

The Task Force on Competitiveness, Productivity, and Economic Progress

Presentation to Niagara BiNational Region Economic Roundtable

by
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**Niagara-on-the-Lake
September 27, 2002**

- This is a copy of the presentation given by James Milway in Niagara-on-the-Lake on September 27, 2002. It was one of the afternoon presentations from the day long roundtable - Growing Knowledge Clusters in Niagara BiNational: Higher Ed and Industry in Partnership.
- This document provides an outline of the presentation and is incomplete without the accompanying oral commentary and discussion. It represents work in progress based on research conducted by the Institute for Competitiveness and Prosperity.
- Much of the material is from the Institute's first and second Working Papers which can be viewed at our Web site, www.competeprosper.ca
- The Web site also provides more information on the Institute and the Task Force on Competitiveness, Productivity, & Economic Progress.
- We ask that you acknowledge the Institute as the source if you use the material from this presentation.

Task Force Mandate

To measure and monitor Ontario's competitiveness, productivity and economic progress compared to other provinces and the US states and to report to the public on a regular basis.

Long Term Aspiration

We aspire to have a significant influence in increasing Ontario's competitiveness, productivity and capacity for innovation. This will help ensure continued success in the creation of good jobs, increased prosperity and a high quality of life for all Ontarians.

We will accomplish this by undertaking research, publishing breakthrough reports and proposing significant innovations in public policy which stimulate businesses, governments and educational institutions to take action.

Mix of Clusters: Results from US Cluster Mapping

Identifying 41 Clusters of Traded Industries

Upstream Materials and Products

Metals and Materials

Construction Materials

Metal Manufacturing

Forest Products

Forest Products

Petroleum/Chemicals

Oil and Gas

Chemical Products

Plastics

Semiconductors/Computer

Information Technology

Industrial and Supporting Functions

Multiple Business

Education and Knowledge Creation

Business Services

Heavy Machinery

Financial Services

Motor Driven Products

Prefabricated Enclosures

Production Technology

Analytical Instruments

Heavy Construction Services

Transportation and Logistics

Automotive

Distribution Services

Transportation and Logistics

Power

Power Generation

Power Transmission and Distribution

Office

Publishing and Printing

Telecommunications

Communications Equipment

Defense

Aerospace Engines

Aerospace Vehicles and Defense

Final Consumption Goods and Services

Food/Beverages

Agricultural Products

Processed Foods

Fishing and Fishing Products

Housing/Household

Building Fixtures, Equipment & Services

Lighting and Electrical Equipment

Furniture

Textiles/Apparel

Textiles

Apparel

Footwear

Health Care

Medical Devices

Pharmaceuticals and Biotechnology

Personal

Leather and Sporting Goods

Jewelry and Precious Metals

Tobacco

Entertainment/Leisure

Entertainment

Hospitality and Tourism

Source: Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

Cluster Overlap in the US Economy



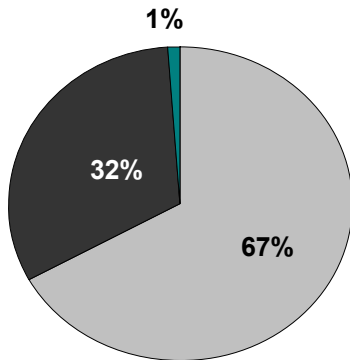
Note: Clusters with borders or identical colors/shading except gray have at least 20% overlap of industries by number in both directions

Source: Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

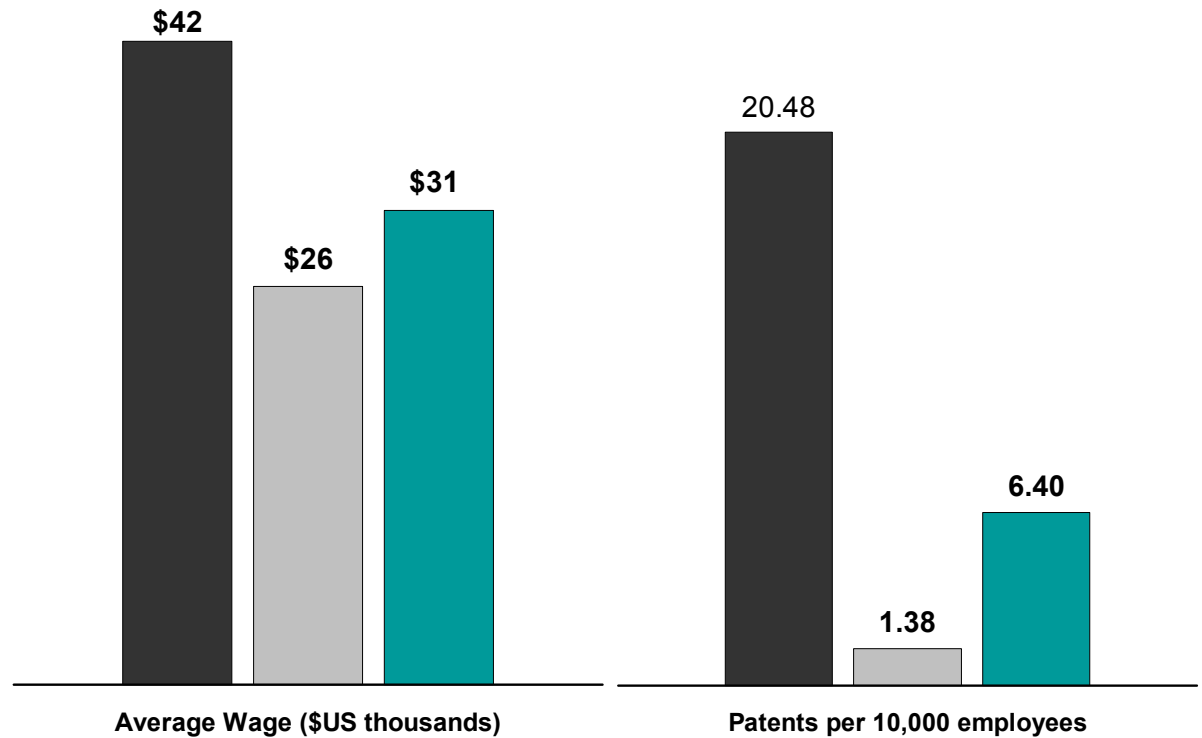
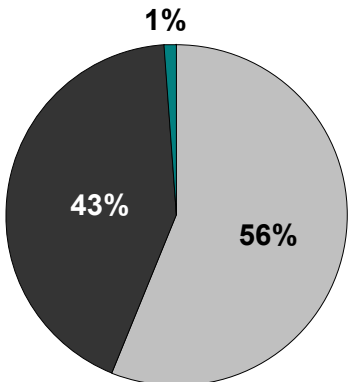
Results from the US Cluster Mapping Project

The Economics of Traded Clusters, Local Industries, and Natural Resources

Share of Employment



Share of Income



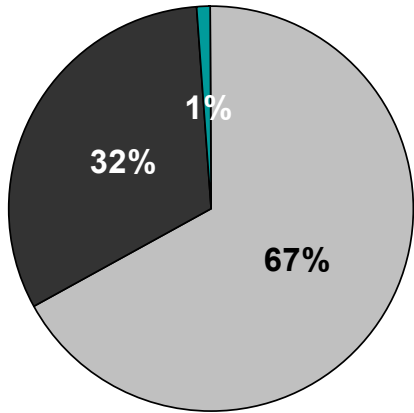
■ Traded Clusters ■ Local Industries ■ Natural Resources

Source: Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

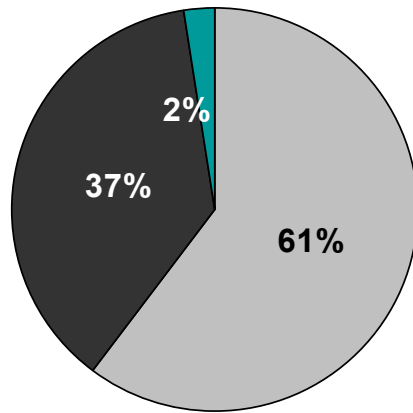
Distribution of Traded Cluster Employment

Share of Employment in Traded Clusters

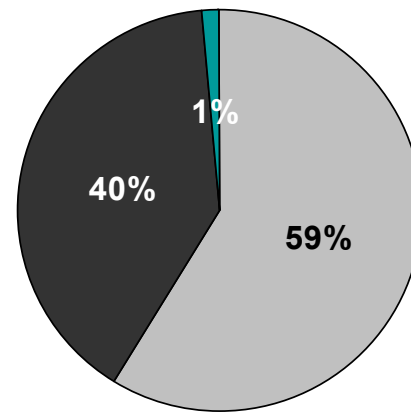
US



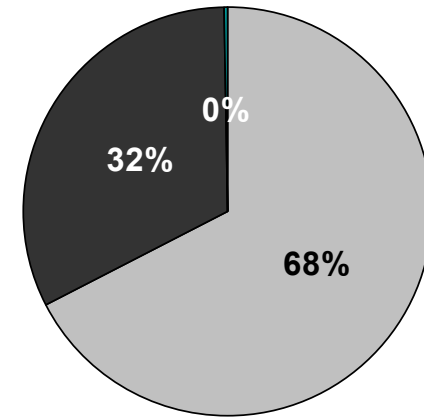
Canada



Ontario



New York



■ Traded Clusters ■ Local Industries ■ Natural Resources

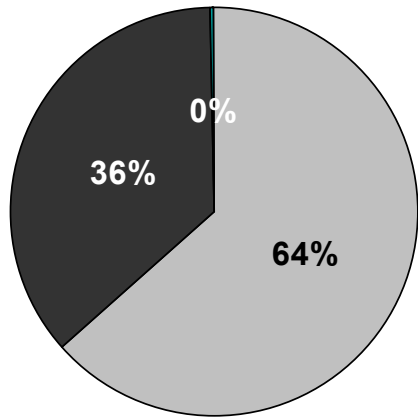
Note: US Statistics are for 1999; Canadian Statistics are for 2000

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

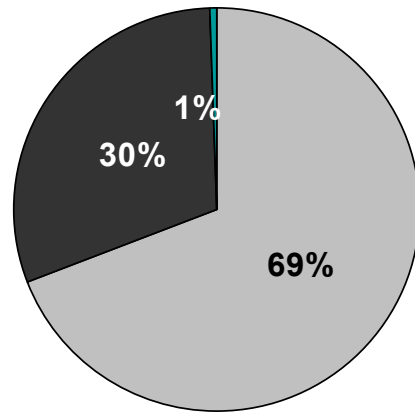
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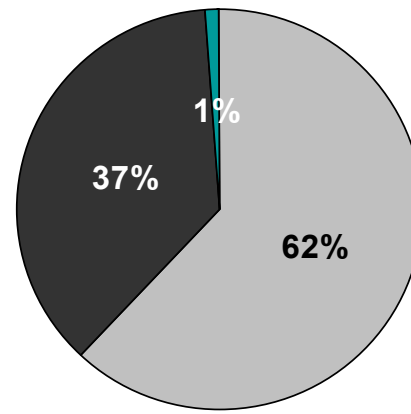
Rochester



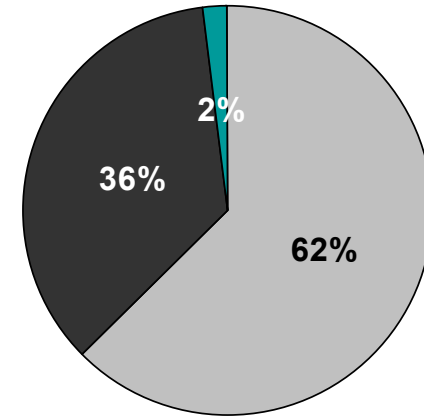
Buffalo



St. Catharines



Hamilton

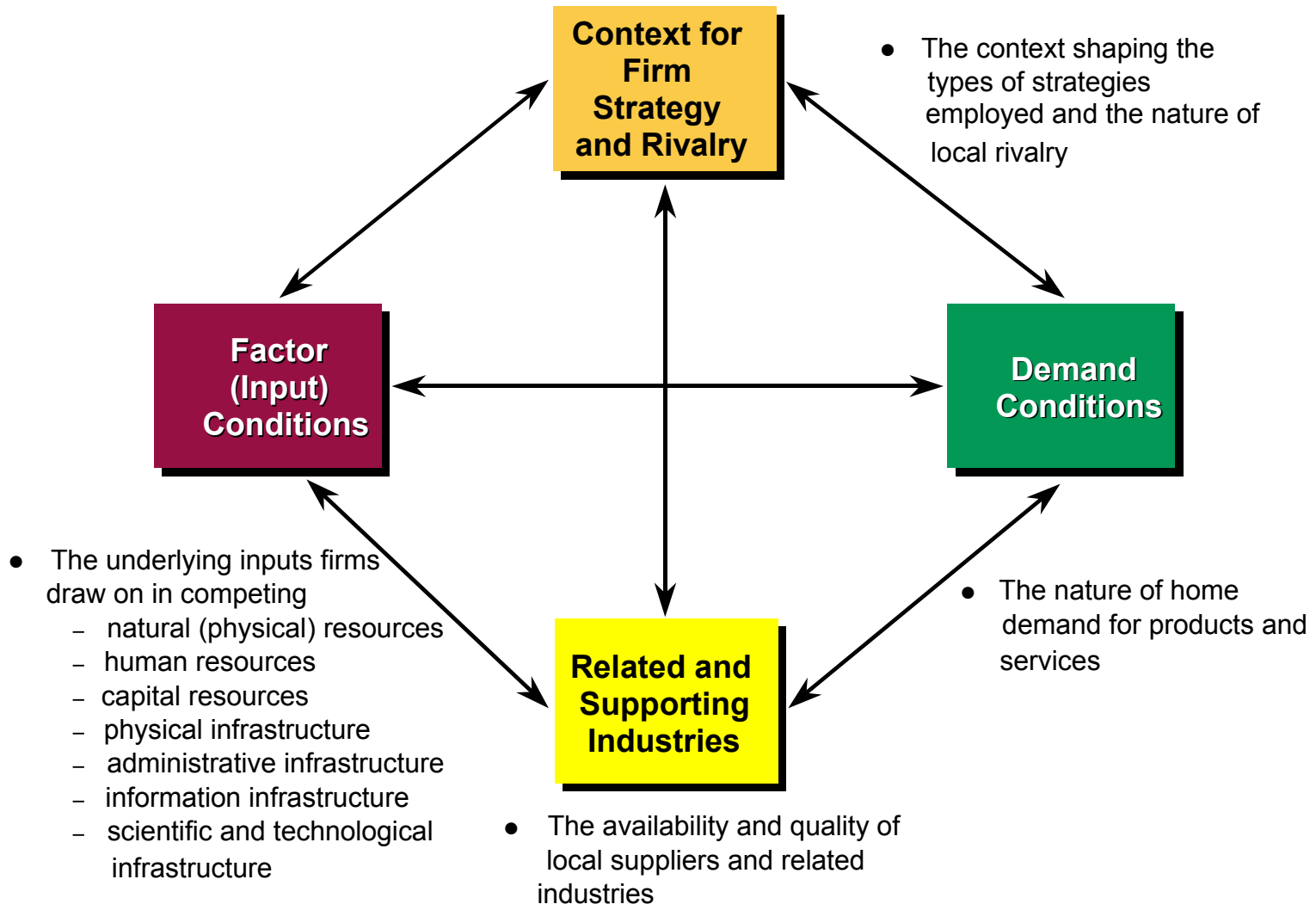


■ Traded Clusters ■ Local Industries ■ Natural Resources

Note: US Statistics are for 1999; Canadian Statistics are for 2000

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

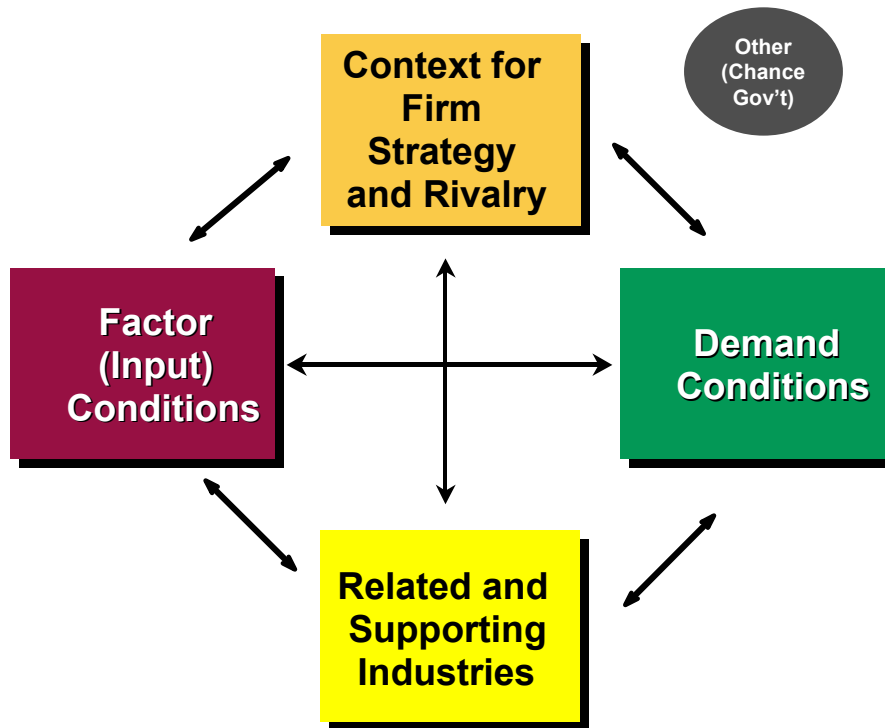
Dynamics of a Cluster: Pressure and Support



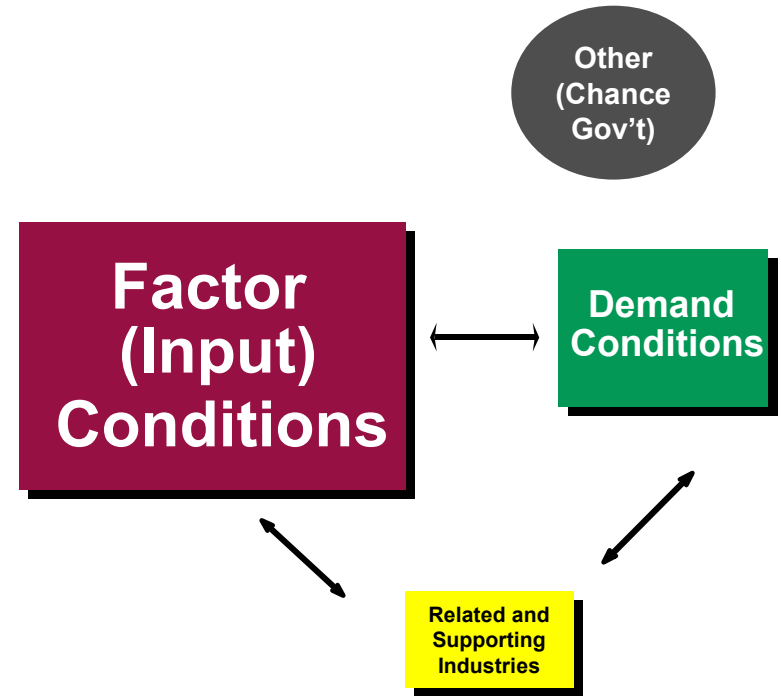
Source: Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

Competitive vs. Uncompetitive Clusters

Competitive Clusters:
May rely on any part of the full diamond



Uncompetitive Clusters:
Usually only rely on factor conditions



Source: van der Linde and Porter, Cluster Meta-Study October 2001, Institute for Strategy and Competitiveness, Harvard Business School

Clusters evolve – they're not created

Japan and consumer electronics



Source: Porter, Institute for Strategy & Competitiveness, Harvard Business School and Institute for Competitiveness & Prosperity

Clusters and Government

- **Create sound economic policies**
- **Support upgrading to all clusters, not choose among them**
 - **Productivity depends on how firms compete, not what industries they compete in**
- **Reinforce established and emerging ones, instead of trying to create entirely new ones**
- **Remove obstacles, relax constraints, eliminate inefficiencies**

Source: Porter, Institute for Strategy & Competitiveness, Harvard Business School

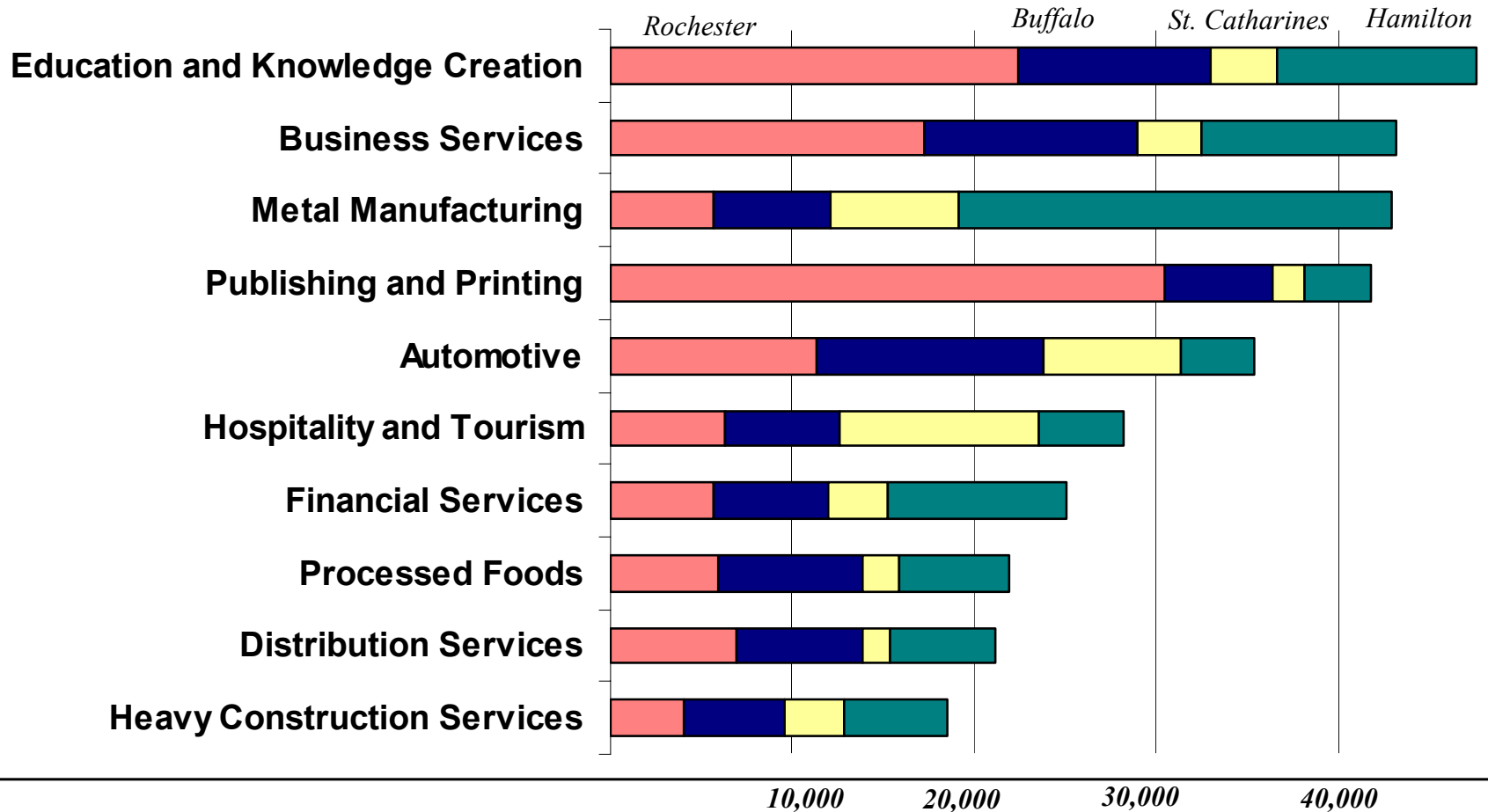
Some lessons learned from cluster work in the U.S.

- **Focus should be on sustaining prosperity not just growth for its own sake**
- **Success defined by innovation, not efficiency**
- **Diffusion of knowledge more important than level of R&D**
- **Success in traded clusters pulls along non-traded clusters**
- **“Low tech” successful clusters are more numerous than “high tech”**
- **Successful regions don’t pick winners but build on advantages to create specialized economies**

Source: U.S. Council of Competitiveness

Niagara BiNational's Leading Clusters

Employment in Leading Clusters



Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

Niagara BiNational's Leading Clusters

Cluster	Rochester	Buffalo	St. Catharines	Hamilton	Total
1. Education and Knowledge Creation	22,375	10,640	3,642	10,914	47,571
2. Business Services	17,195	11,718	3,528	10,804	43,245
3. Metal Manufacturing	5,723	6,418	7,004	23,848	42,993
4. Publishing and Printing	30,434	6,009	1,695	3,617	41,755
5. Automotive	11,368	12,439	7,568	4,041	35,416
6. Hospitality and Tourism	6,275	6,325	10,930	4,658	28,188
7. Financial Services	5,625	6,295	3,294	9,865	25,079
8. Processed Foods	5,979	7,873	1,958	6,095	21,905
9. Distribution Services	6,981	6,929	1,409	5,779	21,098
10. Heavy Construction Services	3,995	5,570	3,251	5,695	18,511

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

Niagara BiNational's Leading Clusters

Cluster	Total	Regional Location Quotient
1. Education and Knowledge Creation	47,571	1.60
2. Business Services	43,245	0.74
3. Metal Manufacturing	42,993	2.30
4. Publishing and Printing	41,755	3.12
5. Automotive	35,416	1.98
6. Hospitality and Tourism	28,188	0.84
7. Financial Services	25,079	0.62
8. Processed Foods	21,905	1.17
9. Distribution Services	21,098	0.85
10. Heavy Construction Services	18,511	0.75

Note: The location quotient is North American quotients

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

Rochester's Leading Clusters

Leading Clusters by Share of Traded Cluster Employment (2000)

Cluster	Employment	Location Quotient
1. Publishing and Printing	30,434	7.13
2. Education and Knowledge Creation	22,375	2.36
3. Business Services	17,195	0.93
4. Automotive	11,368	2.00
5. Distribution Services	6,981	0.88
6. <i>Plastics</i>	6,828	1.96
7. Hospitality and Tourism	6,275	0.58
8. Processed Foods	5,979	1.00
9. <i>Medical Devices</i>	5,888	2.19
10. Metal Manufacturing	5,723	0.96

Note: The location quotients are North American quotients.

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

Buffalo's Leading Clusters

Leading Clusters by Share of Traded Cluster Employment (2000)

Cluster	Employment	Location Quotient
1. Automotive	12,439	2.15
2. Business Services	11,718	0.62
3. Education and Knowledge Creation	10,640	1.11
4. <i>Motor Driven Products</i>	<i>10,518</i>	<i>5.84</i>
5. Processed Foods	7,873	1.30
6. Distribution Services	6,929	0.86
7. Metal Manufacturing	6,418	1.06
8. Hospitality and Tourism	6,325	0.58
9. Financial Services	6,295	0.48
10. Publishing and Printing	6,009	1.39

Note: The location quotients are North American quotients.

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

St. Catharines' Leading Clusters

Leading Clusters by Share of Traded Cluster Employment (2000)

Cluster	Employment	Location Quotient
1. Hospitality and Tourism	10,930	2.56
2. Automotive	7,568	3.34
3. Metal Manufacturing	7,004	2.96
4. Education and Knowledge Creation	3,642	0.97
5. Business Services	3,528	0.48
6. <i>Transportation and Logistics</i>	<i>3,301</i>	<i>1.19</i>
7. Financial Services	3,294	0.64
8. Heavy Construction Services	3,251	1.04
9. <i>Heavy Machinery</i>	<i>2,420</i>	<i>3.31</i>
10. <i>Entertainment</i>	<i>2,211</i>	<i>1.26</i>

Note: The location quotients are North American quotients.

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

Hamilton's Leading Clusters

Leading Clusters by Share of Traded Cluster Employment (2000)

Cluster	Employment	Location Quotient
1. Metal Manufacturing	23,848	5.52
2. Education and Knowledge Creation	10,914	2.53
3. Business Services	10,804	0.80
4. Financial Services	9,865	1.06
5. Processed Food	6,095	1.40
6. Distribution Services	5,779	1.01
7. Heavy Construction Services	5,695	1.00
8. Hospitality and Tourism	4,658	0.60
9. Automotive	4,041	0.98
10. Entertainment	3,761	1.17

Note: The location quotients are North American quotients.

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity

The Location Quotient (LQ) Defined

- The location quotient is a ratio measure of the concentration for a cluster in a particular location relative to the North American average
- An LQ >1 indicates a higher than average concentration in the particular location
- Hamilton's cluster LQs are calculated as follows:

$$LQ = \frac{\left(\frac{\textit{Employment in the Cluster in Hamilton}}{\textit{Total Hamilton Employment}} \right)}{\left(\frac{\textit{Total Employment in the Cluster in North America}}{\textit{Total North American Employment}} \right)}$$

The Six Technology Clusters

**Pharmaceuticals
and Biotechnology**

Aerospace Engines

**Information
Technology**

Medical Devices

**Aerospace Vehicles
and Defense**

**Communications
Equipment**

Source: Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute for Competitiveness & Prosperity analysis

The Technology Clusters

Ontario and New York's Cities by Traded Cluster Employment (US: 1999, Canada: 2000)

Ontario CMA	Employment	Location Quotient
1 Toronto	63,690	1.03
2 Ottawa	20,439	1.68
3 Kitchener	4,661	0.85
4 Hamilton	2,835	0.35
5 St. Catharines	1,828	0.41

US MSA	Employment	Location Quotient
1. Nassau-Suffolk	36,697	1.44
2. New York	34,458	0.39
3. Rochester	12,493	1.11
4. Binghamton	9,414	3.90
5. Buffalo	6,865	0.60

Note: The location quotients are North American quotients

Source: Statistics Canada, Canadian Business Patterns (June 2000); Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Institute Competitiveness & Prosperity