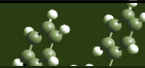


Manufacturing Innovation and the New Rural Economy

Presented by:

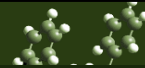
John Hayden
Northumberland CFDC
Cobourg, Ontario



Presentation Outline

- **Profile of Northumberland County**
- **Knowledge Networks in Northumberland**
 - Objective and assumptions
 - Strategic Focus
 - Innovation Corridor Map
 - NCFDC role
- **How it works**
 - Ec Dev and the Triple Helix
 - Track I initiatives
 - Track II initiatives
 - Centre for Manufacturing Innovation
- **Project Status and Recommendations**
 - Comparison to other models
 - Recommendations
 - Questions for analysis



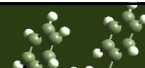


About Northumberland

“Metro-adjacent” and “Manufacturing Dependent”

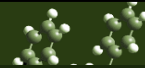
• Population:	81,000
• Labour Force	Manufacturing (21%)
• Manufacturing Sectors	Plastics, Food
• Average income	\$30,000
• Median Age	41
• Population Change (5 yrs)	4.5%
• Manufacturing Location Quotient	1.25 (High)

-
- *Conclusions from Wood, K. "Best Practices in Rural Policy" (2006)*
 - *Statistics from regional data set; FedNor/Industry Canada (2006) and County of Northumberland*



Location of Northumberland County





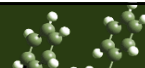
NCFDC Innovation Objective

To tailor local knowledge capacities in order to achieve competitive advantage in global technology markets.*

Underlying Assumptions

- **Community Economic Development Approach**
- **New Rural Economy Model**
- **Importance of Manufacturing Innovation**

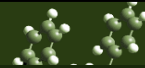
* See Tijs Creutzberg, "Structuring Innovation in Knowledge Economies," Munk Centre, University of Toronto (2006)



Community Economic Development

- **Community Responsive**
- **Balanced approach**
- **Maximum benefit to community**
- **Collective momentum**

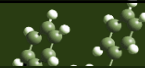




New Rural Economy

- **Connecting to urban growth nodes, global value chains**
- **Horizontal integration**
- **New approaches**
- **Knowledge economies**

See Olfert and Partridge. *Mapping the Rural-Urban Interface: Building a Sustainable Canada* (2007)



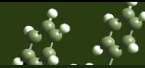
Manufacturing

- **Economic multiplier manufacturing sector 3.23:1**
- **Not high growth sector but important target for business retention and expansion strategy**

Innovation

- **Conference Board: Canada earns "D" Grade in Innovation Domain**
- **Skills shortage**
- **Poor knowledge commercialization system**
- **Only 6.4% of value-added comes from high-tech manufacturing**





Strategic Focus

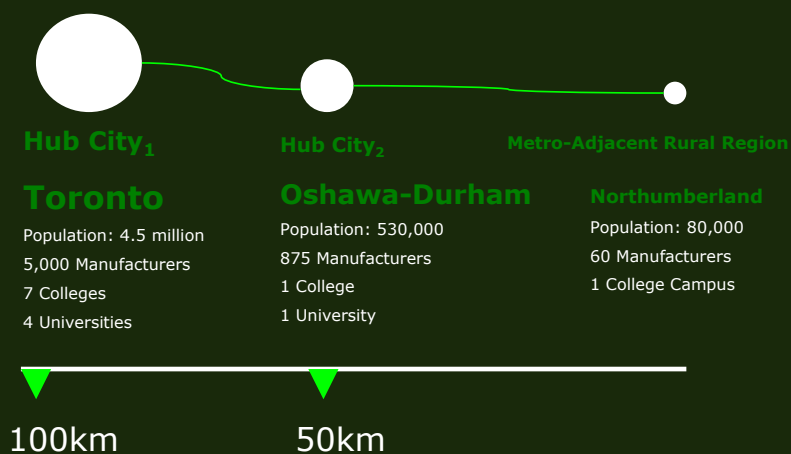
More innovation based commerce will help diversify the economy for sustainable prosperity...

- Support NMA consortia
- Lead CMI network establishment
- Skills Development, advanced manufacturing

= **Local Strategic Collaboration**

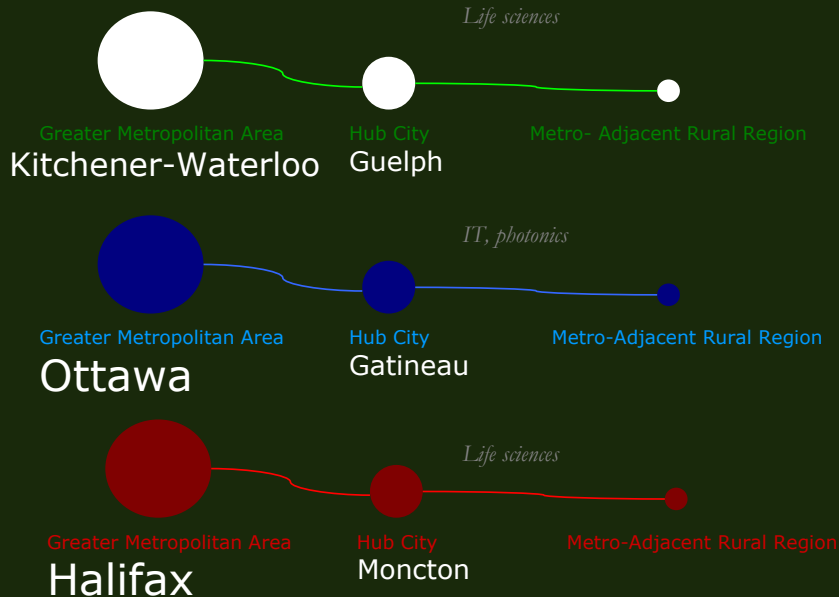


Mapping Rural-Urban Innovation Corridors

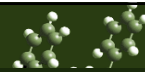


Technology platforms: advanced manufacturing, plastics, food

Other corridors...



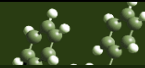
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Ec Dev and the Triple Helix

- **Public Sector/Government**
- **Industry**
- **University**



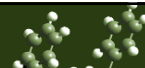


Northumberland CFDC Corporate Advantages

- **Expertise and connections of community volunteer Board of Directors (engineering, industry reps)**
- **Senior managers with private sector experience, high public profile**

Northumberland CFDC Funding Toolkit

- **Eastern Ontario Development Program (EODP)**
- **Province of Ontario Rural Economic Development Program (RED)**



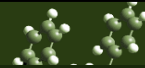
Northumberland Manufacturing Association (Consortium)

- **Civic Entrepreneurs... Industry Champions**
- **Inter-firm partnerships (working groups)**

How does the Northumberland CFDC add value?

- **Assist in Governance and Strategic Planning**
- **First NMA Executive Director, EODP Youth Intern (\$30K)**
- **High Performance Manufacturing Summit, EODP Local Initiatives funding (\$50K)**
- **Skills Training \$200,000 over 3 years, leveraged an additional \$100,000 from industry clients**



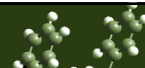


University of Ontario Institute of Technology

- **Regional mandate**
- **Market-driven research**
- **Commercialization manager**

How does the Northumberland CFDC add value?

- Enhance University's ability to deliver chartered mandate to service Northumberland County
- Facilitator of opportunities for research enterprise
- Staff resources towards knowledge network development



NCFDC, UOIT and NMA

= **knowledge network**

Strengths

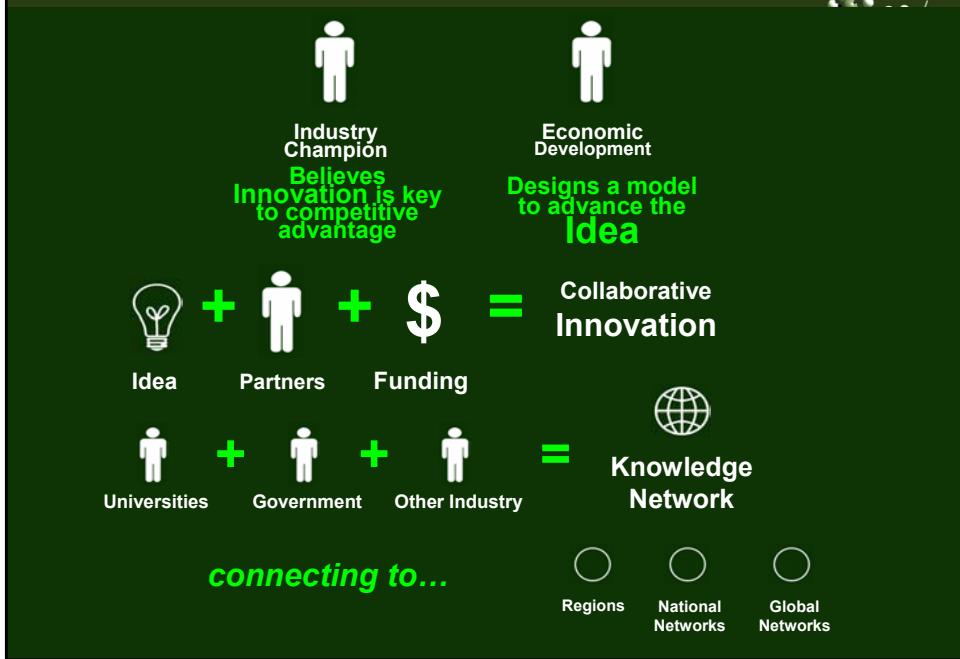
- **Open**
- **Horizontal**
- **Informal**
- **Collaborative**
- **Flexible**

Weaknesses

- **No direct, incremental operational funding**
- **Lack of official brand recognition, presence on Canadian innovation map**
- **Questionable critical mass for economic transformation**



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AND THE NEW RURAL ECONOMY



KNOWLEDGE NETWORKS
AND THE NEW RURAL ECONOMY

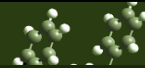
Leverage Opportunities in University Partnerships

Item	Industry Cash	Industry In-kind	OCE Cash	NSERC Cash	Total
Three Grad Students	\$20,000			\$40,000	\$60,000
Post-Doc			\$40,000		\$40,000
Ind. time, materials		\$27,000			\$27,000
University O/H	\$7,000		\$14,000		\$21,000
Total	\$27,000	\$27,000	\$54,000	\$40,000	\$148,000

Keeping in mind professors bring public investment through research grants

* By Dr. Michael Szarka, University of Ontario Institute of Technology



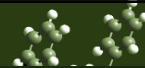


Track I

Mediating cultures, encouraging dialogue, creating social networks, exchanging ideas with decision makers from all sectors

Track II

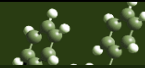
Skills training, economic development, public investment



Track I: Critical Alignment, Building Innovation Networks

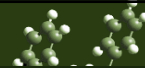
- **Presentations to industry leaders**
- **Innovation = competitive edge**
- **Overcoming suspicions about the “Ivory Tower”**
- **Discussion framed in terms of productivity and profitability**





Track I: Critical Alignment, Building Innovation Networks

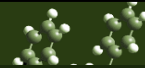
- **Who? Dr. Greg Baiden, CRC (Robotics & Automation), Dr. Michael Szarka (Commercialization, UOIT),**
- **SE region consortium development with VP/Chief Economist Glen Hodgson (Conference Board of Canada)**



Other Track I strategies

- **Innovation program scan to manufacturers**
- **Conference attendance quarterly**
- **Consultation with other NFPs, government and university tech transfer offices**



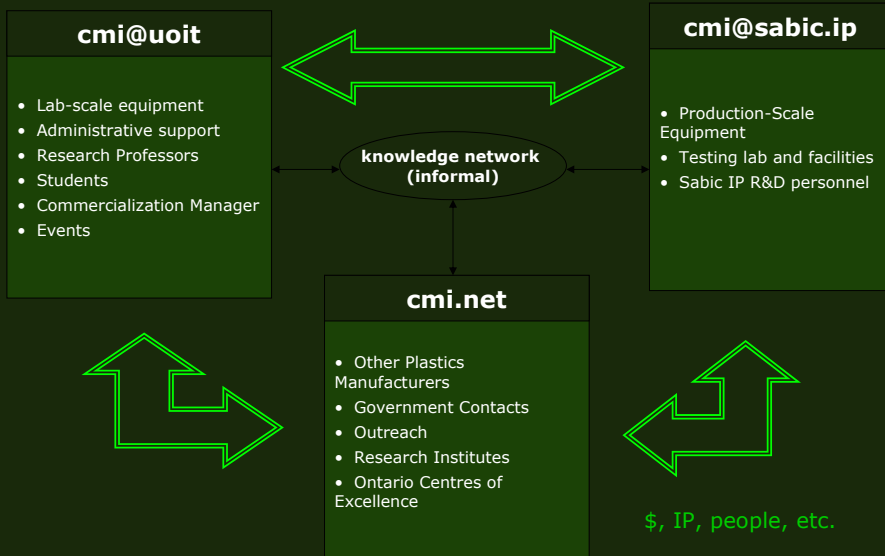


Track II: Centre for Manufacturing Innovation

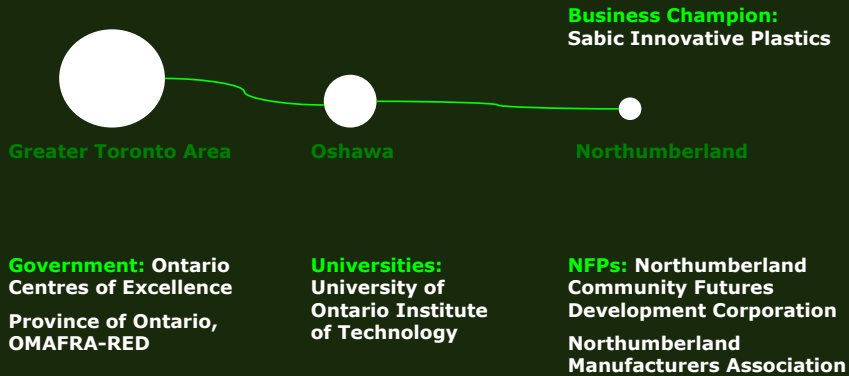
- **Description:** State-of-the-art laboratory facility enables high-level collaborative research in advanced polymers technology.
- **Partners:** Sabic Innovative Plastics, Province of Ontario (OMAFRA-RED) and Industry Canada/FedNor, University of Waterloo, University of Ontario Institute of Technology (Ontario Centres of Excellence)
- **Research Directions:**
 - precision colour testing
 - materials characterization
 - thermal processing of extruded plastics
 - applied management processes



Centre for Manufacturing Innovation



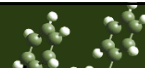
Regional Urban-Rural connectivity: CMI knowledge network



Ontario partners... Industry Canada/FedNor, Ontario Centres of Excellence, Ontario Partnership for Innovation and Commercialization (OPIC) University of Waterloo.

conceptual

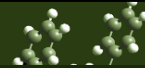
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Leverage Opportunities for R&D Lab Development

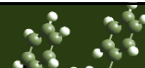
Item	Industry Cash	CFDC Cash	Other (NMA, OPIC, EODP, etc.)	Prov. Cash (remimbursed)	Total
Engineering	\$85M			\$115M	\$200M
Installation	\$500M			\$500M	\$1MM
IIA	\$5M	\$2M		\$8M	\$15M
Business Planning	\$5M	\$7M	\$10M	\$23M	\$45M
Research Program Planning	\$5M	\$12M	\$5M	\$23M	\$45M
Admin 5%		\$22M		\$23M	\$45M
Total	\$600M	\$45M	\$15M	\$700M	\$1.35MM

* Estimates (draft final report)



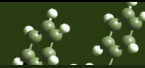
CMI Public Launch Press Coverage – Going Global

- Over 100 dignitaries attended Public Launch with Minister of Research and Innovation, John Wilkinson, Sabic IP senior managers (North America)
- NCFDC worked with US communications firm on international press release
- Northumberland operations appeared on banner on sabic.com homepage
- Relayed in Reuters, Associated Press, Financial Post, Lycos Euro Investor, canoe.ca, Forbes, National Post, Peterborough Examiner, Belleville Intelligencer, Cobourg Daily Star
- Original articles in Canadian Plastics, Plastics Industry News, editorial in Northumberland News and CHEX TV news coverage
- Initiative mentioned in Chester Business School advanced manufacturing strategy for the Welsh Region of the EU.



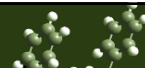
CHEX NEWSwatch Coverage





The Northumberland CFDC resolved to lead the CMI establishment through:

- Organizing strategic planning sessions, supported the working group
- Bringing into play inter-governmental, university and public sector network of partners
- Assisting in negotiating a framework for action,
- Writing the joint proposal for funding, analyzing and pursuing grant opportunities
- Taking responsibility for leveraging the profile and momentum established through the CMI to further develop knowledge networks and industry consortia (i.e. NMA, SE region manufacturers, fostering new projects with other manufacturers)
- Building regional, national and international profile (conference presentations, reports, press releases, etc.)

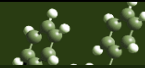


The NCFDC Innovation Agenda

critical mass

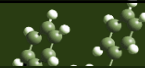
Strategic Focus	Phase 1 (preliminary)	Phase 2 (current)	Phase 3 (theoretical)
Support NMA Consortia	pilot phase	sustainability model	continuous improvement zone
		governance/strategic planning support	technology platforms/research consortia
		non-competitive inter-firm partnerships	regional collaboration, competitive areas
Lead CMI Network Establishment	sector analysis	high-profile R&D demonstration project	innovation parks
	identify civic entrepreneurs	informal knowledge networks	NSERC-IRC
		university engagement	cluster association/RIN
Advanced Manufacturing Skills Training	workforce analysis	regional skills dev fund	specialized college/university programs
Innovation Infrastructure	broadband study	limited broadband	comprehensive broadband

▲ where we are now



What differentiates a CFDC from Cluster Associations?

- **Broader CED approach**
- **Community volunteer board of directors**
- **A-base operational funding (Industry Canada)**
- **Able to lend directly to high-tech start-ups**
- **Credible third party between business and university in negotiation**



Recommendations for Ec Dev

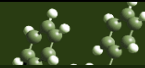
Track I

- **Let industry define objectives, rather than the public sector**
- **Bridge sectors, converge interests**
- **Host high-value networking events**

Track II

- **Seek P3 investment in high-profile R&D initiative as centre of gravity**
- **Assist industry consortia in network development, strategic planning**
- **Regional skills development initiative in advanced manufacturing**





New Research Directions

- **Apply social networking theory to Northumberland plastics sector, examine functionality of “clusters of scale.” (Steven Casper)**
- **Compare/contrast how rural economic development agencies “stand in” for government R&D programs in under-serviced areas... i.e. RED vs. CFI/NRC/NSERC-IRC and CFDCs vs. Cluster Associations, RINs.**
- **Assemble rural toolkit for driving P3 initiatives**
- **Work towards national rural innovation policy consensus...**



Successful clusters develop rich networks linking individuals and firms

- “Regional advantage” argument: heightened innovative capacity, market intelligence throughout the network...

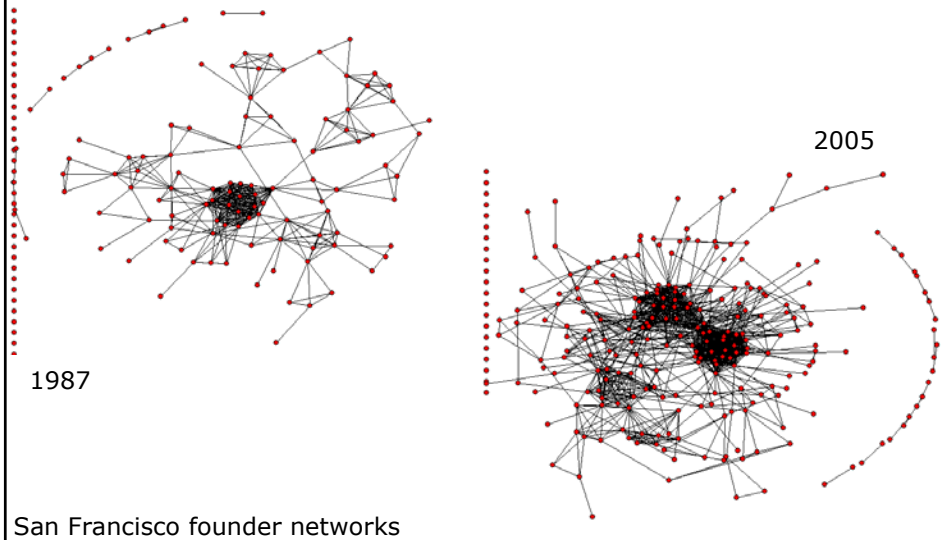
**Excerpts from the National Research Council
Connections 2007 Conference, Toronto**

~Steven Casper

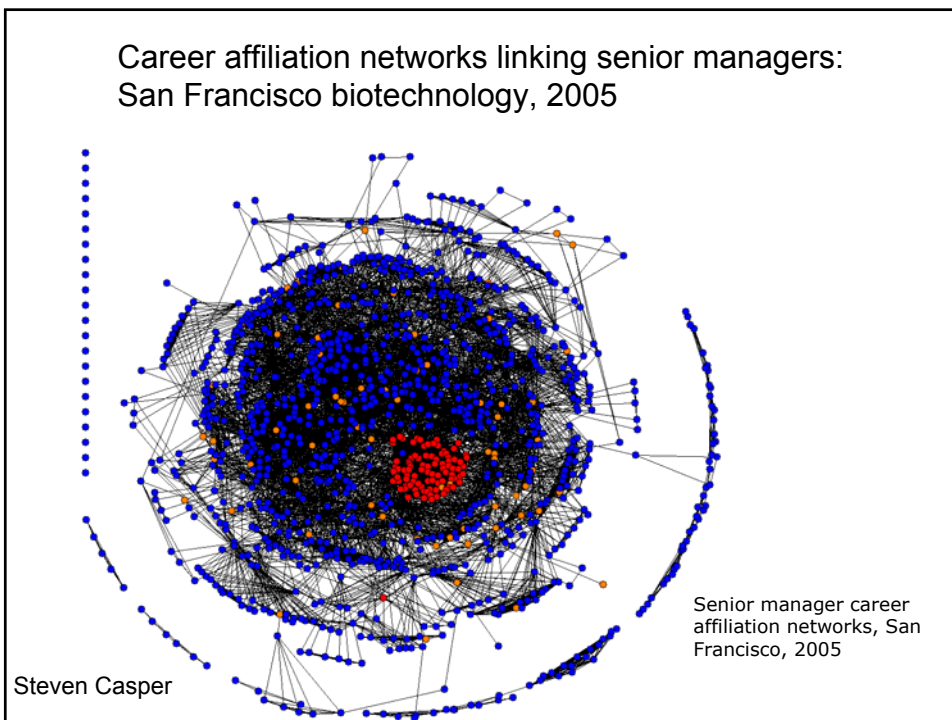
Associate Professor

Keck Graduate Institute, Claremont, California

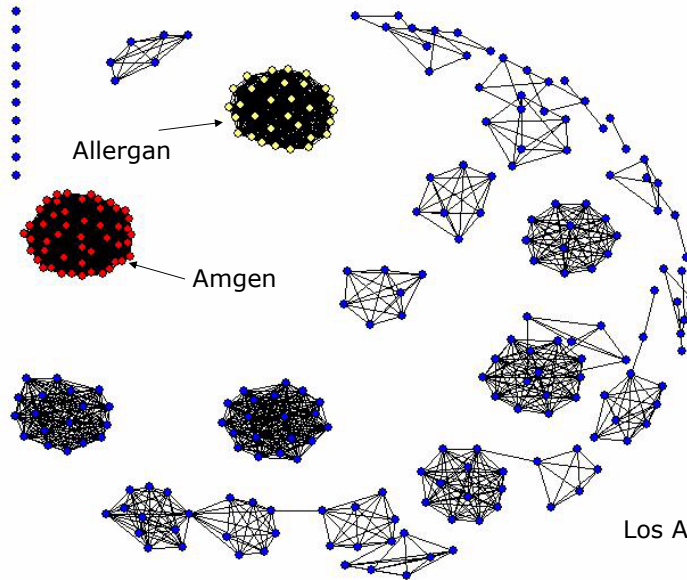
Networks linking founders often form the “backbone” of technology clusters



Career affiliation networks linking senior managers: San Francisco biotechnology, 2005



Less successful biotech clusters lack social ties linking managers and scientists across firms



Steven Casper

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Some inspiring quotes

"The CMI will be hub for world-class research and development."

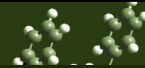
Dalton McGuinty, Premier of Ontario

"It is quite possible for Eastern Ontario as a region to brand itself, to seek out new markets and greater productivity."

**Glen Hodgson, Senior VP and Chief Economist
Conference Board of Canada**

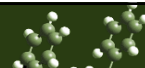
"Gentlemen, this is about making money."

**Wendy Curtis, General Manager
Northumberland CFDC**



Suggested Reading

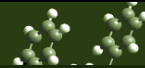
- Conference Board of Canada. *Mission Possible: Stellar Canadian Performance in the Global Economy* (2007)
- Creutzberg, T. *Structuring Innovation in Knowledge Economies: A comparative look at the collaborations and related policies supporting Ontario's innovation capacity* (2006)
- Lifset, J. "Reaching Out But Staying Connected." *Journal of Industrial Ecology*. Winter 2007, Vol. 11, No. 1.
- Olfert and Partridge. *Mapping the Rural-Urban Interface: Building a Sustainable Canada* (2007)
- Wood, Kathryn. *A Prosperity Plan for Eastern Ontario* (2007)
- Wolfe, David A. *Community Participation and Emerging Forms of Governance in Economic Development Strategy* (2005)



Hand-outs

- PowerPoint presentation
- Article: "Networked Innovation and Northumberland" (Parts 1-3) by John Hayden, Northumberland CFDC, Published in the Northumberland Business Times





For more information:

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Northumberland Community Futures Development Corporation

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Fax: 905.372.2238

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