buffalo Niagara region in 2004. The number of businesses grew 4.3% per year from 506 businesses in 1998 to 651 in 2004 compared to a 6.9% average annual increase nationally in this industry cluster. Detailed business and employment data for each industry cluster for the six-year period from 1998 to 2004 is provided in **Appendix C**.

This industry cluster has an above average share of small businesses, indicating the entrepreneurial nature of this industry. Over 83% of Information Technology businesses employ less than 10 people compared to 75% of all businesses that employ less than 10 people in the Buffalo Niagara region.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

SHARE OF BUSINESSES BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Information Technology Industry Cluster

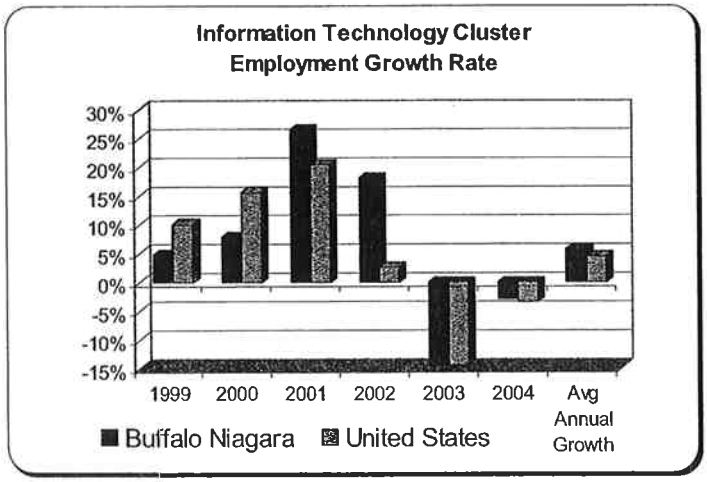
	Cluster		All Businesses	
Employees	**Businesses**	**% of Total**	**Businesses**	**% of Total**
<10	542	83.2%	47,476	75.3%
10-99	94	14.4%	10,048	15.9%
100-249	5	0.8%	733	1.2%
250-499	1	0.2%	161	0.3%
> 500	1	0.2%	98	0.2%
Unknown	8	1.2%	4,550	7.2%
Total	651	100%	63,016	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on the number of businesses in the NAICS-defined industry sector, the computer related services and computer programming services sectors have the largest number of businesses. Detailed sector analysis data is provided in **Appendix C**.

Employment

The Information Technology industry cluster employed about 5,400 people in the eight-county Buffalo Niagara region in 2004. Employment in this industry cluster comprises about 0.8% of the Buffalo Niagara region's total employment base, compared to a 1.7% concentration nationally. Employment in the Information Technology industry cluster has grown an average of 5.8% per year from 3,850 employees in 1998 to 5,408 in 2004, faster than the 4.5% per year growth nationally.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

Computer integrated systems design and computer related services were the fastest growing industry sectors from 1998 to 2004. The computer programming services and data processing and preparation are the largest industry sector employers in the Information Technology industry cluster. Detailed sector analysis data is provided in **Appendix C**.

TOP FIVE INDUSTRY SECTORS BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Information Technology Industry Cluster

SIC 4-Digit Code	Industry Sector	Employment	% of Cluster Employment in the Region
7371	Computer programming services	1,836	33.9%
7374	Data processing and preparation	1,321	24.4%
7373	Computer integrated systems design	935	17.3%
7379	Computer related services	926	17.1%
7372	Prepackaged software	295	5.5%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Over 90% of Buffalo Niagara region Information Technology industry cluster employment is in Erie County. From 1998 to 2004, Erie County experienced the highest employment growth gaining a total of 1,650 Information Technology employees. Detailed county-level data is provided in **Appendix B**.

EMPLOYMENT BY COUNTY, 2004
Buffalo Niagara Region
Information Technology Industry Cluster

County	Employment	% of Total
Erie	4,866	90.0%
Niagara	226	4.2%
Chautauqua	153	2.8%
Genesee	69	1.3%
Cattaraugus	36	0.7%
Allegany	25	0.5%
Orleans	16	0.3%
Wyoming	17	0.3%
Total	5,408	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Wages

Total industry cluster payroll in the Buffalo Niagara region was $216.1 million in 2003. The average annual wage for employees in the Information Technology industry cluster in the Buffalo Niagara region was $38,855 in 2003 compared to $66,904 nationally for this industry cluster.

OCCUPATIONAL SALARIES, 2003
Buffalo Niagara Region
Information Technology Industry Cluster

Occupation	Average Annual Salary
Computer Support Specialists	$34,280
Computer Programmers	$53,280
Computer Software Engineers	$63,840
Database Administrators	$64,990

Source: U.S. Bureau of Labor Statistics, http://stats.bls.gov.

Industry Resources

The infrastructure to support the Information Technology industry cluster comes from a variety of sources including the companies, higher education, professional associations and government. A list of resources for the Information Technology industry cluster is included in **Appendix D**.

National Competitors

Of the 50 largest metropolitan areas in the country, the highest concentrations of Information Technology employment are found in the San Jose, San Francisco and Boston metropolitan areas. The Buffalo Niagara region has the 47th highest employment concentration and the 44th highest number of total employees in this industry cluster.

TEN HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Information Technology Industry Cluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. San Jose, CA	70,009	8.5%	3,942	5.2%
2. San Francisco, CA	46,299	5.0%	102,632	3.2%
3. Boston, MA	81,554	4.5%	5,056	3.0%
4. Washington, DC	136,878	4.5%	9,972	4.1%
5. Oakland, CA	39,419	4.1%	3,084	2.9%
6. Austin, TX	23,638	3.9%	2,150	3.1%
7. Denver, CO	37,247	3.6%	2,899	2.6%
8. Atlanta, GA	73,591	3.5%	5,272	2.4%
9. Seattle, WA	36,572	3.2%	3,800	2.8%
10. Dallas, TX	59,179	3.2%	4,839	2.6%
47. Buffalo Niagara, NY	**5,408**	**0.8%**	**651**	**1.0%**
United States	1,586,722	1.3%	158,569	1.2%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on total employment at a single business site, some of the largest Information Technology businesses across the country are:

- Electronic Data Systems Corp. (EDS) - Plano, Texas
- Automatic Data Processing (ADP) - Alpharetta, Georgia
- Sabre, Inc. - Collinsville, Oklahoma

A list of some of the nation's largest employers in the Information Technology industry cluster is included in **Appendix E**.

Locational Attributes

Identifying factors important to Information Technology industry businesses as they make location decision can provide insight into how the industry cluster can grow through retention and expansion efforts. The Information Technology industry cluster relies on the following locational attributes to operate successful businesses:

- Access to skilled labor
- High quality of life to attract the skilled labor
- Proximity to revenue-generating customer base

Industry Cluster Insights

Many opportunities and challenges for each industry cluster became apparent in the focus group discussions. The following focus group opportunities and focus group challenges provide insight into growing the Information Technology industry cluster in general and specific to the Buffalo Niagara region. In addition, other business advantages related to this cluster are discussed. Finally, this section notes the strategic initiatives that are currently underway that address some of the challenges facing this industry cluster.

Focus Group Opportunities

Lower Cost of Doing Businesses – Talented Information Technology employees are less expensive in the Buffalo Niagara region than in large metropolitan areas across the country, but comparable to other second tier cities. For example, a computer programmer in Buffalo had an annual average wage of $53,280 in 2003 compared to the national average of $65,170.

Information Technology businesses need office space to operate. The Buffalo Niagara region offers low office lease rates contributing to the lower cost of doing business. The average office lease rate in Buffalo Niagara central business district (CBD), Class A space, was $21.00 per square foot in 2003 according to the Society of Industrial and Office Realtors (SIOR). Comparative average lease rates per square foot were $36.77 in Boston, $30.00 in Chicago, $24.88 in Baltimore and $22.00 in Philadelphia.

According to the *Metro Area and State Competitiveness Report 2004* published by the Beacon Hill Institute, the Buffalo metro area is ranked 19 out of 50 metro areas in the *Forbes Cost of Doing Business* index. This ranking highlights the Buffalo metro area's competitive advantage due to a low cost of doing business.[16]

Project Management Role – With more software development going overseas, United States Information Technology businesses can fill a project management role, providing applications, requirement and specification experts who understand the software and information technology solutions. Information Technology businesses are becoming "brain trusts," providing the design and thought leadership, while actual development is being done in "less expensive" labor markets.

New Technologies – New technologies like wireless Internet and radio frequency identification (RFID) are providing new opportunities for businesses in the Information Technology industry cluster.

Easy Entry for Business Start-Ups – There is a low cost for entry into the software development business. The cost for individuals to leave a big company and go out on their own is relatively low, with start-up companies generally needing only a computer. Start-up software companies thrive on creativity and innovation.

Mergers and Acquisitions – An active merger and acquisition business environment across the nation increases the need for Information Technology services.

Business Advantages

In addition to the opportunities noted in the focus group sessions, data provided by the Buffalo Niagara Enterprise suggest the following business advantages for the Information Technology industry cluster.

Access to Skilled Labor – With a labor force of nearly 795,000 people, the Buffalo Niagara region's workforce represents one of New York's greatest assets. The region enjoys a large, well-educated population and an abundant supply of entry-level and experienced labor. Indeed, 86.4% of the adult population has graduated from high school, ranking the region #24 out of the 45 largest metropolitan areas. The region boasts a diverse employment base that is highly productive and brings with it a very strong work ethic.

High Quality of Life – The Buffalo Niagara region offers numerous entertainment venues ranging from major league sporting events to theatre and other cultural attractions to a wide variety of winter and summer outdoor recreational activities. Independent rankings put Buffalo Niagara on par with much larger cities in cultural and entertainment rankings. For example, *AmericanStyle*, a nationally distributed lifestyle magazine aimed at art

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[16] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

enthusiasts and collectors, named Buffalo one of the nation's Top 10 Arts Destinations for the third consecutive year in its annual readers' poll in 2004.

Low Cost of Living – The Buffalo Niagara region offers the second lowest median home price out of the 133 metropolitan areas included in the National Association of Realtors' quarterly report. The median home price in the Buffalo Niagara region rose to $93,000 in 2004 compared to the national median price of $184,100.

Proximity to Customer Base – The Buffalo Niagara region is located in geographic proximity to the major trading centers of the Northeast and is a bi-national gateway for commerce. Over 51 million people live within 300 miles of the Buffalo Niagara region.

Focus Group Challenges

Overseas Development – Client requirements and labor costs have driven many Information Technology businesses to seek software developers overseas. While a software developer in the United States may be paid $60,000 a year, a similar worker in India or China requires less than $20,000 a year in wages.

In-House Information Technology – Smaller Information Technology consulting businesses are faced with the challenge of large businesses creating an in-house information technology department. In-house information technology departments reduce the amount of work available for smaller Information Technology consulting businesses. Still, larger in-house departments hire Information Technology workers creating additional jobs.

Air Access – Although local airports provide inexpensive, easy access to the Buffalo Niagara region, there are very few direct flights to major cities across the country. Business professionals must make a connection through another city, making it difficult for the business traveler to reach the Buffalo Niagara region and for Buffalo Niagara business travelers to reach locations across the country in a timely manner.

Image – Focus group participants indicated that the Buffalo Niagara region is unfairly perceived as a less than desirable place to live and to do business. This perception needs to be improved to reflect the many advantages of the Buffalo Niagara region.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive

position. The following is a brief summary of the mission of the strategic initiatives that are most relevant to the Information Technology industry cluster.[17]

Downtown Buffalo Neighborhood – Facilitate the creation of vibrant downtown Buffalo residential neighborhoods with the amenities, services and look which create a unique urban lifestyle.

Local Tax – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how Erie County government can provide services in a more fiscally responsible and effective manner.

Regional Land Use – Establish a regional land use/infrastructure plan. Establish an entity to oversee and implement the plan with the appropriate authority and utilizing all necessary tools.

Regional Tourism – To enhance the bi-national region as an international tourism destination by improving cooperation and coordination among tourism-related for-profit and not-for-profit entities and tourism promotional agencies and by influencing local, state/provincial and federal governments to change policies, regulations and laws as required facilitating this enhancement.

Workforce Development – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

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[17] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW*, 16th Quarterly Report, April 2005 – June 2005.

Life Sciences

Description

The Life Sciences industry cluster includes three related but distinct industry subclusters – Medical Products, Pharmaceuticals and Research. Inter-relationships exist between these sciences at many levels. Pharmaceuticals and Research businesses utilize similar Medical Products while Medical Products and Pharmaceuticals businesses rely on Research to develop end products. Also, all three Life Sciences subclusters rely on a labor pool with similar skill sets. Research institutions can be significantly impacted by government funding while all three subclusters are subject to similar government regulations and regulatory agencies.

The industry cluster is defined by 18 6-digit North American Industry Classification System (NAICS) codes or 17 4-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Life Sciences industry cluster can be found in **Appendix A**. An overview of the Life Sciences industry cluster as a whole is presented followed by a brief profile for each of the subclusters.

Buffalo Niagara Region Cluster Profile

Between 1998 and 2004 Life Sciences employment increased 1.6% per year in the Buffalo Niagara region compared to 3.4% employment growth nationally for this industry cluster. The industry cluster employment increase in the Buffalo Niagara region was above the average annual employment growth for all industries of 0.6% during the same time period.

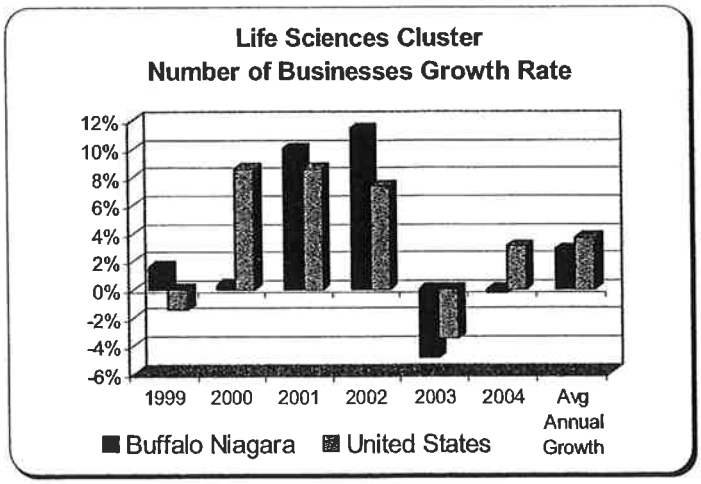
AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Life Sciences Industry Cluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	2.9%	1.6%
U.S.	3.7%	3.4%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Businesses

About 371 Life Sciences businesses were located in the eight-county Buffalo Niagara region in 2004. The number of businesses grew 2.9% per year from 313 businesses in 1998 to 371 in 2004 compared to a 3.7% average annual increase nationally. Detailed business and employment data for each industry cluster for the six-year period from 1998 to 2004 is provided in **Appendix C.**



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

With about 23% of Life Sciences businesses employing more than 10 people compared to 17% of all businesses that employ more than 10 people in the Buffalo Niagara region, this industry cluster has many medium and large businesses.

SHARE OF BUSINESSES BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Life Sciences Industry Cluster

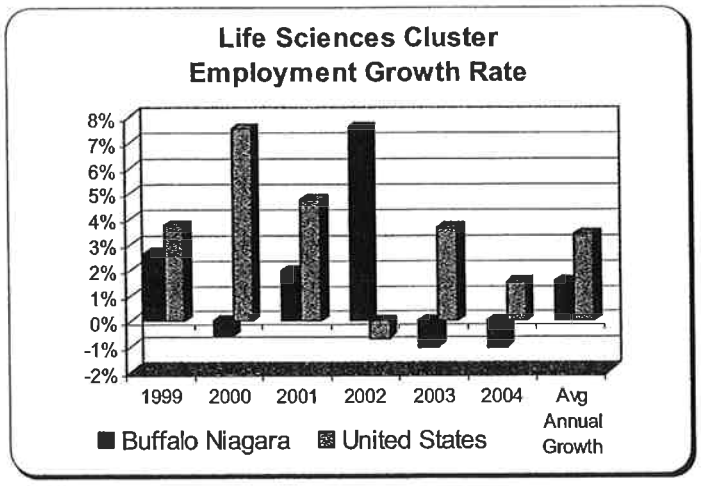
Employees	Cluster		All Businesses	
	Businesses	% of Total	Businesses	% of Total
< 10	244	65.8%	47,426	75.3%
10-99	67	18.1%	10,048	15.9%
100-249	11	3.0%	753	1.2%
250-499	4	1.1%	161	0.3%
>500	3	0.8%	98	0.2%
Unknown	42	11.3%	4,550	7.2%
Total	371	100%	63,016	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on the number of businesses in this NAICS-defined industry sector, the medical laboratories sector has the largest number of businesses. Detailed sector analysis data is provided in **Appendix C.**

Employment

The Life Sciences industry cluster employed about 8,600 people in the eight-county Buffalo Niagara region in 2004. Employment in this industry cluster comprises about 1.3% of the Buffalo Niagara region's total employment base, more than the 1.2% concentration nationally. Employment in the Life Sciences industry cluster has increased an average of 1.6% per year from 7,806 employees in 1998 to 8,561 in 2004. Nationally, employment in the Life Sciences industry cluster has grown 3.4% per year since 1998.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

The diagnostic substances sector was the fastest growing industry sector from 1998 to 2004. Noncommercial research organizations, pharmaceutical preparations and surgical and medical instruments sectors are the largest industry sector employers in the Life Sciences industry cluster. Detailed sector analysis data is provided in **Appendix C**.

TOP FIVE INDUSTRY SECTORS BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Life Sciences Industry Cluster

SIC 4-Digit Code	Industry Sector	Employment	% of Cluster Employment in the Region
8733	Noncommercial research organizations	2,160	25.2%
2834	Pharmaceutical preparations	1,538	18.0%
3841	Surgical and medical instruments	1,162	13.6%
8071	Medical laboratories	798	9.3%
3845	Electromedical equipment	706	8.2%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

About 91% of the Buffalo Niagara region Life Sciences industry cluster employment is in Erie County. From 1998 to 2004, Life Sciences employment in Erie County grew by 1.2% per year. All other counties in the Buffalo Niagara region also experienced employment growth in this sector with the exceptions of flat growth in Orleans County and a decline of 4.4% per year in Niagara County. Detailed county-level data is provided in **Appendix B**.

EMPLOYMENT BY COUNTY, 2004
Buffalo Niagara Region and United States
Life Sciences Industry Cluster

	Employment	% of Total
Erie	7,798	91.1%
Chautauqua	438	5.1%
Niagara	123	1.4%
Orleans	92	1.1%
Genesee	41	0.5%
Cattaraugus	35	0.4%
Allegany	24	0.3%
Wyoming	10	0.1%
Total	8,561	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Wages

Total industry cluster payroll in the Buffalo Niagara region was $356.1 million in 2003. The average annual wage for employees in the Life Sciences industry cluster was $41,166 in 2003 compared to $60,306 nationally for this industry cluster.

OCCUPATIONAL SALARIES, 2003
Buffalo Niagara Region
Life Sciences Industry Cluster

Occupation	Average Annual Salary
Dental Laboratory Technicians	$30,370
Chemical Technicians	$36,220
Chemical Equipment Operators and Tenders	$40,500
Biochemists and Biophysicists	$53,960
Medical Scientists	$86,570

Source: U.S. Bureau of Labor Statistics, http://stats.bls.gov.

Industry Resources

The infrastructure to support the Life Sciences industry cluster comes from a variety of sources including private companies, professional associations, higher education and government. A list of resources for the Life Sciences industry cluster is included in **Appendix D**.

National Competitors

Of the 50 largest metropolitan areas in the country, the highest concentrations of Life Sciences employment are found in the Raleigh-Durham, Newark and Minneapolis metropolitan areas. The Buffalo Niagara region ranks 19th out of the 50 largest metropolitan areas for employment concentration and 33rd in number of total employees in this industry cluster.

25 HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Life Sciences Industry Cluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Raleigh-Durham, NC	28,353	4.3%	527	0.9%
2. Newark, NJ	37,141	4.1%	591	0.6%
3. Minneapolis, MN	52,887	3.4%	750	0.6%
4. Bergen-Passaic, NJ	20,085	3.2%	483	0.7%
5. San Jose, CA	23,517	2.9%	683	0.9%
6. San Diego, CA	31,745	2.7%	1,109	0.8%
7. Orange County, CA	38,179	2.7%	1,271	0.8%
8. Salt Lake City, UT	15,012	2.4%	477	0.8%
9. Boston, MA	43,175	2.4%	1,358	0.8%
10. Cincinnati, OH	18,270	2.4%	349	0.5%
11. Oakland, CA	18,005	1.9%	806	0.8%
12. San Francisco, CA	16,405	1.8%	694	0.7%
13. Philadelphia, PA	39,601	1.7%	1,401	0.7%
14. Chicago, IL	57,805	1.6%	1,773	0.6%
15. Sacramento, CA	10,385	1.6%	384	0.5%
16. Nassau-Suffolk, NY	17,675	1.5%	885	0.6%
17. Seattle, WA	17,270	1.5%	764	0.6%
18. St Louis, MO	16,607	1.4%	597	0.6%
19. Buffalo Niagara, NY	**8,561**	**1.3%**	**371**	**0.6%**
20. Tampa-St Petersburg, FL	13,616	1.3%	680	0.6%
21. Indianapolis, IN	9,741	1.2%	399	0.6%
22. Pittsburgh, PA	11,664	1.2%	531	0.5%
23. Kansas City, MO	9,873	1.1%	377	0.5%
24. Miami, FL	10,184	1.1%	656	0.6%
25. Greensboro, NC	6,193	1.0%	251	0.4%
United States	1,448,099	1.2%	61,527	0.5%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Locational Attributes

Factors important to a business' decision to locate in a particular community provide insight into how the industry cluster can be grown through retention and expansion efforts. The Life Sciences industry cluster relies on the following locational attributes to operate a successful business or organization:

- Access to skilled labor
- Good logistics infrastructure
- Reliable utilities
- High quality of life
- Favorable tax policies

Industry Cluster Insights

Many opportunities and challenges for each industry cluster became apparent in the focus group discussions. The following focus group opportunities and focus group challenges provide insight into growing the Life Sciences industry cluster in general and specific to the Buffalo Niagara region. In addition, other business advantages related to this cluster are discussed. Finally, this section notes the strategic initiatives that are currently underway that address some of the challenges facing this industry cluster.

Focus Group Opportunities

Higher Education – Higher education research and degree programs in the Buffalo Niagara region provide an excellent support system for the Life Sciences industry cluster. According to the *Metro Area and State Competitiveness Report 2004* published by Beacon Hill Institute, the Buffalo metro area has the 4th highest ranking out of 50 metro areas for the number of science and engineering graduate students per 100,000 inhabitants and the 12th highest ranking for the percent of students enrolled in degree-granting institutions per 1,000 residents.[18] These rankings highlight one of the Buffalo Niagara region's competitive advantages.

The University of Buffalo is a premier research-intensive public university with exceptional intellectual and infrastructure resources in biomedical, pharmaceutical and life sciences research. The School of Dental Medicine, Informatics, Medicine and Biomedical Sciences, and Pharmacy and Pharmaceutical Sciences, in addition to several research institutions, offer programs related to the Life Sciences industry cluster. The Center of Excellence in Bioinformatics and Life Sciences merges high-end technology, including supercomputing and visualization, with expertise in genomics, proteomics and bioimaging, to enable major contributions in science and health care.

> *"Why Focus on Bioinformatics in Buffalo?*
>
> *The facilities and people in Buffalo have the capability to move from the genetic analysis of disease through the development of a drug and its clinical trial in an efficient* ***'one-stop-shopping'*** *scenario."*
>
> New York State Center of Excellence in Bioinformatics & Life Sciences, www.bioinformatics.buffalo.edu.

[18] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

Ten of the 15 regional higher education institutions with enrollment of over 1,000 students offer life sciences degree programs. Associate, Bachelor, Masters and Doctorate degree programs are available. Program areas include biology, chemistry, biomedical materials engineering, bioinformatics, clinical laboratory science, biotechnology, genetics, biochemistry, pharmacology, neuroscience and nuclear medicine.

Clinical Trials – Life Sciences industry cluster businesses indicated the Buffalo Niagara region is a good place to conduct clinical trials. A clinical trial (or clinical research) is a research study in human volunteers to answer specific health questions. Carefully conducted clinical trails are the fastest and safest way to find treatments that work and ways to improve health.

Opportunities for Collaboration – With the strong presence of businesses in Medical Products, Pharmaceuticals and Research, the opportunity for collaboration is strong in the Buffalo Niagara region. The commercialization of research discoveries, the utilization of research institutions to advance discoveries and networking between businesses provide opportunities for collaboration.

Advanced Manufacturing – In the Medical Products subcluster, companies that adopt advanced manufacturing techniques, either in the form of using a more technologically advanced manufacturing process or producing more technologically advanced products, have a greater opportunity for improving their business performance.

Business Advantages

In addition to the opportunities noted in the focus group sessions, data provided by the Buffalo Niagara Enterprise suggest the following business advantages for the Life Sciences industry cluster.

Access to Skilled Labor – With a labor force of nearly 795,000 people, the Buffalo Niagara region's workforce represents one of New York's greatest assets. The region enjoys a large, well-educated population and an abundant supply of entry-level and experienced labor. Indeed, 86.4% of the adult population has graduated from high school, ranking the region #24 out of the 45 largest metropolitan areas. The region boasts a diverse employment base that is highly productive and brings with it a very strong work ethic.

Quality Transportation Networks – The *2005 Urban Mobility Study* by the Texas Transportation Institute reveals that peak period travelers in the Buffalo Niagara region experience 13 hours of delay annually due to congested roads, earning the region a rank of 65 out of 85 areas. The national average is 47 hours of annual delay per peak period traveler.

The Buffalo Niagara region has one of the most highly developed rail systems in the world, encompassing nearly 1,000 miles of rail and including one of the largest railheads in the United States. Further, the Buffalo Niagara region is linked to Canada through seven different ports of entry.

High Quality of Life – The Buffalo Niagara region offers numerous entertainment venues ranging from major league sporting events to theatre and other cultural attractions to a wide variety of winter and summer outdoor recreational activities. Independent rankings put Buffalo Niagara on par with much larger cities in cultural and entertainment rankings. For example, *AmericanStyle*, a nationally distributed lifestyle magazine aimed at art enthusiasts and collectors, named Buffalo one of the nation's Top 10 Arts Destinations for the third consecutive year in its annual readers' poll in 2004.

Low Cost of Living – The Buffalo Niagara region offers the second lowest median home price out of the 133 metropolitan areas included in the National Association of Realtors' quarterly report. The median home price in the Buffalo Niagara region rose to $93,000 in 2004 compared to the national median price of $184,100.

Proximity to Customer Base – The Buffalo Niagara region is located in geographic proximity to the major trading centers of the Northeast and is a bi-national gateway for commerce. Over 51 million people live within 300 miles of the Buffalo Niagara region.

Focus Group Challenges

High Taxes – The business environment is difficult for existing and potential businesses due to high taxes. The Buffalo metro area ranks 43rd out of 50 metro areas in competitiveness according to the *Metro Area and State Competitiveness Report 2004* published by the Beacon Hill Institute. One of the variables contributing to the low ranking is high state and local taxes per capita (ranking 48). The government and fiscal policy category, which includes five variables, ranks the Buffalo metro area 50 out of 50 metro areas. These low rankings provide evidence that poor government and fiscal policy make it difficult for the area to be competitive, attract and incubate new businesses and grow existing businesses.[19]

Disconnect - Focus group participants indicated there is a disconnect between the research community and business development resources. The tools to move a life science discovery or idea from the laboratory to the commercial market are not in place. Connections between researchers and product development experts need to be fostered.

Funding – Start-up Life Sciences businesses have difficulty finding the funding or venture capital needed to get started. With the economic downturn, insider-trading scandals and highly public drug failures, venture capitalists have been very selective in their investments. According to the Business Week *Industry Outlook 2004 – Life Sciences*, "Now, investors, financiers and potential Big Pharma partners want promising

[19] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

drug pipelines and solid bottom lines. We see people investing only in companies with exciting products that will be in the clinic next year."[20]

Laboratory Space – Small start-up businesses indicated laboratory space is needed in the Buffalo Niagara region for testing and research in the beginning phase of product development.

Diversity – While the diversity of Life Sciences businesses in the Buffalo Niagara region provides a wide variety of products and services, focus group participants indicated this diversity makes it difficult to brand the Life Sciences industry cluster for the Buffalo Niagara region. An obvious specialty or strength within the Life Sciences industry cluster does not emerge. It may be beneficial to further examine specific strengths in Life Sciences for cluster marketing purposes. For example, bioinformatics, cancer research or surgical instrumentation may emerge as strong business sectors for the region.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive position. The following is a brief summary of the mission of the strategic initiatives that are most relevant to the Life Sciences industry cluster.[21]

Buffalo Permitting Reform - Complete the streamlining of Buffalo's Department of Permit and Inspection Services and continue to examine the process of development.

Commercialization of Life Science Technologies – Increase and accelerate the results from technology transfer and commercialization of cutting edge research, leading to the successful creation of new enterprises, growth companies, and ultimately, to a critical mass of life science activities that make the Buffalo Niagara region a global competitor and hot bed for innovation in the 21st century.

Cross Border Facilitation – Seeking Canadian and U.S. authorization of and resource allocation for "shared border management" and further facilitation of trade and travel between the U.S. and Canada in the Buffalo/Fort Erie, Lewiston/Queenston corridor.

Downtown Buffalo Neighborhood – Facilitate the creation of vibrant downtown Buffalo residential neighborhoods with the amenities, services and look which create a unique urban lifestyle.

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[20] *Business Week*, Industry Outlook 2004 – Life Sciences, "Biotech: A Comeback Balanced on A Razor's Edge," January 12, 2004.

[21] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW,* 16th Quarterly Report, April 2005 – June 2005.

Local Development Delivery System – Integrate the region's Industrial Development Authorities, local development corporations and other related entities into a closely-knit collaborative network that is customer friendly and development savvy.

Local Tax – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how Erie County government can provide services in a more fiscally responsible and effective manner.

Low Cost Hydropower – Preserve the amount of low cost hydropower available for new and existing industrial consumers and expand the pool of commercial and industrial consumers eligible for such power.

Regional Land Use – Establish a regional land use/infrastructure plan. Establish an entity to oversee and implement the plan with the appropriate authority and utilizing all necessary tools.

Shovel Ready Land -- To increase the region's competitiveness by creating a site portfolio containing enough real estate product for the target industry sectors and those local industries in growth mode.

Workforce Development – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

Life Sciences - Medical Products

Description

The Medical Products industry subcluster includes those companies involved in the production of laboratory, surgical, medical, dental and ophthalmic equipment and supplies. These health-related items are supplied to the medical and health care industry. The industry subcluster is defined by nine 6-digit North American Industry Classification System (NAICS) codes or eight 4-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Life Sciences – Medical Products industry subcluster can be found in **Appendix A**.

National Outlook

There are 449,000 people employed in 12,600 businesses in the Medical Products industry subcluster in the United States. This industry subcluster grew slower than the national average for all industries from 1998 to 2004. During the six-year period, Medical Products employment increased an average of 0.1% per year compared to 1.7% for all industries nationally, while the number of Medical Products businesses increased 2.0% per year compared to 3.8% for all industries nationally.

The outlook for the Medical Products industry subcluster is positive. Continued favorable demographic trends should drive increasing demand for healthcare supplies and equipment as the baby boomer population ages. However, pressure from both the government and private pay customers to contain costs has limited resources and dampened the growth of the Medical Products industry subcluster in recent years. Cost containment pressures should ease somewhat as the economy improves. Overall, an aging population demanding quality healthcare combined with cost-containment pressures should pave the way for moderate growth in the Medical Products industry subcluster.

Buffalo Niagara Region Subcluster Profile

The Buffalo Niagara region ranks 22nd out of the 50 largest metropolitan areas in the country for the Medical Products industry subcluster in terms of employment concentration. Below are examples of the major Medical Products businesses located in the Buffalo Niagara region:

- Accumed Technologies
- Axcellent Endoscopy
- Curbell
- Ethox Corp.
- Gaymar Industries, Inc.
- Great Lakes Orthodontics
- Harmac Medical Products, Inc.
- Invitrogen
- Ivoclar Vivadent
- Polymer Conversions
- Reichert Opthalmic Instruments
- Silipos, Inc.
- Trinity Biotech USA
- Wilson Greatbatch

There are 72 business establishments in the Medical Products industry subcluster in the Buffalo Niagara region. The number of companies has declined an average of 1.5% per year from 1998 to 2004 compared to the 2.0% average annual growth rate nationally for this cluster.

About 2,500 people are employed in the Buffalo Niagara region Medical Products industry subcluster, representing 0.4% of the total employment base. Employment has increased 1.1% per year, stronger than the national growth rate for the subcluster of 0.1% per year from 1998 to 2004.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Medical Products Industry Subcluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	-1.5%	1.1%
U.S.	2.0%	0.1%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

National Competitors

Employment in the Medical Products industry subcluster comprises 0.4% of the Buffalo Niagara region's employment base, which is equal to the national employment concentration of 0.4%.

Of the 50 largest metropolitan areas in the country, the highest concentrations of Medical Products subcluster employment are found in the Minneapolis, San Jose and Bergen-Passaic metropolitan areas. The Buffalo Niagara region area has the 31st highest number of total employees in this industry subcluster.

Based on total employment at a single business site, some of the largest Medical Products businesses across the country are:

- 3M Company - Saint Paul, MN
- Hospira, Inc. - Chicago, IL
- Medtronic, Inc. - Minneapolis, MN

A list of the nation's twenty largest employers in the Medical Products industry subcluster is included in **Appendix E**.

25 HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Medical Products Industry Subcluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Minneapolis, MN	44,299	2.9%	305	0.2%
2. San Jose, CA	14,819	1.8%	195	0.3%
3. Bergen-Passaic, NJ	8,268	1.3%	103	0.1%
4. Salt Lake City, UT	7,407	1.2%	118	0.2%
5. Boston, MA	18,709	1.0%	370	0.2%
6. San Diego, CA	10,848	0.9%	235	0.2%
7. Orange County, CA	12,699	0.9%	336	0.2%
8. Chicago, IL	30,815	0.8%	446	0.1%
9. Oakland, CA	7,031	0.7%	186	0.2%
10. Cincinnati, OH	4,803	0.6%	70	0.1%
11. Seattle, WA	6,671	0.6%	164	0.1%
12. San Francisco, CA	5,175	0.6%	104	0.1%
13. Pittsburgh, PA	5,535	0.5%	117	0.1%
14. Indianapolis, IN	3,922	0.5%	84	0.1%
15. Cleveland, OH	4,485	0.4%	134	0.1%
16. Nassau-Suffolk, NY	5,143	0.4%	194	0.1%
17. Denver, CO	4,558	0.4%	150	0.1%
18. Tampa-St Petersburg, FL	4,500	0.4%	159	0.1%
19. Philadelphia, PA	10,213	0.4%	297	0.1%
20. Portland, OR	3,643	0.4%	124	0.1%
21. Miami, FL	3,863	0.4%	125	0.1%
22. Buffalo Niagara, NY	**2,547**	**0.4%**	**72**	**0.1%**
23. Milwaukee, WI	2,773	0.4%	96	0.2%
24. Newark, NJ	3,257	0.4%	118	0.1%
25. Fort Lauderdale, FL	2,346	0.3%	107	0.1%
United States	449,026	0.4%	12,585	0.1%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Life Sciences - Pharmaceuticals

Description

The Pharmaceuticals industry subcluster includes those companies involved in the production of medicinals, botanicals, pharmaceuticals, diagnostic substances and biological products. The industry subcluster is defined by four 6-digit North American Industry Classification System (NAICS) codes or four 4-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Life Sciences – Pharmaceuticals industry subcluster can be found in **Appendix A**.

National Outlook

There are 320,200 people employed in 5,600 businesses in the Pharmaceuticals industry subcluster in the United States. This industry subcluster grew faster than the national average for all industries from 1998 to 2004. During the six-year period, total employment in this industry subcluster increased an average of 2.9% per year compared to 1.7% for all industries nationally, while the number of businesses increased 6.7% per year compared to 3.8% for all industries nationally.

It often takes up to ten years to successfully research, develop and bring to market pharmaceutical-based products. According to a study published by the Brookings Institution, only one in 1,000 patented biotech innovations produce a successful commercial product.[22] Pharmaceuticals companies tend to consume huge amounts of financial resources before a profitable position is ever reached, with many companies never reaching profitability. In addition to government funding sources, the major source of private funds is venture capital. While venture capital funding has become scarce during the recent economic downturn, venture capitalists remain bullish on Pharmaceuticals in the long run.

Strong sales increases in the Pharmaceuticals industry are expected over the next five years, resulting from managed care and more favorable regulatory conditions. As drug technology improves, pharmaceuticals are becoming attractive alternatives for many conditions previously requiring surgery. Managed care organizations look toward drugs whenever possible as they are less costly and less time consuming than invasive surgical procedures.

The aging of the population, mainly associated with baby boomers, signals increased demand for pharmaceuticals. Those 65 and over are the largest consumers of pharmaceuticals, which is why a number of breakthrough drugs in development focus on the elderly. Developing countries are making headway in improving health care, with low cost pharmaceuticals an integral part of that plan.

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[22]Joseph Cortright and Heike Mayer, *Signs of Life: The Growth of Biotechnology Centers in the U.S.*, The Brookings Institution Center on Urban and Metropolitan Policy, June 2002.

Less costly foreign-made pharmaceuticals and pressure to reduce costs from the government and healthcare providers may dampen the growth prospects for Pharmaceuticals companies. Also, in 2004 many pharmaceutical products were pulled from the market as potential side effects or risks were confirmed by various studies. Company executives worry that the Food & Drug Administration could turn overly cautious in approving new drugs in the wake of the Vioxx, Celebrex and Crestor debacles.

Increasing demand but more cost-containment pressures and a potentially tougher regulatory environment will result in a status-quo growth rate for the Pharmaceuticals industry subcluster.

Buffalo Niagara Region Subcluster Profile

The Buffalo Niagara region ranks 19th out of the 50 largest metropolitan areas in the country for the Pharmaceuticals industry subcluster in terms of employment concentration. Below are examples of major Pharmaceuticals businesses located in the Buffalo Niagara region:

- American Pharmaceutical Partners
- Astellas Pharmaceuticals
- Mentholatum Company, Inc.
- ONY, Inc.
- Parmed Pharmaceuticals
- Contract Pharmaceuticals Ltd.

There are 30 business establishments in the Pharmaceuticals industry subcluster in the Buffalo Niagara region. The number of companies has increased an average of 15.0% per year from 1998 to 2004 compared to the 6.7% average annual growth rate nationally for this cluster.

About 2,100 people are employed in the Buffalo Niagara region Pharmaceuticals industry subcluster, representing 0.3% of the total employment base. Employment has grown 6.0% per year from 1998 to 2004 compared to the 2.9% average annual growth rate nationally for this subcluster.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara and United States
Pharmaceuticals Industry Subcluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	15.0%	6.0%
U.S.	6.7%	2.9%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

National Competitors

Employment in the Pharmaceuticals industry subcluster comprises 0.3% of the Buffalo Niagara region's employment base, equal to the national employment concentration of 0.3%. The Buffalo Niagara region has the 19th strongest employment concentration of this industry subcluster in the country. Further, the Buffalo Niagara region area has the 28th highest number of total employees in this industry subcluster.

Of the 50 largest metropolitan areas in the country, the highest concentrations of Pharmaceuticals subcluster employment are found in the Newark, Raleigh-Durham and San Diego metropolitan areas.

25 HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Pharmaceuticals Industry Subcluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Newark, NJ	28,986	3.2%	115	0.1%
2. Raleigh-Durham, NC	11,211	1.7%	64	0.1%
3. San Diego, CA	10.729	0.9%	143	0.1%
4. Orange County, CA	9,343	0.7%	150	0.1%
5. San Francisco, CA	5,828	0.6%	98	0.1%
6. Philadelphia, PA	14,340	0.6%	158	0.1%
7. St. Louis, MO	6,708	0.6%	66	0.1%
8. Nassau-Suffolk, NY	5,621	0.5%	126	0.1%
9. Greensboro, NC	2,671	0.5%	22	0.0%
10. Bergen-Passaic, NJ	2,717	0.4%	74	0.1%
11. Cincinnati, OH	3,316	0.4%	40	0.1%
12. Oakland, CA	3,922	0.4%	84	0.1%
13. Boston, MA	7,174	0.4%	153	0.1%
14. San Jose, CA	3,137	0.4%	60	0.1%
15. Columbus, OH	3,074	0.4%	29	0.0%
16. Salt Lake City, UT	2,252	0.4%	48	0.1%
17. Chicago, IL	13,462	0.4%	193	0.1%
18. Miami, FL	3,241	0.3%	81	0.1%
19. Buffalo Niagara, NY	**2,106**	**0.3%**	**30**	**0.1%**
20. Kansas City, MO	2,842	0.3%	49	0.1%
21. Washington, DC	8,196	0.3%	134	0.1%
22. New York, NY	9,092	0.3%	133	0.0%
23. Baltimore, MD	2,487	0.2%	55	0.1%
24. Tampa-St Petersburg, FL	2,141	0.2%	63	0.1%
25. Los Angeles, CA	7,381	0.2%	219	0.1%
United States	320,189	0.3%	5,572	0.04%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2001.

Based on total employment at a single business site, some of the largest Pharmaceuticals businesses across the country are:

- GlaxoSmithKline - Durham, NC
- Pharmacia & Upjohn Company - Peapack, NJ
- Merck & Company, Inc. - Rahway, NJ

A list of the nation's twenty largest employers in the Pharmaceuticals industry subcluster is included in **Appendix E**.

Life Sciences - Research

Description

The Research industry subcluster includes those businesses and organizations involved in commercial physical research and noncommercial research. Medical, dental and testing laboratories are also included in this subcluster. Drug discovery and design, oncology research, neurology, structural biology, bioinformatics and high-performance computing are performed by businesses in the Research industry subcluster.

National Outlook

There are 678,900 people employed in 43,400 businesses in the Research industry subcluster in the United States. This industry subcluster grew more than the national average for all industries from 1998 to 2004. During the six-year period, total employment in this industry subcluster increased an average of 6.4% per year compared to 1.7% for all industries nationally, while the number of businesses increased 3.8% per year compared to 3.8% for all industries nationally.

The National Institute of Health (NIH) is the nation's largest funder of biomedical research. After years of 14% to 15% growth in the NIH budget, President Bush has settled on NIH funding growth of only 2% per year. Slower growth in NIH funding will impact scientists across the country that depend on NIH grants. Also, an increasing share of NIH funding is funding bioterrorism efforts, further exacerbating the funding crunch for research on everyday diseases and non-bioterrorism research.

More private money is now flowing into promising work in embryonic stem cell research. The research field got a huge boost in November 2004 when California voters approved a 10-year, $3 billion stem-cell initiative, and other states may follow. While California research businesses will realize the benefits of the private funding, research efforts in other communities may also benefit through subcontracts from the California research funding. Also, as breakthroughs in stem cell research and other areas occur, research companies should attract more funding from Pharmaceuticals companies whose research pipelines are dry.

The outlook for the Research industry subcluster is for moderate growth similar to recent years.

Buffalo Niagara Subcluster Profile

The Buffalo Niagara region ranks 19th out of the 50 largest metropolitan areas in the country for the Research industry subcluster in terms of employment concentration. Below are examples of major Research establishments operating in the Buffalo Niagara region:

- GeneOb
- Hauptman-Woodward Institute
- Jacobs Neurological Institute
- New York State Center of Excellence in Bioinformatics and Life Sciences
- Roswell Park Cancer Institute

There are 269 Research establishments in the Research industry subcluster in the Buffalo Niagara region. The number of Research establishments has increased an average of 3.3% per year from 1998 to 2004 compared to the 3.8% average annual growth rate nationally for this subcluster.

About 3,900 people are employed in the Buffalo Niagara Research industry subcluster, representing 0.6% of the total employment base. Employment has declined 0.1% per year from 1998 to 2004 compared to the 6.4% average annual growth rate nationally for this cluster.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Research Industry Subcluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	3.3%	-0.1%
U.S.	3.8%	6.4%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Strong potential for future growth in the Buffalo Niagara region Research industry subcluster exists with the completion of the Buffalo Life Sciences Complex in 2005. The Buffalo Life Sciences Complex will add over 400,000 square feet to the Buffalo Niagara Medical Campus. The Campus brings clinical care, life science research, medical education institution and private companies together in one synergistic location. The University at Buffalo Center of Excellence in Bioinformatics, Hauptman-Woodward Medical Research Institute and the Roswell Park Cancer Institute will be an integral part of the Buffalo Life Sciences Complex.

National Competitors

Employment in the Research industry subcluster comprises 0.6% of the Buffalo Niagara region's employment base, which is equal to the national employment concentration of 0.6%. The Buffalo Niagara region has the 19th strongest employment concentration and the 32nd highest level of total employment in this industry subcluster in the country.

Of the 50 largest metropolitan areas in the country, the highest concentrations of Research subcluster employment are found in the Raleigh-Durham, Bergen-Passaic and Sacramento metropolitan areas.

25 HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Research Industry Subcluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Raleigh-Durham, NC	15,614	2.4%	390	0.6%
2. Bergen-Passaic, NJ	9,100	1.5%	306	0.4%
3. Sacramento, CA	9,350	1.4%	297	0.4%
4. Cincinnati, OH	10,151	1.3%	239	0.4%
5. Orange County, CA	16,137	1.1%	785	0.5%
6. Boston, MA	17,292	1.0%	835	0.5%
7. Salt Lake City, UT	5,353	0.9%	311	0.5%
8. San Diego, CA	10,168	0.9%	731	0.5%
9. Seattle, WA	8,559	0.7%	537	0.4%
10. Oakland, CA	7,052	0.7%	536	0.5%
11. Detroit, MI	13,976	0.7%	640	0.4%
12. Phoenix, AZ	9,337	0.7%	542	0.4%
13. San Jose, CA	5,561	0.7%	428	0.6%
14. Tampa-St Petersburg, FL	6,975	0.7%	458	0.4%
15. Indianapolis, IN	5,150	0.6%	278	0.4%
16. Kansas City, MO	5,527	0.6%	245	0.3%
17. Philadelphia, PA	15,048	0.6%	946	0.5%
18. Dallas, TX	11,724	0.6%	516	0.3%
19. Buffalo Niagara, NY	**3,908**	**0.6%**	**269**	**0.4%**
20. Nassau-Suffolk, NY	6,911	0.6%	565	0.4%
21. San Francisco, CA	5,402	0.6%	492	0.5%
22. Pittsburgh, PA	5,843	0.6%	388	0.4%
23. St Louis, MO	6,524	0.6%	412	0.4%
24. Newark, NJ	4,898	0.5%	358	0.4%
25. Baltimore, MD	6,062	0.5%	444	0.4%
United States	678,884	0.6%	43,370	0.3%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on total employment at a single business site, some of the largest Research institutions across the country are:

- M. D. Anderson Hospital - Houston, TX
- Wake Medical Center - Raleigh, NC
- University of California Medical Center - Sacramento, CA

A list of the nation's twenty largest employers in the Research industry subcluster is included in **Appendix E**.

Machinery

Description

The Machinery industry cluster includes those companies that produce a wide variety of machinery, including turbines, engines, conveyors, cranes, machine tools, metalworking machinery, food products machinery, compressors, furnaces, computer equipment and packaging machinery. This industry cluster produces the machinery and equipment necessary to produce and manufacture products and services in other industries. The primary purchasers of such goods are other businesses. The industry cluster is defined by one 3-digit North American Industry Classification System (NAICS) code or one 2-digit Standard Industrial Classification (SIC) code. Definition information for the Machinery industry cluster can be found in **Appendix A**.

National Outlook

There are 1,971,400 people employed in 89,600 businesses in the Machinery industry cluster in the United States. Both employment growth and business growth in this industry cluster were less than the national growth rate for all industries from 1998 to 2004. During the six-year period, total employment in this industry cluster declined an average of 2.1% per year compared to 1.7% growth for all industries nationally, while the number of businesses increased 0.7% per year compared to 3.8% for all industries nationally.

Despite growth in the early part of the past decade, the Machinery industry cluster has not done well over the past several years. Due to the fact that its main customers are other businesses in the goods-producing sector, the industry is very sensitive to economic downturns. Besides regular business cycles, several factors have contributed to changes in this industry cluster due to changes in client industries. Client industries have experienced employment level changes due to both movement of manufacturing overseas and changes in production technology. The Machinery industry cluster tends to reflect the main goods-producing industries in a community.

Markets for machinery in growing countries, such as China, are providing opportunities for some Machinery businesses to grow their businesses. Construction machinery in particular has been in high demand in China. Competition from foreign machinery producers also exists.

Due to weakness in related manufacturing industries, changes in manufacturing processes, and other competitive issues like the strong dollar, very slow growth in the Machinery industry cluster is expected.

Buffalo Niagara Region Cluster Profile

The Buffalo Niagara region ranks 6th out of the 50 largest metropolitan areas in the country for the Machinery industry cluster in terms of employment concentration. As previously mentioned, the Machinery industry cluster tends to reflect the main goods-

producing industries in a community. In the Buffalo Niagara region, the primary industries supported by the Machinery industry cluster include automotive/engines, oil/mining, steel/metals and energy/power generation. Historically, the Machinery industry cluster "grew up" with these core industries in the Buffalo Niagara region. While the Machinery industry cluster continues to support a local client base, many Machinery businesses serve clients nationally and internationally. Below are examples of major Machinery businesses located in the Buffalo Niagara region:

- Acu-Rite, Inc.
- Armstrong Pumps, Inc.
- Automotive Corp., Inc.
- Cooper Turbocompressor, Inc.
- Cummins, Inc.
- Derrick Corp.
- Dresser-Rand Co.
- F R Holdings, Inc.
- Graham Corp.
- MRC Bearings, Inc.

Machinery employment declined 1.7% per year between 1998 and 2004 in the Buffalo Niagara region compared to a national employment decline of 2.1% per year for this industry cluster. The industry cluster employment decline in the Buffalo Niagara region was below the average annual employment growth rate for all industries of 0.6% during the same time period.

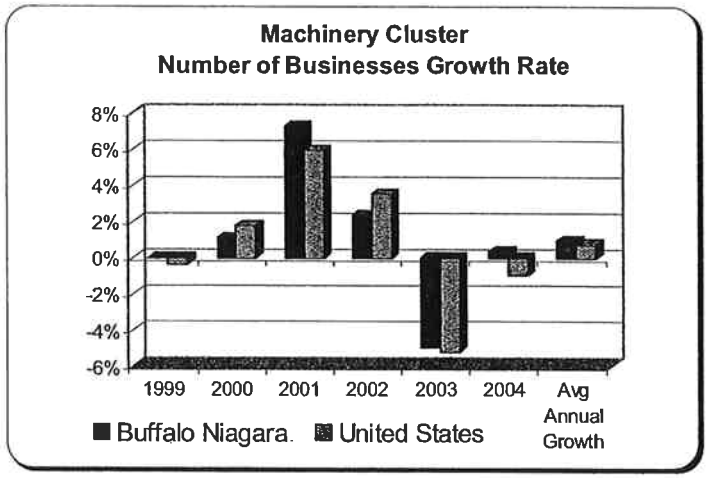
AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Machinery Industry Cluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	1.0%	-1.7%
U.S.	0.7%	-2.1%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Businesses

About 575 Machinery businesses were located in the eight-county Buffalo Niagara region in 2004. The number of businesses grew 1.0% per year from 543 businesses in 1998 to 575 in 2004 compared to 0.7% average annual increase nationally in this industry cluster. Detailed business and employment data for each industry cluster for the six-year period from 1998 to 2004 is provided in **Appendix C.**



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

With nearly 38% of Machinery businesses employing more than 10 people compared to 17% for all businesses that employ more than 10 people in the Buffalo Niagara region, this industry cluster has a large concentration of medium and large businesses.

SHARE OF BUSINESSES BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Machinery Industry Cluster

	Cluster		All Businesses	
Employees	Businesses	% of Total	Businesses	% of Total
< 10	332	57.7%	47,426	75.3%
10-99	184	32.0%	10,048	15.9%
100-249	22	3.8%	734	1.2%
250-499	6	1.0%	161	0.3%
> 500	7	1.2%	98	0.2%
Unknown	24	4.2%	4,550	7.2%
Total	575	100.0%	63,016	100.0%

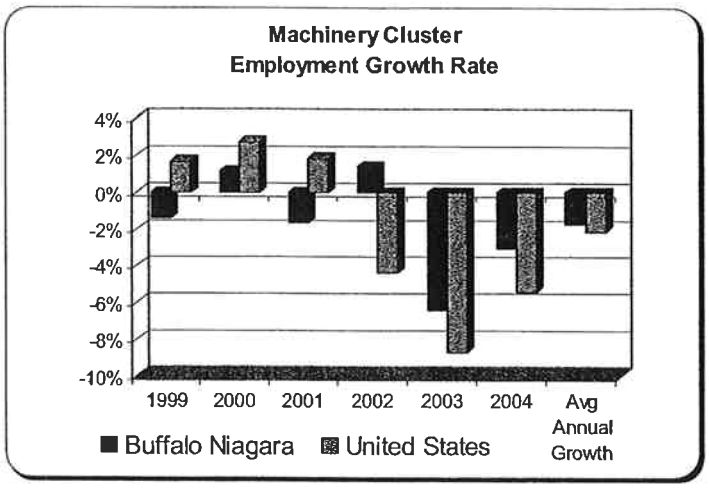
Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on the number of businesses in the NAICS-defined cluster, the special dies, tools, jigs and fixtures sector and the industrial machinery (not elsewhere classified) sector have the largest number of businesses. Detailed sector analysis data is provided in **Appendix C.**

Employment

The Machinery industry cluster employed about 17,400 people in the eight-county Buffalo Niagara region in 2004. Employment in this industry cluster comprises about 2.7% of the Buffalo Niagara region's total employment base, compared to a 1.6% concentration nationally. Employment in the Machinery industry cluster has decreased an average of 1.7% per year from 19,300 employees in 1998 to 17,400 in 2004.

The welding apparatus and metalworking machinery sectors were the fastest growing industry sectors from 1998 to 2004. Detailed sector analysis data is provided in **Appendix C**.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

The turbines and turbine generators, industrial machinery and internal combustion engines sectors are the largest industry sector employers in the Machinery industry cluster.

TOP FIVE INDUSTRY SECTORS BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Machinery Industry Cluster

SIC 4-Digit Code	Industry Sector	Employment	% of Cluster Employment in the Region
3511	Turbines and turbine generator sets	3,002	17.2%
3599	Industrial machinery, nec	2,505	14.4%
3519	Internal combustion engines, nec	2,321	13.3%
3562	Ball and roller bearings	1,015	5.8%
3544	Special dies, tools, jigs, and fixtures	893	5.1%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

About 46% of the Buffalo Niagara region Machinery industry cluster employment is in Erie County and 16% is in Chautauqua County. Three of the counties added employees from 1998 to 2004, including Genesee County (+274 workers), Allegany (+71) and Niagara (+56). Detailed county-level data is provided in **Appendix B**.

EMPLOYMENT BY COUNTY, 2004
Buffalo Niagara Region
Machinery Industry Cluster

County	Employment	% of Total
Erie	8,062	46.3%
Chautauqua	2,856	16.4%
Niagara	1,716	9.9%
Cattaraugus	1,694	9.7%
Allegany	1,491	8.6%
Genesee	1,287	7.4%
Orleans	185	1.1%
Wyoming	121	0.7%
Total	17,412	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Wages

Total industry cluster payroll in the Buffalo Niagara region was $801.7 million in 2003. The average annual wage for employees in the Machinery industry cluster was $44,647 in 2003 compared to $48,257 nationally.

OCCUPATIONAL SALARIES, 2003
Buffalo Niagara Region
Machinery Industry Cluster

Occupation	Average Annual Salary
Structural Metal Fabricators and Fitters	$31,900
Mechanical Drafters	$43,940
Tool and Die Makers	$49,470
Industrial Engineers	$60,830
Industrial Production Managers	$80,270

Source: U.S. Bureau of Labor Statistics, http://stats.bls.gov.

Industry Resources

The infrastructure to support the Machinery industry cluster comes from a variety of sources including private companies, professional associations, higher education institutions and government. A list of resources for the Machinery industry cluster is included in **Appendix D**.

National Competitors

Of the 50 largest metropolitan areas in the country, the Buffalo Niagara region has the 6th highest employment concentration and the 15th highest number of total employees in the Machinery industry cluster. The highest concentrations of Machinery employment are found in the San Jose, Milwaukee and Cleveland metropolitan areas.

TEN HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Machinery Industry Cluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. San Jose, CA	42,479	5.2%	1,181	1.5%
2. Milwaukee, WI	31,391	4.5%	968	1.7%
3. Cleveland, OH	33,371	3.3%	1,469	1.6%
4. Detroit, MI	61,422	3.2%	2,739	1.6%
5. Minneapolis, MN	43,020	2.8%	1,559	1.2%
6. Buffalo Niagara, NY	**17,412**	**2.7%**	**575**	**0.9%**
7. Houston, TX	52,071	2.7%	1,831	0.9%
8. Indianapolis, IN	21,008	2.7%	568	0.9%
9. Chicago, IL	82,881	2.3%	3,228	1.0%
10. Orange County, CA	30,999	2.2%	1,742	1.1%
United States	1,971,391	1.6%	89,585	0.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

The Machinery industry cluster includes computer equipment businesses, so some of the strongest metro areas and largest businesses for this industry cluster are influenced by the computer machinery sector.

Based on total employment at a single business site, some of the largest Machinery businesses in the country are:

- IBM - Hopewell Junction, New York
- Compaq Computer Corp. - Houston, Texas
- General Electric Company - Erie, Pennsylvania

A list of the nation's twenty largest employers in the Machinery industry cluster is included in **Appendix E**.

Locational Attributes

Factors important in a business' decision to locate in a particular community provide insight into how the industry cluster can be grown through retention and expansion efforts. The Machinery industry cluster relies on the following locational attributes to operate successful businesses:

- Near similar industries
- Proximity to transportation
- Skilled labor force
- Low-cost utilities

Industry Cluster Insights

Many opportunities and challenges for each industry cluster became apparent in the focus group discussions. The following focus group opportunities and focus group challenges provide insight into growing the Machinery industry cluster in general and specific to the Buffalo Niagara region. In addition, other business advantages related to this cluster are discussed. Finally, this section notes the strategic initiatives that are currently underway that address some of the challenges facing this industry cluster.

Focus Group Opportunities

High-Skill - Manufacturing has become more of a high-skilled occupation as opposed to the typical production line worker of earlier years. According to the National Coalition for Advanced Manufacturing, "Traditional perceptions of manufacturing are being transformed by the increasing use of advanced technologies in the manufacturing process . . . The dangerous, dirty, labor-intensive assembly lines of the 1950s are gone, replaced by robotics and intelligent systems requiring high-tech skills."[23]

Less Outsourcing – Focus group participants indicated some outsourced work is being brought back in-house.

Advanced Manufacturing – Companies that adopt advanced manufacturing techniques, either in the form of using a more technologically advanced manufacturing process or producing more technologically advanced products, have a greater opportunity for improving their business performance.

Machining – Some parts machined in China can be produced in the United States as cost effectively as overseas.

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[23] U.S. Department of Labor, Employment & Training Administration, *High Growth Industry Profile Advanced Manufacturing*, www.doleta.gov.

Business Advantages

In addition to the opportunities noted in the focus group sessions, data provided by the Buffalo Niagara Enterprise suggest the following business advantages for the Machinery industry cluster.

Access to Skilled Labor – With a labor force of nearly 795,000 people, the Buffalo Niagara region's workforce represents one of New York's greatest assets. The region enjoys a large, well-educated population and an abundant supply of entry-level and experienced labor. Indeed, 86.4% of the adult population has graduated from high school, ranking the region #24 out of the 45 largest metropolitan areas. The region boasts a diverse employment base that is highly productive and brings with it a very strong work ethic.

Quality Transportation Networks – The *2005 Urban Mobility Study* by the Texas Transportation Institute reveals that peak period travelers in the Buffalo Niagara region experience 13 hours of delay annually due to congested roads, earning the region a rank of 65 out of 85 areas. The national average is 47 hours of annual delay per peak period traveler.

The Buffalo Niagara region has one of the most highly developed rail systems in the world, encompassing nearly 1,000 miles of rail and including one of the largest railheads in the United States. Further, the Buffalo Niagara region is linked to Canada through seven different ports of entry.

Proximity to Customer Base – The Buffalo Niagara region is located in geographic proximity to the major trading centers of the Northeast and is a bi-national gateway for commerce. Over 51 million people live within 300 miles of the Buffalo Niagara region.

Focus Group Challenges

Foreign Competition - Most United States industries are facing pressures from increasing import competition. Just like many of the other industry clusters, the Machinery industry cluster is not immune from this competition and is also facing pressures from external competition and imports. Price competition from foreign machinery producers is making it difficult for U.S. Machinery businesses to compete in the global marketplace.

Workforce – Focus group participants indicated there is a need for technical employees, including manufacturing engineers, machinists and welders. Businesses have a hard time attracting high-caliber employees. Young people are not interested in careers in manufacturing so there are few students in the trade. The existing workforce has been and will continue to be hard to replace. There was an abundant workforce 25 years ago, but that workforce has left or retired.

High Price of Steel – The price of steel is currently very high making it more expensive to produce machinery made of steel or steel components.

No Casting and Forging – Machinery businesses do not have a New York resource for casting and forging. Machinery businesses are going to Seattle, Brazil and China to forge parts. The casting and forging process can be environmentally unfriendly and is highly regulated in the United States.

Parts Machining is Expensive – Businesses are finding that machining is too expensive in New York and consequently outsourcing machining needs to France and China.

Bad Reputation – The manufacturing industry does not have a good reputation; it "gets a bad rap." The perception that manufacturing is a low-skilled, "dirty" industry is wrong. The industry has become highly skilled through technological advances and innovation.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive position. The following is a brief summary of the mission of the strategic initiatives that are most relevant to the Machinery cluster.[24]

Buffalo Permitting Reform - Complete the streamlining of Buffalo's Department of Permit and Inspection Services and continue to examine the process of development.

Cross Border Facilitation – Seeking Canadian and U.S. authorization of and resource allocation for "shared border management" and further facilitation of trade and travel between the U.S. and Canada in the Buffalo/Fort Erie, Lewiston/Queenston corridor.

Local Development Delivery System – Integrate the region's Industrial Development Authorities, local development corporations and other related entities into a closely-knit collaborative network that is customer friendly and development savvy.

Local Tax – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how Erie County government can provide services in a more fiscally responsible and effective manner.

Low Cost Hydropower – Preserve the amount of low cost hydropower available for new and existing industrial consumers and expand the pool of commercial and industrial consumers eligible for such power.

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[24] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW,* 16th Quarterly Report, April 2005 – June 2005.

Shovel Ready Land – To increase the region's competitiveness by creating a site portfolio containing enough real estate product for the target industry sectors and those local industries in growth mode.

Workforce Development – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

Transportation Equipment

Description

The Transportation Equipment industry cluster includes two related but distinct industry subclusters – Automotive and Aircraft/Aerospace. The industry cluster is defined by 17 6-digit North American Industry Classification System (NAICS) codes or 14 4-digit and two 8-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Transportation Equipment industry cluster can be found in **Appendix A**. An overview of the Transportation Equipment industry cluster as a whole is presented first, followed by a brief profile for each of the subclusters.

Similarities and differences exist between the two Transportation Equipment subclusters:

Similarities – Both Automotive and Aircraft/Aerospace businesses are concerned with production costs and are involved in cost-containment measures. Both subclusters include companies that conduct business nationally and globally. There is a scarcity of resources, such as steel, that affects both subclusters. Some of the workforce needs are similar, such as electronic equipment assemblers and industrial production managers. Businesses in both subclusters are typically involved in a manufacturing process.

Differences –Automotive businesses produce relatively low-technology parts and products with very high volume production processes. Automotive products are commodities purchased by consumers. Aircraft and Aerospace businesses produce very specialized, high-technology components and parts. Aircraft and Aerospace businesses are involved in niche markets and not the large commodity or consumer market. While some workforce skills overlap between the Automotive and Aircraft/Aerospace subclusters, Automotive businesses tend to employ more low skilled workers while Aircraft/Aerospace businesses utilize workers with higher skills and training, such as engineers.

Buffalo Niagara Region Cluster Profile

Between 1998 and 2004 Transportation Equipment employment declined 0.3% per year in the Buffalo Niagara region compared to a national employment increase of 1.7% per year. The industry cluster employment decline in the Buffalo Niagara region was below the average annual employment growth rate of 0.6% for all industries during the same time period.

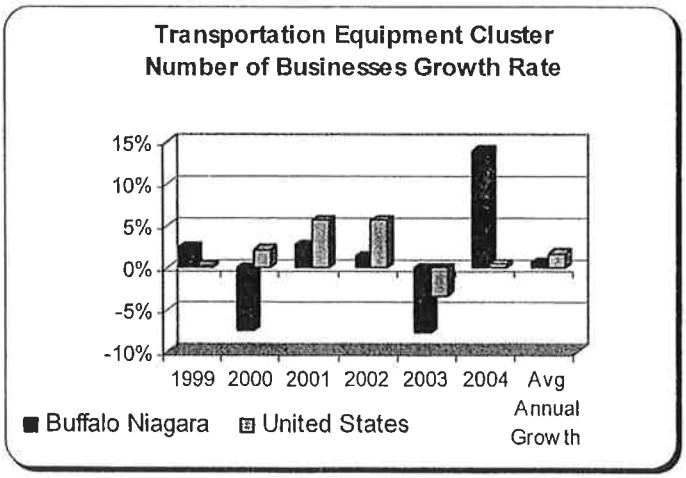
AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Transportation Equipment Industry Cluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	0.6%	-0.3%
U.S.	1.7%	1.7%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

Businesses

About 82 Transportation Equipment businesses were located in the eight-county Buffalo Niagara region in 2004, including 53 Automotive businesses and 29 Aircraft and Aerospace businesses. The total number of businesses grew 0.6% per year from 79 businesses in 1998 to 82 in 2004 compared to a 1.7% average annual increase nationally in this industry cluster. Detailed business and employment data for each industry cluster for the six-year period from 1998 to 2004 is provided in **Appendix C**.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

With nearly 26% of Transportation Equipment businesses employing more than 100 people compared to 2% for all businesses that employ more than 100 people in the Buffalo Niagara region, this industry cluster has many large businesses.

SHARE OF BUSINESSES BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Transportation Equipment Industry Cluster

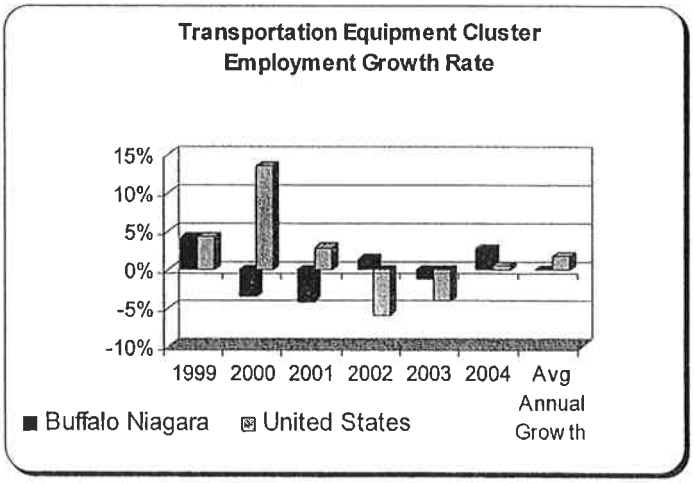
Employees	Cluster		All Businesses	
	Businesses	% of Total	Businesses	% of Total
< 10	36	43.9%	47,426	75.3%
10-99	15	18.3%	10,048	15.9%
100-249	8	9.8%	733	1.2%
250-499	5	6.1%	161	0.3%
> 500	8	9.8%	98	0.2%
Unknown	10	12.2%	4,550	7.2%
Total	82	100.0%	63,016	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on the number of businesses in each industry sector, the motor vehicle parts and accessories sector has the largest number of businesses. Detailed sector analysis data is provided in **Appendix C**.

Employment

The Transportation Equipment industry cluster employed about 17,600 people in the eight-county Buffalo Niagara region in 2004, including 14,200 in Automotive businesses and 3,400 in Aircraft and Aerospace businesses. Employment in this industry cluster comprises about 2.8% of the Buffalo Niagara region's total employment base, compared to a 1.3% concentration nationally. Employment in the Transportation Equipment industry cluster has decreased an average of 0.3% per year from 17,900 employees in 1998 to 17.600 in 2004, compared to a 1.7% increase nationally. The engine electrical equipment, vehicular lighting equipment, and the search and navigation equipment sectors gained employment from 1998 to 2004 while other sectors either remained flat or lost employment. Detailed sector analysis data is provided in **Appendix C**.



Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 - 2004.

Motor vehicle parts and accessories, search and navigation equipment and automotive stampings are the largest industry sector employers in the Transportation Equipment industry cluster.

TOP FIVE INDUSTRY SECTORS BY EMPLOYMENT SIZE, 2004
Buffalo Niagara Region
Transportation Equipment Industry Cluster

SIC 4-Digit Code	Industry Sector	Employment	% of Cluster Employment in the Region
3714	Motor Vehicle Parts and Accessories	9,857	56.0%
3812	Search and Navigation Equipment	2,806	15.9%
3465	Automotive Stampings	2,103	12.0%
3694	Engine Electrical Equipment	1,400	8.0%
3647	Vehicular Lighting Equipment	609	3.5%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Nearly 74% of Buffalo Niagara region Transportation Equipment industry cluster employment is in Erie County while another 15% is located in Niagara County. From 1998 to 2004 most of the counties in the Buffalo Niagara region lost Transportation Equipment employment with the exception of Niagara County which gained about 1,200 employees. Detailed county-level data is provided in **Appendix B**.

EMPLOYMENT BY COUNTY, 2004
Buffalo Niagara Region
Transportation Equipment Industry Cluster

County	Employment	% of Total
Erie	12,925	73.5%
Niagara	3,406	19.4%
Chautauqua	667	3.8%
Wyoming	400	2.3%
Orleans	187	1.1%
Genesee	6	0.0%
Cattaraugus	4	0.0%
Allegany	0	0.0%
Total	17,595	100.0%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Wages

Total industry cluster payroll in the Buffalo Niagara region was $887.6 million in 2003. The average annual wage for employees in the Transportation Equipment industry cluster was $63,800 in 2003 compared to $56,800 nationally.

OCCUPATIONAL SALARIES, 2003
Buffalo Niagara Region
Transportation Equipment Industry Cluster

Occupation	Average Annual Salary
Electrical and Electronic Equipment Assemblers	$25,760
Engine and Other Machine Assemblers	$33,530
Tool and Die Makers	$49,470
Aerospace Engineers	$72,710
Industrial Production Managers	$80,270

Source: U.S. Bureau of Labor Statistics, http://stats.bls.gov.

Industry Resources

The infrastructure to support the Transportation Equipment industry cluster comes from a variety of sources including the private companies, professional associations, higher education institutions and government. A list of resources for the Transportation Equipment industry cluster is included in **Appendix D**.

National Competitors

Of the 50 largest metropolitan areas in the country, the Buffalo Niagara region has the 2nd highest employment concentration and the 8th highest total employment in this industry cluster. Other regions with high employment concentrations of Transportation Equipment employment are found in the Detroit, Seattle and Cleveland metropolitan areas.

TEN HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Transportation Equipment Industry Cluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Detroit, MI	104,569	5.5%	810	0.5%
2. Buffalo Niagara, NY	**17,595**	**2.8%**	**82**	**0.1%**
3. Seattle, WA	21,906	1.9%	293	0.2%
4. Cleveland, OH	18,756	1.9%	176	0.2%
5. Los Angeles, CA	54,645	1.5%	895	0.2%
6. Dallas, TX	27,435	1.5%	254	0.1%
7. San Jose, CA	11,655	1.4%	109	0.1%
8. Phoenix, AZ	18,746	1.4%	254	0.2%
9. Cincinnati, OH	10,244	1.3%	76	0.1%
10. Baltimore, MD	14,551	1.3%	108	0.1%
United States	1,566,591	1.3%	16,130	0.1%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on total employment at a single business site, some of the largest Transportation Equipment businesses in the country are:

- The Boeing Company - Long Beach, California
- Raytheon - Wichita, Kansas
- General Electric Company, Inc. - Lynn, Massachusetts

A list of the nation's twenty largest employers in the Transportation Equipment industry cluster is included in **Appendix E**.

Locational Attributes

Factors important in a business' decision to locate in a particular community provide insight into how the industry cluster can be grown through retention and expansion efforts. The Transportation Equipment industry cluster relies on the following locational attributes to operate successful businesses:

Automotive

- Transportation infrastructure
- Abundance of land
- Skilled, available labor
- Low-cost utilities

Aircraft and Aerospace

- Access to skilled labor
- Quality of life
- Proximity to vendors or customers
- Proximity to colleges/ universities

Industry Cluster Insights

Many opportunities and challenges for each industry cluster became apparent in the focus group discussions. The following focus group opportunities and focus group challenges provide insight into growing the Transportation Equipment industry cluster in general and specific to the Buffalo Niagara region. In addition, other business advantages related to this cluster are discussed. Finally, this section notes the strategic initiatives that are currently underway that address some of the challenges facing this industry cluster.

Focus Group Opportunities

Overseas Markets – China has entered an age of unprecedented economic growth and is expected to increase defense spending at double-digit growth rates. China, Japan and Asia are in the market for new airplanes. These countries provide growth opportunities for air transportation and aerospace companies.

Canadian Connection – Seven major auto producers have manufacturing facilities in Ontario, within 70 to 90 miles of the Buffalo Niagara region. There are opportunities for the Transportation Equipment companies in Buffalo Niagara to begin or increase their role as a supplier to these Canadian companies.

Advanced Manufacturing – Companies that adopt advanced manufacturing techniques, either in the form of using a more technologically advanced manufacturing process or producing more technologically advanced products, have a greater opportunity for improving their business performance.

Lean Manufacturing – Incorporating lean manufacturing methods into the manufacturing process provides opportunities for Transportation Equipment businesses to cut costs and run businesses more efficiently. Lean manufacturing has the potential to produce more with less or equal resources. "Lean practices drive improvements by eliminating waste and addressing process flow throughout the entire enterprise. The resulting streamlined organization becomes a foundation for continued long-term success."[25]

Calspan/Moog – Large local employers, Calspan and Moog Inc., have produced many highly-trained engineers who have started other successful companies, such as Carlton Technologies and Servotronics, Inc. Calspan and Moog provide opportunities to foster local entrepreneurial ideas and support existing business.

Transportation Connections – Transportation Equipment businesses rely on the transportation infrastructure to move end products to clients and customers. Focus group participants noted an advantage to locating a business in the Buffalo Niagara region is the proximity to waterway and rail connections.

Quality of Life – Transportation Equipment employers noted that the quality of life in the Buffalo Niagara region is wonderful and should be promoted. There are good housing values, it is a great place to raise a family, traffic is minimal, residents have high moral values and there are excellent school systems. According to the *Metro Area and State Competitiveness Report 2004* published by the Beacon Hill Institute, several variables related to "quality of life" contribute to Buffalo's competitive advantages. Buffalo is ranked as having the 3rd lowest travel time to work out of 50 metro areas, and the 10th lowest average two-bedroom rent. Low crime and theft rates also rank Buffalo 8th and 7th respectively in competitive advantages for metro areas. These high rankings provide evidence that the quality of life in the Buffalo Niagara region provides competitive advantages for business attraction and retention.[26]

Market Research – Businesses trying to understand the local business environment need assistance with market research. An understanding of the potential business location and

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[25] Insyte Consulting, www.insyte-consulting.com.

[26] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

the local market is an important part of relocation and expansion decisions. There is an opportunity to provide research services to businesses that need to understand local business conditions.

Business Advantages

In addition to the opportunities noted in the focus group sessions, data provided by the Buffalo Niagara Enterprise suggest the following business advantages for the Transportation Equipment industry cluster.

Access to Skilled Labor – With a labor force of nearly 795,000 people, the Buffalo Niagara region's workforce represents one of New York's greatest assets. The region enjoys a large, well-educated population and an abundant supply of entry-level and experienced labor. Indeed, 86.4% of the adult population has graduated from high school, ranking the region #24 out of the 45 largest metropolitan areas. The region boasts a diverse employment base that is highly productive and brings with it a very strong work ethic.

Quality Higher Education – There are approximately 30 two-year and four-year higher education institutions in the Buffalo Niagara region. Of these, there are 15 regional higher education institutions with a total enrollment of more than 1,000 students each, including eight institutions that are part of the State Universities of New York (SUNY) system and seven independent or private institutions. All 30 institutions have a combined enrollment of over 100,000 students and more than 20,000 graduates annually.

Quality Transportation Networks – The *2005 Urban Mobility Study* by the Texas Transportation Institute reveals that peak period travelers in the Buffalo Niagara region experience 13 hours of delay annually due to congested roads, earning the region a rank of 65 out of 85 areas. The national average is 47 hours of annual delay per peak period traveler.

The Buffalo Niagara region has one of the most highly developed rail systems in the world, encompassing nearly 1,000 miles of rail and including one of the largest railheads in the United States. Further, the Buffalo Niagara region is linked to Canada through seven different ports of entry.

High Quality of Life – The Buffalo Niagara region offers numerous entertainment venues ranging from major league sporting events to theatre and other cultural attractions to a wide variety of winter and summer outdoor recreational activities. Independent rankings put Buffalo Niagara on par with much larger cities in cultural and entertainment rankings. For example, *AmericanStyle*, a nationally distributed lifestyle magazine aimed at art enthusiasts and collectors, named Buffalo one of the nation's Top 10 Arts Destinations for the third consecutive year in its annual readers' poll in 2004.

Low Cost of Living – The Buffalo Niagara region offers the second lowest median home price out of the 133 metropolitan areas included in the National Association of Realtors' quarterly report. The median home price in the Buffalo Niagara region rose to $93,000 in 2004 compared to the national median price of $184,100.

Proximity to Customer Base – The Buffalo Niagara region is located in geographic proximity to the major trading centers of the Northeast and is a bi-national gateway for commerce. Over 51 million people live within 300 miles of the Buffalo Niagara region.

Focus Group Challenges

The Transportation Equipment industry cluster faces challenges similar to the Machinery industry cluster. Similar challenges include workforce needs, the manufacturing industry reputation, the high price of steel, limited local casting and forging resources, expensive parts machining and foreign competition. These challenges are repeated below, followed by additional challenges faced by Transportation Equipment industry cluster businesses.

Foreign Competition - Most United States industries are facing pressures from increasing import competition. Price competition from foreign Transportation Equipment producers is making it difficult for U.S. businesses to compete in the global marketplace.

Workforce – Focus group participants indicated there is a need for technical employees, including manufacturing engineers, machinists and welders. Businesses have a hard time attracting high-caliber employees. Young people are not interested in careers in manufacturing so there are few students in the trade. The existing workforce has been and will continue to be hard to replace. There was an abundant workforce 25 years ago, but that workforce has left or retired.

High Price of Steel – The price of steel is currently very high making it more expensive to produce equipment made of steel or steel components.

No Casting and Forging – Businesses do not have a New York resource for casting and forging but instead are going to Seattle, Brazil and China to forge parts. The casting and forging process can be environmentally unfriendly and is highly regulated in the United States.

Parts Machining is Expensive – Businesses are finding that machining is too expensive in New York and consequently outsourcing machining needs to France and China.

Bad Reputation – The manufacturing industry does not have a good reputation; it "gets a bad rap." The perception that manufacturing is a low-skilled, "dirty" industry is wrong. The industry has become highly skilled through technological advances and innovation.

Cost Pressures – Transportation Equipment businesses in automotive production are facing increasing cost pressures from clients and consumers. Faster production, faster response time, higher quality and lower prices are being demanded. There is no room for waste in the manufacturing process. Narrow profit margins make it difficult for businesses to operate.

High Taxes – While the quality of life provides an opportunity to attract and retain businesses, high taxes are a challenge for the region. Other industry cluster businesses also indicated the business environment is difficult for existing and potential businesses due to high taxes. The Buffalo metro area ranks 43rd out of 50 metro areas in

competitiveness according to the *Metro Area and State Competitiveness Report 2004* published by the Beacon Hill Institute. One of the variables contributing to the low ranking is high state and local taxes per capita (ranking 48). The government and fiscal policy category, which includes five variables, ranks the Buffalo metro area 50th out of 50 metro areas. This low ranking provides evidence that poor government and fiscal policy makes it difficult for the area to be competitive, attract and incubate new businesses and grow existing businesses.[27]

Difficult Tax Abatement Process – Focus group participants indicated the tax abatement process in the Buffalo Niagara region is very difficult. The process needs to be streamlined so businesses are not overwhelmed with the bureaucratic process. It was suggested that Michigan has a good model for the tax abatement process.

Strategic Initiatives

Business leaders in the Buffalo Niagara region are aware of many of the challenges facing business growth in the region. The Buffalo Niagara Partnership NOW campaign is focused on a list of 11 specific strategic initiatives that the region's business leaders believe to be the most critical to immediately improving Buffalo Niagara's competitive position. The following is a brief summary of the mission of the strategic initiatives that are most relevant to the Transportation Equipment industry cluster.[28]

Buffalo Permitting Reform - Complete the streamlining of Buffalo's Department of Permit and Inspection Services and continue to examine the process of development.

Cross Border Facilitation – Seeking Canadian and U.S. authorization of and resource allocation for "shared border management" and further facilitation of trade and travel between the U.S. and Canada in the Buffalo/Fort Erie, Lewiston/Queenston corridor.

Downtown Buffalo Neighborhood – Facilitate the creation of vibrant downtown Buffalo residential neighborhoods with the amenities, services and look which create a unique urban lifestyle.

Local Development Delivery System – Integrate the region's Industrial Development Authorities, local development corporations and other related entities into a closely-knit collaborative network that is customer friendly and development savvy.

Local Tax – Reduce the local tax burden by conducting a non-partisan, independent analysis of the county's finances and services that will specify and verify the current budget situation, project future budgets and provide specific recommendations for how

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[27] Beacon Hill Institute, *Metro Area and State Competitiveness Report 2004*, November 2004, www.beaconhill.org.

[28] Buffalo Niagara Partnership, *Buffalo Niagara Partnership NOW*, 16th Quarterly Report, April 2005 – June 2005.

Erie County government can provide services in a more fiscally responsible and effective manner.

Low Cost Hydropower – Preserve the amount of low cost hydropower available for new and existing industrial consumers and expand the pool of commercial and industrial consumers eligible for such power.

Regional Land Use – Establish a regional land use/infrastructure plan. Establish an entity to oversee and implement the plan with the appropriate authority and utilizing all necessary tools.

Shovel Ready Land – To increase the region's competitiveness by creating a site portfolio containing enough real estate product for the target industry sectors and those local industries in growth mode.

Workforce Development – To have the region's workforce development system be more responsive to current and projected employer needs that relate to retaining and attracting of qualified workers.

In addition to the strategic initiatives, there are various financing and incentive programs that may be available to companies to help reduce the cost of doing business in the Buffalo Niagara region. Financial assistance can be obtained through a variety of sources including local industrial development agencies, economic development groups, chambers of commerce, and state and local governments. Financing programs include assistance in securing venture capital and working capital funds, low interest loan programs and traditional funding options. In addition, various regions may offer additional business development incentives such as Empire Zone benefits and other tax credit and tax abatement programs.

Transportation Equipment - Automotive

Description

The Automotive industry subcluster includes those companies involved in production of automobiles including automotive stampings, vehicular lighting, engine electrical equipment and motor vehicle parts and accessories. The industry subcluster is defined by seven 6-digit North American Industry Classification System (NAICS) codes or six 4-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Automotive industry subcluster can be found in **Appendix A**.

National Outlook

There are 862,353 people employed in 9,894 businesses in the Automotive industry subcluster in the United States. The number of businesses in this industry subcluster

increased 0.2% per year from 1998 to 2004, while the number of employees increased 2.2% per year.

After years of lavish sales incentives, demand for cars is flat. It will be hard to wean buyers from the incentives they are now accustomed to receiving. With higher interest rates on the horizon, the higher cost of steel, little pent-up demand and foreign competition, sales of U.S. automobiles is expected to remain flat. On the other hand, high gasoline prices have created a demand for fuel-efficient and hybrid vehicles among U.S. consumers.

A new trend in automobile manufacturing is the development of supplier parks, which involve the co-location of the automobile assembly plant with parts suppliers such as the engine, body shop, paint shop and chassis manufacturers. A supplier park can provide significant cost savings in the production of automobiles.

Overall, growth in the automobile industry will remain flat with the exception of niche markets in fuel-efficient and hybrid cars.

Buffalo Niagara Region Subcluster Profile

The Buffalo Niagara region ranks 2nd out of the 50 largest metropolitan areas in the country for the Automotive industry subcluster in terms of employment concentration. Below are examples of the major Automotive businesses located in the Buffalo Niagara region:

- American Axle and Manufacturing, Inc.
- Delphi
- Ford
- General Motors
- Motorola
- Prestolite Electric
- Truck-Lite Co., Inc.

There are 53 business establishments in the Automotive industry subcluster in the Buffalo Niagara region. The number of companies has declined an average of 2.0% per year from 1998 to 2004 compared to the 0.2% average annual growth rate nationally for this subcluster.

About 14,200 people are employed in the Buffalo Niagara region Automotive industry subcluster, representing 2.2% of the total employment base. Employment has decreased 0.3% per year, less than the national growth rate for the subcluster of 2.2% per year from 1998 to 2004.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Automotive Industry Subcluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	-2.0%	-0.3%
U.S.	0.2%	2.2%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

National Competitors

Employment in the Automotive industry subcluster comprises 2.2% of the Buffalo Niagara region's employment base, which is higher than the national employment concentration of 0.7%.

Of the 50 largest metropolitan areas in the country, the Buffalo Niagara region has the 2nd highest employment concentration and the 3rd highest total employment in this industry subcluster. Other regions with high employment concentrations of Automotive employment are found in the Detroit, Cincinnati and Cleveland metropolitan areas.

TEN HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Automotive Industry Subcluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Detroit, MI	102,388	5.4%	740	0.4%
2. Buffalo Niagara, NY	**14,193**	**2.2%**	**53**	**0.1%**
3. Cincinnati, OH	9,154	1.2%	54	0.1%
4. Cleveland, OH	11,496	1.1%	127	0.1%
5. Indianapolis, IN	7,575	1.0%	100	0.2%
6. Milwaukee, WI	6,618	0.9%	62	0.1%
7. Nashville, TN	5,234	0.9%	66	0.1%
8. Charlotte, NC	6,267	0.8%	65	0.1%
9. Columbus, OH	4,873	0.6%	52	0.1%
10. Baltimore, MD	5,268	0.5%	52	0.0%
United States	862,353	0.7%	9,894	0.1%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

While employment at the national level in the Automobile industry declined in 2003 and 2003, jobs were added in 2004. Indeed, Southeastern states have experienced growth in recent years. Louisiana, Alabama and Mississippi have attracted new and expanded,

foreign and domestic automobile production facilities. A skilled workforce, training programs, a quality transportation infrastructure and a business-friendly environment led new companies to the Southeast.

Automobile industry employment growth is also expected to spread to the Southwest states. Truck manufacturers have been looking toward the Southwest states because they are in the middle of the largest truck market in the United States.

Based on total employment at a single business site, some of the largest Automotive businesses in the country are:

- Delphi Corporation – Kokomo, Indiana
- General Motors Corporation – Ypsilanti, Michigan
- Hayes Lemmerz International Inc. – Northville, Michigan

A list of the nation's twenty largest employers in the Automotive industry subcluster is included in **Appendix E**.

Transportation Equipment – Aircraft and Aerospace

Description

The Aircraft and Aerospace industry subcluster includes those companies involved in the production of aircraft and aerospace equipment including aircraft parts and equipment, guided missiles and space vehicles, space vehicle equipment, search and navigation equipment, and space research and technology. The industry subcluster is defined by ten 6-digit North American Industry Classification System (NAICS) codes or eight 4-digit and two 8-digit Standard Industrial Classification (SIC) codes. Detailed definition information for the Transportation Equipment – Aircraft and Aerospace industry subcluster can be found in **Appendix A**.

National Outlook

There are 704,238 people employed in 6,236 businesses in the Aircraft and Aerospace industry subcluster in the United States. The number of businesses in this industry subcluster increased 4.5% per year from 1998 to 2004, while the number of employees increased 1.0% per year.

Employment growth in the aerospace industry is expected to be above the average for all U.S. industries. Sales of civilian aircraft will be flat, though the worst of the slump may be over. High-tech weaponry will be a bright spot for defense contractors. In the large aircraft and parts sector of the industry, employment growth is projected to be at above average rates, whereas employment in the smaller guided missiles and space vehicles sector is expected to grow slightly below average. Factors affecting the employment outlook in the aerospace industry include Federal defense expenditures, commercial

aircraft sales, the growth of telecommunications and exports. Rising fuel prices and record government deficits are the most pressing concerns.

The commercial airline industry continues to face difficult times as financial conditions for several large airlines are problematic. The aerospace industry, on the other hand, will continue to grow at above average rates but with a gradual slowdown compared to the last three years.

Buffalo Niagara Region Subcluster Profile

The Buffalo Niagara region ranks 18th out of the 50 largest metropolitan areas in the country for the Aircraft and Aerospace industry subcluster in terms of employment concentration. Moog, Inc. is the largest employer in the Buffalo Niagara region, driving the growth and strength of this industry subcluster.

Below are examples of the major Aircraft and Aerospace businesses located in the Buffalo Niagara region:

- Aero Instruments and Avionics, Inc.
- Amherst Systems, Inc.
- Ampac-ISP Corp.
- Calspan Corp.
- Enidine, Inc.
- Lockheed Martin Corp.
- Moog, Inc.
- Sierra Technology, Inc.

There are 29 business establishments in the Aircraft and Aerospace industry subcluster in the Buffalo Niagara region. The number of companies increased an average of 7.3% per year from 1998 to 2004 compared to the 4.5% average annual growth rate nationally for this subcluster.

About 3,400 people are employed in the Buffalo Niagara region Aircraft and Aerospace industry subcluster, representing 0.5% of the total employment base. Employment has decreased 0.3% per year compared to the 1.0% average annual growth rate nationally for the subcluster from 1998 to 2004.

AVERAGE ANNUAL GROWTH, 1998-2004
Buffalo Niagara Region and United States
Aircraft and Aerospace Industry Subcluster

	Number of Businesses	Employment
Cluster		
Buffalo Niagara	7.3%	-0.3%
U.S.	4.5%	1.0%
All Industries		
Buffalo Niagara	2.1%	0.6%
U.S.	3.8%	1.7%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 1998 and 2004.

National Competitors

Employment in the Aircraft and Aerospace industry subcluster comprises 0.5% of the Buffalo Niagara region's employment base, which is slightly less than the national employment concentration of 0.6%.

Of the 50 largest metropolitan areas in the country, the Buffalo Niagara region has the 18th highest employment concentration and the 23rd highest total employment in this industry subcluster. Other regions with high employment concentrations of Aircraft and Aerospace employment are found in the Seattle, San Jose and Dallas metropolitan areas.

20 HIGHEST EMPLOYMENT CONCENTRATIONS
Metro Areas
Aircraft and Aerospace Industry Subcluster

Metro Area	Cluster Employment	Employment Concentration	Number of Businesses	Business Concentration
1. Seattle, WA	20,929	1.8%	226	0.2%
2. San Jose, CA	11,254	1.4%	63	0.1%
3. Dallas, TX	23,057	1.2%	120	0.1%
4. Phoenix-Mesa, AZ	15,430	1.1%	132	0.1%
5. Los Angeles, CA	41,851	1.1%	410	0.1%
6. Baltimore, MD	9,283	0.8%	56	0.1%
7. Orlando, FL	7,154	0.8%	58	0.1%
8. Kansas City, MO	6,765	0.8%	34	0.0%
9. St. Louis, MO	8,979	0.8%	69	0.1%
10. Denver, CO	7,695	0.7%	55	0.0%
11. Cleveland, OH	7,270	0.7%	50	0.1%
12. San Diego, CA	8,153	0.7%	121	0.1%
13. Orange County, CA	9,081	0.6%	193	0.1%
14. Boston, MA	11,180	0.6%	79	0.0%
15. Bergen-Passaic, NJ	3,682	0.6%	42	0.1%
16. Tampa, FL	6,144	0.6%	49	0.0%
17. Salt Lake City, UT	3,273	0.5%	56	0.1%
18. Buffalo Niagara, NY	**3,402**	**0.5%**	**29**	**0.0%**
19. Norfolk, VA	3,320	0.5%	39	0.1%
20. Nassau-Suffolk, NY	4,943	0.4%	120	0.1%
United States	704,238	0.6%	6,236	0.1%

Source: Dun & Bradstreet, Inc., MarketPlace database, July-Sept. 2004.

Based on total employment at a single business site, some of the largest Aircraft and Aerospace businesses in the country are:

- The Boeing Company - Long Beach, California
- Raytheon - Wichita, Kansas
- General Electric Company, Inc. - Lynn, Massachusetts

A list of the nation's twenty largest employers in the Aircraft and Aerospace industry subcluster is included in **Appendix E**.

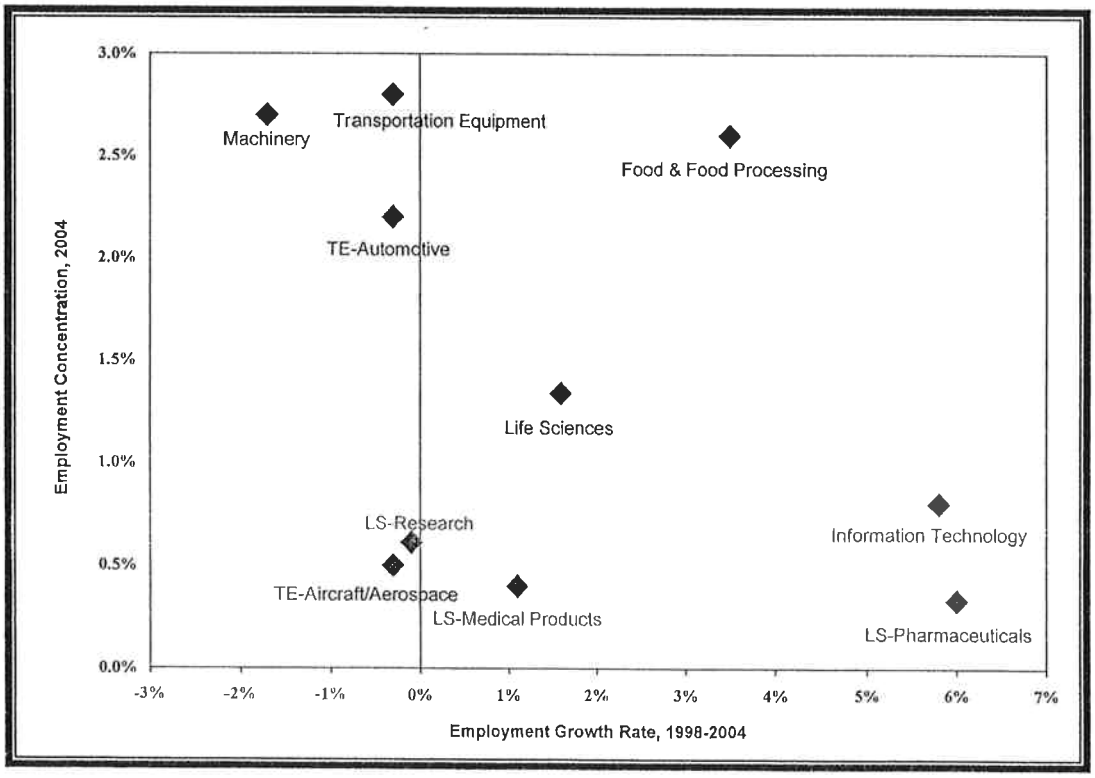
CONCLUSION

Even prior to the recession that struck throughout the United States from 2001 to 2003, employment growth in Buffalo Niagara was lagging the rest of the country. The challenge for the region is to maximize the existing labor and other resources of the region so as to foster improved economic performance, especially as measured by employment growth and capital investment.

A major step in crafting a region's economic development strategy focuses on what types of industries to target for growth and retention. To accomplish this task, it is important to assess the industrial composition of the current employment base. It is important to maintain balance in the economic structure in that a diversified employment base is better able to weather economic downturns. With a diversified economic base, one industrial sector may experience a downturn without leading to a collapse in overall economic conditions.

This study identified five industry clusters and five industry subclusters that present opportunities for growth and retention efforts in the Buffalo Niagara region. The following chart includes the employment growth rate and the employment concentration for each of the five industry clusters and five industry subclusters:

EMPLOYMENT GROWTH RATE AND EMPLOYMENT CONCENTRATION
Buffalo Niagara Region
All Industry Clusters



While there is value in the data and information contained in this report in and of itself, the true importance of any industry cluster study is in the role that it plays in the formation of economic development strategy. Ideally, industry cluster data and information is used in a multi-level approach to community positioning, broken into a series of strategic steps and execution steps.[29] Specifically, these steps include:

Strategic Step 1: *What companies or industries do we want?*

Based on an analysis of existing industry clusters and market trends that may support the growth of emerging industry clusters, determine what types of businesses the community would like to target for both retention and recruitment efforts.

Strategic Step 2: *What needs do these companies have?*

Numerous factors play into a company's decision to expand or relocate its operations. The savvy economic developer will know what these locational factors are and will recognize that these factors differ by industry.

Strategic Step 3: *How do we meet their needs better than our main competitor cities?*

While it is important to know who your competitors are for various industries, it is also important to know how your business climate compares. By documenting your competitive position through detailed business advantages and disadvantages, you are developing a framework for implementing solutions to your most pressing business issues.

Execution Step 1: *Identify recruitment versus retention opportunities.*

Just because you want an industry to grow and expand in your community does not mean that you will be successful. Be honest. If your location does not meet the needs of the industry better than you competitors, you may need to shift your efforts from a marketing and recruitment strategy to a retention and product development strategy.

Execution Step 2: *Develop authentic messaging.*

Use what you know about your community and what the industry needs to develop marketing messages that are authentic and believable. Do not try to sell your community as some place that it is not. Be able to prove your statements.

Execution Step 3: *Develop focused marketing & PR efforts.*

Armed with your decisions and information on who you want, why you want them and why you offer it better than your competitors, determine the best means for reaching the decision makers. Is it website, printed materials, magazine or newspaper ads, personal visits, or some combination of methods?

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[29] Developed by Development Research Partners and ccintellect.

This study completes Strategic Step 1 and Strategic Step 2. While much of the work on Strategic Step 3 has been completed, more specialized comparisons between the Buffalo Niagara region and the key competitors for each industry need to be made. Once that is completed, it is time for the Buffalo Niagara region to begin executing the economic development plan in a deliberate fashion.

The economy is a constantly changing, dynamic force. Market conditions are not static. The development of the ideal, balanced economy is just that – an ideal. Developing a balanced economy requires frequent review of economic conditions and opportunities and challenges to maximize growth potential and success. Through constant monitoring of the most recent data and experience available, and frequent adjustments in economic development efforts, your community will move towards the creation of the ideal, balanced economy.