Canadian Regional Development
A Critical Review of Theory, Practice, and Potentials

Développement régional canadien
Un examen critique des théories, des pratiques et des potentiels

Innovation Report: Eastern Ontario Region

January 2014
CRD Report 21

Prepared by:
Kyle White, David Douglas, Sarah Minnes, and Kelly Vodden

Université Concordia University
Memorial University
SFU Simon Fraser University Thinking of the World
University of Guelph

Table of Contents

Acknowledgements

The research team would like to extend their thanks to the numerous people that assisted with the creation of this report. The Social Sciences and Humanities Research Council's funding made the entire project possible. The interview participants in the region provided valuable insight into the state of regional development from a local/region perspective. Lastly we would also like to thank the rest of the research team for their motivation and support.

Contact Information

Kyle White
H.B.A. Candidate, Department of Geography
Memorial University
230 Elizabeth Avenue
St. John's, NL
A1B 3X9
E-mail: ksw355@mun.ca

David Douglas
Professor Emeritus
School of Environmental Design and Rural Development
University of Guelph
50 Stone Road
Guelph, Ontario
N1G 2W1
E-mail: djdougla@uoguelph.ca

Sarah Minnes
Coordinator-NL Drinking Water Project
Memorial University, Grenfell Campus
1 University Drive
Corner Brook, NL
A2H 6P9
E-mail: sminnes@grenfell.mun.ca

Kelly Vodden
Associate Professor (Research), Environmental Policy Institute
Memorial University, Grenfell Campus
1 University Drive
Corner Brook, NL
A2H 6P9
E-mail: kvodden@grenfell.mun.ca

Introduction

"Canadian Regional Development: A Critical Review of Theory, Practice, and Potentials" is a cross-Canada, multi-disciplinary project that involves researchers from four academic institutions: Memorial University, Concordia University, Simon Fraser University, and the University of Guelph. The goal of the project is to understand the emerging theme New Regionalism and its context in Canadian development (see Markey, 2011 for more information). To comprehend this complex theory, the project involves five core themes of New Regionalism: integrated development, rural-urban relationships, place-based development, governance, and, the theme for this report, innovation and learning.

Innovation and learning are dynamic concepts in the regional development literature due to different perceptions and applications in practice. Dicken (2007: 76) states that *"Innovation, put simply, is the creation or diffusion of new ways of doing things."* However innovation is not simple and this is reflected in the Organization for Economic Co-operation and Development's (OECD, 2005: 46) definition:

> *"The implementation of new or significantly improved product, process, marketing or organizational method. Innovation in regional development, for example, may include new ways of organizing and/or sharing information within or across organizations, new strategies for addressing local challenges and opportunities, or new forms of investment. We are considering an innovation as something that is new to the region, rather than new to the world for example".*

This definition demonstrates that innovations can be perceived at various scales: international, national, regional, and firm-level. Furthermore, innovation does not have to be synonymous with invention as product improvements or regional introduction can also be thought of as innovation.

It is useful to think of innovation from a systems perspective where multiple components or actors work together to produce innovation. Innovation is then dependent upon the actors involved, the quality of support structures, and institutional thickness (Amin and Thrift, 1995; Cooke 2001). This report will examine innovation in the Eastern Ontario region, providing an overview of economic, social, political, and practical components.

Study Region

The project is based in five select study regions from across Canada in four provinces. These include: the Northern Peninsula, Newfoundland, Rimouski-Nigette MRC, Quebec, the Kootenays, British Columbia, Kittiwake, Newfoundland, and, the region for this report, Eastern Ontario (pictured below). Each of these regions was selected by the co-investigators because of initial evidence of their efforts to support the concepts of New Regionalism. Each region provides a different set of characteristics that influence innovation and learning in practice.

Image Source: http://www.eowc.org/en/abouteowc/ourpurpose.asp?_mid_=10930

Eastern Ontario is located to the east of the Greater Toronto Area (GTA) and extends to the Ontario-Quebec border. It spans from the American Border with New York and Lake Ontario as far north as Algonquin Provincial Park; the project's region is aligned with the Eastern Ontario Warden's Caucus boundary. It is a large region encompassing 49,000km^2 and contains 8 climate zones due to its geographic location (Minnes and Douglas, 2013). This location provides the context for unique relationships, attachments, lifestyles, and strategies.

The regional population is 2,005,298 which constitutes 15.6% of the province's 12,851,821. This also represents a persistent increase in the region's population since 1981 when the population was 1,391,745 (Statistics Canada, 2006; Statistics Canada, 2010; Statistics Canada 2012). Eastern Ontario is further sub-divided into counties that each have unique characteristics that influences their innovation and learning. The largest county is Frontenac (149,728 people) and the smallest is Haliburton County (17,041 people), this indicates a large difference between the counties. Regardless of their current (2011) population, each county has grown (some more than others) over the last 30 years (Statistics Canada, 2012). The region also contains several cities: Ottawa (883,391 people), Kingston (117,787 people), and Peterborough (78,698 people) that contain services that can benefit the rest of the region (Statistics Canada 2006; Statistics Canada, 2012a).

In 2007, the region's education levels were somewhat comparable to the province's levels. In 2007, 9.6% of the region's population had achieved a bachelor's degree or higher. This varied throughout the region with very high numbers of degree holders in Ottawa (31.9%) and Kingston (22.53%) and very few in Hastings (5.34%) and Haliburton (7.73%). This was lower than the Ontario mean of 19.5%, which may be reflective of the size of universities in the region. Eastern Ontario does, however, have more college graduates than the provincial average; 18.5% for the region and 16.5% for the province. This may be reflective of the labor market demands in the

region, available institutions, or the preferences of post-secondary students (Eastern Ontario Wardens Caucus, 2007: 42).

The labor force in Eastern Ontario is over 1 million people with a relatively low unemployment rate of 6.9%, lower than the province's 9%. However, the average income in the region is $28,295 which is $7,000 less than the provincial average. In the early 1900s, most of the labor force was employed in resource based industries which gradually changed to manufacturing positions dominating employment. Currently, the service sector is the largest employment source in the region with most of the labor force employed in government, production, and consumer services (Minnes and Douglas, 2013).

Compared to the other study regions, Eastern Ontario is, by far, the most urban. Eastern Ontario's population is greater than the combined populations of the other study regions. The presence of multiple post-secondary institutions and advanced technologies (e.g. broadband internet) should give the region a substantial innovative capacity. Furthermore, as the following sections will outline, there are also beneficial support structures in place to foster and enhance innovation. See Minnes and Douglas (2013) for a more detailed report on the social, economic, political, and physical characteristics of Eastern Ontario.

Innovation Policy

Innovation literature emphasizes the need for support structures that foster innovation in the private sector. Government departments are typically referenced as a source for resources, post-secondary institutions as the site for research, and the private sector as the commercialization of the partnership's outcome. This triple helix partnership is deemed important to innovation as it combines these important actors (Etzkowitz, 2008). Foray et al. (2012) have expanded the triple helix theory to include a fourth actor: non-government organizations. Examples of these organizations include planning boards, business development centers, and support agencies such as Community Futures. Given the emphasis placed on these partnerships, supports for innovation must be further examined. Innovation policy or programs/funds that support innovation are a key mechanism for strengthening the outputs of the private sector and maintaining a competitive edge in the global market (Pike et al, 2008).

Ministry of Research and Innovation

A general search of innovation on the Ontario Government website led to several results such as innovative plans of strategies for advancing innovation. However the provincial Ministry of Research and Innovation constituted the most results. This department provides funding support and advisory services to researchers and firms that are seeking commercial research related endeavors. Furthermore, this ministry is reflective of the triple helix as some of their programs require a unification of government, academia, and the private sector. Their programs stem from three overarching funds: the Ontario Research Fund, the Innovation Demonstration Fund, and the Ontario Venture Capital Fund. The following table outlines some of the notable programs the ministry provides throughout the province.

Table 1: Ministry of Research and Innovation support programs

Program	Description	Funding/service
Ontario Research Fund	Large infrastructure support: funding is available for the renovation or construction of a research facility or the purchasing of large research equipment. Small infrastructure support: funding is available for small-scale research equipment. College-industry innovation support: funds are available to assist with the renovation or construction of facilities that will enhance the frequency of college-industry partnerships.	40% of project costs from the Ontario government, 40% from the Canada Foundation for Innovation, and 20% from the applicant.
Funding for Clean Technology projects	This program is available to projects that are between laboratory testing and commercial testing that are hoping to commercialize a green technology. This includes products related to: environment, alternative energy, bio-products, hydrogen, and other significant clean technologies.	Up to 50% of a project's cost (under $4 million).
Ontario-China Technology projects	This program is designed to encourage market and research projects based on water and water related technologies and hydrogen fuel cells that involve a partnership with a Chinese agency.	Up to $1 million (50% from Ontario government and 50% from Chinese government).
Ontario-India Research Collaboration Fund	This program encourages partnerships between Ontario and India research agencies on advanced health technologies, bio-economy, clean technologies, pharmaceutical research and manufacturing, and digital media, information, and communications technologies.	Up to 50% of a project's cost (under $300,000).
Ontario-Israel Collaboration Program	This program encourages collaboration between Ontario and Israeli research agencies on advanced health technologies, bio-economy, clean technologies, pharmaceutical research and manufacturing, and digital media, information, and communications technologies.	Up to 50% of the project's cost (under $300,000).
Early Researcher Awards	This program is available to young research who are new faculty members in an Ontario university. The funding is restricted to researchers that operate within a research center and is the lead investigator on a research project.	Up to $100,000
Ontario Tax Exemption	The Ontario government will grant tax	Varies depending on project and

for Commercialization	exemptions for firms conducting market or product research that may lead to commercialization.	application.
Next Generation of Jobs Fund	This program was allocated $1.15 billion and is designed to attract foreign investment in green auto research, parts production, and assembly. It will also support clean fuels research, development and commercialization, manufacturing, processing, environmental technologies, services anchor investments, support cluster development, and opportunity based investments.	Up to 15% of the project costs. Projects must meet $25 million in investment or generate 100 new positions within five years.

Sources: Ministry of Economic Development, Trade and Employment, 2013; Ministry of Research and Innovation, 2013

Ministry of Economic Development, Trade and Employment

While the Ministry of Research and Innovation is designed to foster research and innovation in academic and corporate settings, the Ministry of Economic Development, Trade and Employment offers many programs for businesses of various sizes. The following table provides a brief overview of the programs that address economic development, innovation, and entrepreneurism.

Table 2: Ministry of Economic Development, Trade and Employment support programs

Program	Description	Funding/Service
Achieving Innovation and Manufacturing Excellence	This program is available to firms in the Ontario manufacturing sector that wish to participate in training that will enhance the firm's ability to innovate.	Up to $50,000 per company covering 100% of direct training costs and 50% of indirect training costs.
Advanced manufacturing Investment Strategy Program	This program is intended to assist the transformation of manufacturing processes and adopt new technologies.	Up to a five year, $10 million interest-free loan.
Eastern Ontario Development Fund	This program requires a $500,000 investment from firms in projects that will generate a minimum of 10 jobs over 5 years. The firms must be located in Eastern Ontario and focus within the following sectors: manufacturing, processing, tourism, business services, cultural industries, technology, and green technology development.	Up to 15% of total expenses to a maximum of $1.5 million per project. Up to 50% (valued over $100,000) for other economic development agencies.
Communities in Transition	This program is intended to assist communities that are seeking new directions for their development initiatives. Funding and advisory assistance is available to communities that wish to participate.	Funding is need-based.

Summer Company	Funding is available to young people who wish to establish a summer business. A business plan and appropriate accounting and marketing strategies are left to the individual.	Up to $3000
Advanced Manufacturing Investment Strategy	This program is designed for firms that are valued at $10 million or intend to create 50 new jobs. The strategy is focused on eight areas: industrial research and development, design prototyping and engineering, new materials or products, advanced manufacturing processes, technology innovation, software development, waste reduction or energy conservation, and centers of excellence.	The strategy was allocated $500 million and is to be dispersed through interest-free, five year loans. Loans cover up to 30% of the project's cost (up to $10 million).
Youth Entrepreneurship Partnership	This program is designed for non-profit organizations to help educate youth on being an entrepreneur and giving them experience with small businesses.	Up to $75,000 per project per year.

Sources: Ministry of Economic Development, Trade and Employment 2013; 2013a; 2013b; 2013c.

In addition to these programs both of these ministries provide advisory services to firms, communities, researchers, and non-profit organizations that seek to strengthen the provinces innovative capacity and economy. These ministries also partner with the private sector and research institutions to conduct development on local and regional levels. For more information on programs that are promoted by the Ministries see Ministry of Economic Development, Trade and Employment (2013).

Ontario Ministry of Agriculture, Food and Rural Affairs[1]

Minnes and Douglas (2013) state that the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) are particularly involved in Eastern Ontario through strategic planning, funding, and bringing high quality internet to the region. However, the ministry offers several provincial programs that address agriculture and rural issues. These programs, outlined in the following table, are available to researchers and the private sector.

Table 3: OMAFRA support programs

Programs	Description	Funding/Service
OMAFRA-University of Guelph Partnership Research Program	OMAFRA invests funds in research and innovation that relates to seven themes: agriculture and rural policy, bio-economy-industrial uses, emergency management, environmental sustainability, food for	OMAFRA dedicates $60 million annually to these projects.

[1] Since the initial research, the ministry experienced a division into the Ministry of Agriculture and Food and the Ministry of Rural Affairs.

	health, product development and enhancement through value chains, and production systems (animals and plants).	
Food Safety research Program	This programs is available to actors conducting research on food safety that will generate effective detection instruments and methods that may lead to policy recommendations.	Up to $150,000 over three years.
New Directions Research Program	This program was designed to enhance the sustainability and competitiveness of Ontario's agricultural sector. This is done by investing in research partnerships, communities, other levels of government, and organizations. Examples of such projects include producing pharmaceuticals from agri-foods, solving water issues, and creating innovative products.	Funding is need-based.

Source: OMAFRA, 2013

Community Futures Development Corporation

A final actor that supports innovation is the Community Futures Development Corporations in the province. This organization was established by federal policy and is funded through federal and provincial contributions. They provide business and community loans/grants for development and expansion initiatives as well as offer training support for organizations in their region. CFDC operates in 15 offices throughout Eastern Ontario under the 'apex' Eastern Ontario CFDC Network Inc. The CFDCs regularly partner with each other and other private/public actors in the region and the province (Minnes and Douglas, 2013).

Clearly there is no shortage of funding programs available to firms and other agencies in Eastern Ontario. However, one third of the respondents stated that accessing capital was an issue in their areas. This may be explain by the centralized approach most government departments uphold. In other words, many departments may not have offices in Eastern Ontario and thus do not promote their programs in the region. Furthermore, many respondents stated that they felt many policies and programs are centered on the Toronto region and areas on the periphery were excluded. Therefore a more decentralized distribution of these programs may result in a more equitable allocation of government funds.

Innovation Indicators

In addition to the data empirically collected within the region (presented in the next section), the research team obtained secondary data that will provide an indication of traditional measures of innovation in the region. These indicators of innovation are divided into two types: measures of innovative capacity and innovative indicators. The second represents traditional ideals of innovation, measuring invention, technology use, and innovation financing. The following table

provides an overview of the indicator, its reason for selection, and context within Eastern Ontario.

Table 4: Innovation Indicators in Eastern Ontario

Indicator(s)	Justification/sources	Kittiwake status
Innovation Capacity Indicators		
Availability of post-secondary institutions	Increased knowledge and experience generated in post-secondary institutions (Slaper et al., 2011; Rose et al., 2009; The Center for Innovation Studies, 2005).	Five universities in the region: Queens, Trent, Ottawa, Carleton, and St. Paul. Also works with Nipissing and Guelph. Four colleges in the region: Algonquin, St. Lawrence, La Cite, and The Royal Military College of Canada.
Levels of post-secondary education	Education influences the quality of innovation within a given region (Slaper et al., 2011; Rose et al., 2009; The Center for Innovation Studies, 2005).	9.6% have a bachelor's degree or higher and 18.5% have college education.
Training	The provision of training programs for employees may be correlated to an organization's innovation; quantity and quality of training opportunities should be considered (OECD, 2005; Rose et al, 2009; The Center of Innovation Studies, 2005).	Several training institutions and programs offered through CFDCs.
Access to information technology and communications infrastructure	Martinus (2012) states that maintenance of various forms infrastructure is fundamental to networking, production, and innovating. Providing technological support systems will allow actors to function more efficiently.	High quality internet services in 95% of the region as a result of the rural connections initiative.
Urban proximity	Slaper et al (2011) state that the distance an actor is from an urban area will determine its ability to innovate.	Eight urban areas in the region (Ottawa, Peterborough, Pembroke, Trenton, Kingston, Cornwall, Brockville, Belleville).
Access to financing for innovation initiatives	The availability of programs and the ability of firms to apply for such programs is necessary supporting innovative endeavors	CFDC, Ministries of Research and Innovation and Economic Development, Trade and Employment, and

	(The Advisory Committee on Measuring Innovation in the 21st Century, 2008).	OMAFRA
Networking	The OECD (2010) expresses the value networking has on fostering innovation.	Evidence of knowledge partnerships and potential for networks to form.
Innovation Indicators		
Productivity; Average income	Innovation will likely increase with productivity and subsequently induce increased wealth(Advisory Committee on Measuring Innovation in the 21st Century, 2008; Andrew et al, 2009; Rose et al, 2009; the Center of Innovation Studies, 2005).	Average income: $28,295. Provincial productivity statistic is 41.9
Applications for innovation support	The Advisory Committee on Measuring Innovation in the 21st Century (2008) asserts that measuring the amount of applications directed towards funding agencies is illustrative of innovation efforts	Unobtainable for the region, however, there have been multiple (approved) applications to provincial agencies.
Technology use	The level of and use of technology can indicate the level of innovation in an area (Slaper et al, 2011; OECD, 2010; OECD, 2005; Davies, 2010).	A lot of internet use due to the high quality service but few respondents discussed individual technologies. OMAFRA discussed their new mapping technologies.
Patents	Introducing new products and services into a region complies with traditional notions of innovation (Slaper et al., 2011; Rose et al., 2009; Davies, 2010; The Center for Innovation Studies, 2005).	Countless patents over the past decade. In 2010 there were 2.9 in Stormont-Dundas-Glengarry, 1.57 in Prescott-Russell, 246.48 in Ottawa-Carleton, 2.34 in Leeds-Grenville, 2.77 in Lanark, 25.16 in Frontenac, 1.91 in Lennox-Addington, 3.71 in Hastings, 2.13 in Prince Edward, 0.05 in Northumberland, and 3.02 in Peterborough.[2]

Sources: Statistics Canada, 2006b; OECD, 2012; Community Accounts, 2013; Minnes and Douglas, 2013.

[2] This patent data reflects registered patents by the inventor(s)'s home region. Patents are not consistently whole numbers to demonstrate shared ownership (e.g. 0.5 indicates someone from the region has shared ownership of a patent with one other actor).

Many of these indicators clearly demonstrate an urban bias or areas where there is a greater concentration of industry and post-secondary institutions. This bias is evident in much of the innovation literature as the discussion focus on cities (see Florida, 2002 and Wolfe, 2009 for examples). In some of the rural study regions, this bias presents a disadvantage. Since much of Eastern Ontario is urban, these indicators represent a strong quality of innovation. However, even some of the rural areas in the region like Prince Edward County demonstrate innovation in the form of patents. However, areas with cities such as Ottawa have a clear advantage as they have a concentration of amenities and industry; this innovative capacity is reflected in their patents: 249.48 in Ottawa-Carleton (OECD, 2012). The following section will highlight other examples of innovation and learning that was gathered through interviews in the region.

Data Collection

The research team conducted 33 semi-structured interviews in Eastern Ontario on the five project themes. Analysis was conducted using NVivo software and code topics, and sub-codes were used to identify indicators in all the interviews. This section will generalize each of the topics present in innovation and learning and discuss notable examples that were highlighted in the sub-codes. Because the themes within Canadian Regional Development are so complex not all of the material was present in each interview. Furthermore, time restrictions and the respondent's personal experiences often determined the direction of the interview. As such, the statistics present in the following sub-sections only provide context for the discussion and allows general comparison of presence and absence of indicators in the region. For a brief outline of each code see appendix one.

Innovation Support

In total this topic was discussed in 27% of the interviews (9/33). These codes included any projects, programs, or initiatives that supported or fostered innovation in their region. The support may come from the private, public, or non-governmental sectors.

Few respondents (15% or 5/33) discussed a program that was offered by government that enhanced an actor's capacity to innovate. Furthermore, 6% of the respondents (2/33) discussed innovation projects that had an unspecified origin. These innovation projects primarily come from municipal and provincial government but also government institutions such as post-secondary facilities. Examples of innovation projects in the region are 'Growing Forward': an agricultural innovation project, 'New Directions': a research program, and 'Building Bancroft': a multi-faceted approach to development are examples of specific innovation projects identified by the respondents. While these plans may not actually result in innovative activity they enhance the region's capacity to innovate. The Trent University Innovation Cluster was also cited as an incubator of innovative ideas that could be shared with firms. The discussion with the regional RTO, KEDCO, and OEEDC revealed that fact that several programs receive federal and provincial support but are not necessarily present in the region.

Openness to Creativity and Examples of Innovation

In total this topic was discussed in 91% of the interviews (30/33). These codes sought examples of openness to creativity as well as risk, change, and innovation. Codes identified new products, services, or ways of doing something, as well as support for these new ideas.

More than half of the respondents (51% or 17/33) discussed a new product or service that their organizations introduced to the region. Most of the respondents that introduced new items had incorporated new plans or strategies into their existing operations. Some examples include new community economic development plans, integrated community sustainability plans, and inclusion of tourism or business support into existing plans. A notable plan occurring in the Hastings area is a downtown revitalization initiative that seeks to improve existing infrastructure and services making the area more appealing. Other organization-specific novelties include a multi-cultural festival in Kingston, an entrepreneur center in Prescott-Russell, urban composting in Perth, ground water remediation in Peterborough, and a new climate change modelling program in the Mississippi Valley Conservation Area. Another common trend was an embracing of green/sustainable initiatives such as sustainable plans and provincial green energy programs. While these new programs or services may not appear to be new, they are new to the organization and thus an innovation.

Two thirds of the respondents (67% or 22/33) discussed the support for local organizations in the region. Due to the agricultural industry in Ontario, there is a large movement that supports local farmers and food producers. This is largely achieved through farmers markets and is a key connection for rural and urban areas. Furthermore, support for local firms is strongly encouraged by the chambers of commerce in the region. There were four distinct promotions that supported local firms: “Harvest Hastings,” “Savor Ottawa,” “Kawartha Choice,” and “Local Flavors” in Leeds and Grenville.

Nearly half of the respondents (42% or 14/33) discussed the openness to creativity, change, and new ideas in their organization and the region. Typically, respondents stated that their organization/region is open to new ideas or ways of doing things due to the negative connotation with refusal to change. However, the positive response rate in the region was relatively low; many regarded their organization or themselves as being open to change but the region as being somewhat conservative (with the exception of the Counties of Leeds, Surmont, Dundas, and Glengarry who may have only referred to their county). This will be expanded upon in the challenges as it relates to the older population in the region being less open to change. Furthermore, some of the government institutions are unable to become overly dynamic due to their funding and accountability.

Learning Resources

In total this topic was discussed in 33% of the interviews (11/33). These codes sought examples of how opportunities for learning were made available to individuals and what resources were allocated to learning initiatives. This includes learning institutions as well as training initiatives that occur within an organization.

Some of the respondents (18% or 6/33) stated that there are learning opportunities for their staff. And 15% of the respondents (5/33) stated that there was support for individual learning in the region or their organization. Most of these respondents said their organizations allocated a set amount of their budget to training endeavors and professional development. Some specific institutions were cited as excellent sites of learning: St. Lawrence College and St. Lawrence River Institute. Two particularly notable examples of learning resources are CIRRO who coach

business leaders expand and compete in the market, and the Sirolli Institute who is a private firm outside of the region but assists the establishment of small businesses in Eastern Ontario.

Knowledge Infrastructure

In total this topic was discussed in 67% of the interviews (22/33). These codes sought examples of infrastructure that enabled the acquisition or diffusion of knowledge. This includes post-secondary institutions and new technologies or technology centers.

Nearly half of the respondents (48% or 16/33) discussed the beneficial presence of universities in the region. Several organizations work directly with universities as they provide a valuable research service and can pass important lessons on to government departments, firms, and regional development associations. The post-secondary institutions that respondents cited as being helpful were: Queens, Trent University, Sir Stanford Fleming Community College, Guelph, Nipissing[3], Ottawa, and Algonquin College. Two particular departments were noted as being exceptionally important in the region are Queen's Monieson Center (a valuable resource in the school of business) and the Trent DNA/Innovation cluster (a scientific research center). While there is an abundance of post-secondary institutions in the province and the region, some areas of Eastern Ontario are not within an adequate proximity to work with the above institutions and therefore did not discuss their benefit.

One third of the respondents (30% or 10/33) discussed new technologies their organization or region has introduced. Discussions of new technologies mostly focused on the rural connections program that sought to ensure broadband internet to 95% of rural residents in the region by 2013. This is an important aspect of the region's infrastructure as it allows connections to larger cities as well as international actors. This allows greater knowledge mobility for firms as well as telecommuters wishing to live in the region but work elsewhere. Only one organization, OMAFRA Kemptville office, discussed a new technology that they had incorporated into their structure recently: new mapping software.

Only 6% of the respondents (2/33) discussed a concentration of technology in the region (i.e. technology centers). The discussion with PELA CFDC mentioned an Accelerator Facility in the region and the Innovation cluster at Trent University. These centers are hubs of technology and information that regional actors need only tap into in order to gain valuable information. Furthermore, due to the region's presence of broadband internet it is likely that organizations are now enabled to form more technology centers in the region.

Knowledge Partners

In total this topic was discussed in 79% of the interviews (26/33). These codes sought examples of organizations that collaborated over a given period of time as well as the nature of these partnerships (i.e. was knowledge transfer a significant reason for partnering or sharing services).

Some of the respondents (30% or 10/33) stated that there were intergovernmental knowledge partnerships in the region. The organizations that participated in intergovernmental partnerships

[3] The University of Guelph and Nipissing University are not in the Eastern Ontario Region rather actors within the region work with them on projects.

largely fell into one of two categories. The first is municipal collaboration; often when specific events or programs are taking place multiple actors will work together including the municipality that hosts the event. An example of this municipal collaboration would be the town of Perth working with other municipalities to share recreation and library services. The second form of intergovernmental partnerships are with post-secondary institutions. Many organizations seek research advice or consultation with universities in the region like University of Ottawa, Nipissing, Trent, Guelph, and Queens.

More than two thirds of the respondents (70% or 23/33) discussed knowledge partnerships that crossed sectors. Many actors listed numerous groups in the region that they regularly partner with, however many temporary partnerships also take place in the region. For example, Hastings County partnered with Kawartha Lakes on a housing initiative. There were also discussions on partnerships that crossed rural-urban boundaries such as municipalities partnering with provincial or federal government officials. One organization that several respondents claimed to partner with were regional CFDCs for funding or practitioner advice.

From these cross-sector partnerships, the research team sought examples of theory in practice. Partnerships between government, industry, and post-secondary institutions (the triple helix) as well as non-government organization (quadruple helix) were emphasized (Etzkowtiz, 2008; Forat et al, 2012). These partnerships are, at times, rare due to the absence of one of the required actors. However, one example of the quadruple helix that stands out in Eastern Ontario is Innovation Park located in the Prince Edward, Lennox, and Addington area (PELA). This group involves Queen's university, government, industry specialists, and not-for-profit groups. Together, these actors produce new, innovative ideas that are intended to better their immediate area and the surrounding region (Blay-Palmer and Dwyer, 2008).

Reflection and Knowledge Sharing

In total this topic was discussed in 82% of the interviews (27/33). These codes were similar to knowledge partners but typically occurred over shorter durations. Furthermore, this topic sought examples of how ideas function within organizations and between them.

Several respondents (30% or 10/33) stated that their organization conducts some form of reflection or evaluation. This involves any form of looking back on past initiatives such as informal reflection, evaluation, and formalized reflection methods. 14% of the respondents (5/35) practiced formal reflections such as retreats in which their previous projects were reviewed, set board meetings dedicated to reflection, and reports that outlined previous endeavors. Other respondents stated that they would look back on previous projects informally to try and improve their operations in the future. A notable form of reflection is practiced in the Cataraqui region conservation authority where report cards are used among staff to understand the organization's functions from each individual's perspective. Furthermore, all of the region's conservation authorities share considerable knowledge between jurisdictions.

Nearly half of the respondents (45% or 15/33) discussed instances when their organization engaged in the sharing of ideas with others. Many of the respondents who share ideas do so when there is a gathering of actors operating in similar circumstances such as workshops, conferences, and exhibitions. The Eastern Ontario Warden's Caucus regularly encourages and engages with

major conferences (such as AMO and Good Roads) to promote the sharing of ideas. The Otonabee conservation area conducts conference and project tours to share ideas with visited areas. Some organizations discussed the value of sharing best practices with other organizations so they can learn from success; this form of sharing is practiced when the Peterborough CFDC hosts trade shows. Another notable method for sharing ideas is networking; the Ministry of Environment field staff stated that their professional network is critical to sharing ideas. As outlined in the challenges section, many organizations do not share ideas as they lack trust or willingness to work with other organizations.

One third of the respondents (36% or 12/33) discussed situations when their organization sought ideas or lessons from other organizations. There were two primary avenues respondents used to obtain input or new ideas. The first is internet based researching; this exposes the organization to a broad array of information, experiences, and ideas that can be modified and incorporated into the organizations' operation. The second is public participation; because several respondents are government officials, they value the public's input and create opportunities to learn what they have to say. One notable example of seeking new ideas was practiced by the Otonabee conservation area; they would bring in touring groups to share their experiences and ideas with staff.

Challenges to Innovation

In total this topic was discussed in 88% of the interviews (29/33). These codes identified with challenges faced by organizations living within the region. This includes problems on different scales: local, regional, provincial, national, and international. The most prominent challenges were demographics, policy conflicts, accessing capital, lack of trust, and issues with human resources.

Several respondents (30% or 10/33) discussed trust or lack of collaboration as a barrier to innovation. The most dominant discussion under this code is a rural-urban regional divide. The failure for rural and urban organizations to collaborate is reportedly induced by distrust after previous amalgamations and recent attempts to further amalgamate small communities into cities. Another reason organizations fail to collaborate is apparent personality conflicts and an unwillingness to share ideas or lessons learned. For organizations located near the Quebec border (e.g. Prescott-Russell County) a language barrier was cited as an issue that prevented collaboration.

Nearly one third of the respondents (33% or 11/33) discussed demographics and demographic shifts as a challenge to innovation. The most dominant trend in this discussion was a problem with outmigration, specifically a loss of young people. Since the region is within close proximity to major cities like Ottawa, Toronto, Montreal, and even New York City urban appeals attract people away from the region. This decline in youth populations has resulted in an aging population that is more conservative and less open to change/new ideas or ways of doing things. However, unlike other rural regions in the country, Eastern Ontario still has a large population.

Several respondents (24% or 8/33) discussed a policy conflict that created a barrier to innovation in the region or for their organization. Under this code there appears to be three different types of policy conflicts in the region. The first is the negative effects that are still being felt by massive

downloading under the Harris government. The second is an institutional messiness whereby federal and provincial programs are not well integrated and confusing. The third is an apparent anti-rural approach by policy makers and many provincial/federal government officials. There are notions of urban (especially Toronto) biased policies and insensitivity to rural issues.

One third of the respondents (33% or 11/33) discussed the difficulties accessing capital in the region as a barrier to innovation. The most common reason for difficulties accessing capital is that most capital (especially funding) is externally sourced. As such, organizations in Eastern Ontario must compete with the rest of the province to obtain funding from programs which is becoming increasingly difficult with the growth of major cities like Toronto. It was also noted that the CFDCs in the region are some of the only sources of funding available to many organizations.

Some respondents (21% or 7/33) discussed problems with human resources in their organization or region that created a challenge to innovation. There were two general problems with human resources in the region. The first problem is a shortage of staff which is partially caused by the outmigration occurring in the region. The second problem is a regional shortage of skilled labor. This is likely a result of a shortage of post-secondary institutions in some parts of the region and youth outmigration. Often better opportunities exist in urban areas attracting skilled workers away from rural areas. In some cases youth leave for post-secondary education and fail to return to the region.

Few respondents (9% or 3/33) discussed challenges to innovation that did not fit under the previously discussed codes. These discussions often entailed challenges that were beyond the organizations control such as a lack of tourism traffic, inadequate technology (for those that did not participate in the rural connections project), few connections with post-secondary institutions, and challenging economic conditions. However, if technology expansion continues with the region some of these problems may be eradicated. But if outmigration and unfavorable rural policies persist then these challenges may continue.

Moving Forward

In order to gain insight into what opportunities or future strategies exist in the region, respondents were asked “What do you think are the most important future opportunities to enhance the well-being of residents and communities in your region?” The response to this question depended on the circumstances each actor encountered in their part of the region as well as the institutional thickness and resources available to them.

A key strategy is ensuring that the region is ‘investment ready.’ This will involve building a strong business base that enhances the region’s appeal to external investors and that actors will be prepared to utilize this investment once it is achieved. This strategy will require collaboration between regional governments, planners, and businesses. This will include business expansion and retention initiatives such as business coaching and the encouragement of network participation. This ought to attract investment that will lead to further business investment and growth for Eastern Ontario.

Another strategy for improving the region's well-being is increasing a policy presence from the provincial and federal level. This will include implementing several structured strategies such as transportation, waste management and providing healthcare for the baby boomers. Several actors also voiced that they wanted their region to be included in provincial growth programs. Furthermore, creating policies that are less Toronto-centered will benefit the rest of the province and decrease the hostility between rural and urban areas.

Several respondents stated that general rural-urban collaboration needed to be improved to better the region's well-being. This largely involves building on existing relationships which typically revolves around farmer's markets and producer-consumer interactions. A critical issue is the need to consult farmers on plans that involve land use to minimize further impact on agricultural areas. Furthermore, some respondents stated that urban areas should work with rural areas to protect agricultural land and preserve the industry.

Several respondents identified improvements that needed long term planning. These strategies would address some of the challenges citizens in the region face and will require increased collaboration among regional actors. Some of these potential plans include green energy production, identifying new markets for industry in the region, investment in local infrastructure (roads, sewage, etc.), increasing the presence of the manufacturing sector, and making efforts to retain youth. All of these strategies will require collaboration among multiple levels of government, the business community, planners, and support agencies. Ensuring that actors are being included in the planning process is instrumental to equitable and accountable development.

References

Advisory Committee on Measuring Innovation in the 21st Century Economy. (2008). Innovation Measurement: Tracking the State of Innovation in the American Economy. Report submitted to the Secretary of Commerce.

Amin, A., Thrift, N. (1995). Institutional issues for the European regions: from markets and plans to socioeconomics and powers of association. *Economy and Society*, 24(1).

Andrew, J., Haanaes, K., Michael, D.C., Sirkin, H.L., Taylor, A. (2009). Measuring Innovation 2009: The Need for Action. Report submitted to the Boston Consulting Group Senior Management Survey.

Blay-Palmer, A. and Dwyer, M. (2008). Capitalizing on connections: PELA and beyond. Project report for Prince Edward, Lennox and Addington Community Futures Development Corporation.

Community Accounts. (2013). Ontario Well-Being and Indicators. Retrieved from: http://nl.communityaccounts.ca/indicators.asp?_=vb7En4WVgbOxz7Zo

Cooke, P. (2001). From Technologies to Regional Innovation Systems: The Evolution of Localised Technology Development Policy. *Canadian Journal of Regional Science* 24(1): 21-40

Dicken, P. (2007). *Global Shift: Mapping the Changing Contours of the World Economy*. The Guilford Press.

Eastern Ontario Wardens Caucus. (2007). A Profile of Eastern Ontario (Regional Data Set). Retrieved from: http://www.eowc.org/en/futuredirections/resources/Profile_Eastern_Ont-Regional_Data-Mar3107.pdf

Etzkowitz, H. (2008). *The Triple Helix: University-Industry-Government Innovation in Action*, Routledge: New York.

Florida, R. (2002). *The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life,* Basic Books.

Foray. D., Goddard, J., Beldarrain, X.G., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., Ortega-Argiles, R. (2012). Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3). European Union Commission on Regional Policy.

Markey, S. (2011). A Primer on New Regionalism. Prepared for the Canadian Regional Development: A Critical Review of Theory, Practice, and Potentials project. Retrieved from: http://cdnregdev.ruralresilience.ca/wp-content/uploads/2013/03/primernewregionalism-markey.pdf

Martinus, K. (2012). City infrastructure supporting innovation. *International Journal of Knowledge-Based Development* 3(2): 126-156.

Ministry of Economic Development, Trade and Employment. (2013). Government programs for business. Retrieved from: http://stage.ontariocanada.com/ontcan/1med/en/progserv_bizserve_en.jsp

Ministry of Economic Development, Trade and Employment. (2013a). Advanced Manufacturing Investment Strategy (AMIS). Retrieved from: http://stage.ontariocanada.com/ontcan/1med/en/progserv_amis_en.jsp

Ministry of Economic Development, Trade and Employment. (2013b). Eastern Ontario Development Fund (EODF). Retrieved from: http://stage.ontariocanada.com/ontcan/1med/en/eodf_main_en.jsp

Ministry of Economic Development, Trade and Employment. (2013c). Communities in Transition. Retrieved from: http://stage.ontariocanada.com/ontcan/1med/en/progserv_cit_en.jsp

Ministry of Research and Innovation. (2013). Research Funding. Retrieved from: http://www.ontario.ca/business-and-economy/research-funding

Minnes, S. and Douglas, D.J.A. (2013). A Profile of Eastern Ontario. Prepared for the Canadian Regional Development: A Critical Review of Theory, Practice, and Potentials project.

Retrieved from: http://cdnregdev.ruralresilience.ca/wp-content/uploads/2013/05/EasternOntarioProfile.pdf

OECD. (2005). Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data. OECD Publishing.

OECD. (2010). Measuring Innovation: A New Perspective. PowerPoint Presentation.

OECD. (2012). Patents by regions. Retrieved from: http://stats.oecd.org/Index.aspx?DatasetCode=PATS_REGION#

OMAFRA. (2013). Funding Opportunities. Retrieved from: http://www.omafra.gov.on.ca/english/research/programfundingindex.htm

Pike, A., Rodriguez-Pose, A., Tomaney, J. (2008). *Local and regional development*. London: Routledge.

Rose, S., Shipp, S., Lal, B., Stone, A. (2009). Frameworks for Measuring Innovation: Initial Approaches. Athena Alliance, Science and Technology Policy Institute.

Slaper, T., Hart, N.R., Hall T.J., Thompson. M.F. (2011). The Index of Innovation: A New Tool for Regional Analysis. *Economic Development Quarterly* 25(36).

Statistics Canada. (2006b). Community Information Database. Retrieved from: http://www.cid-bdc.ca/home

Statistics Canada. (2010). Visual census, Population, Ontario.Retrieved From: http://www12.statcan.ca/censusrecensement/2006/dppd/fsfi/index.cfm?LANG=ENG&VIEW=D&PRCODE=35&TOPIC_ID=3&format=flash

Statistics Canada. (2012). Statistics Canada, censuses of population, 1981 to 2011. Information given directly from Statistics Canada and other information Retrieved from: http://www.statcan.gc.ca/pub/92-195-x/2011001/geo/ccs-sru/ccs-sru-eng.htm

Statistics Canada. (2012a). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Retrieved from: http://www12.statcan.gc.ca/census-recensement/2011/dppd/prof/index.cfm?Lang=E

The Center for Innovation Studies. (2005). Alberta Innovation Scorecard.

Wolfe, D. A. 2009. *21st Century Cities in Canada: The Geography of Innovation*. The Conference Board of Canada. Ottawa, Ontario.

Appendix One: Code Descriptions

Topic	Nvivo Code	Explanation
Resources for Learning	Lr100	Places, entities, programs or types of materials where individuals and acquire knowledge.
Human resources	Lr110	Programs, leadership and investments that supports learning for staff, students, or the workforce in general.
Support for individual learning	Lr120	Learning processes or supports that provide knowledge to specific individual needs.
Knowledge Partners	Kp100	Working with another actor to give and receive knowledge or experience.
Intergovernmental	Kp110	Multiple government departments sharing knowledge; possibly at different scales.
Business-Business	Kp120	Multiple firms sharing knowledge.
NGO-NGO	Kp130	Multiple Non-Government Organizations sharing knowledge.
Cross-Sector	Kp140	Different actors from separate sectors sharing knowledge; examples of triple helix and quadruple helix partnerships were sought.
Reflection and Sharing	Rs100	Sharing/seeking ideas and reflecting on past experiences.
Internal reflection	Rs110	Looking back on previous ideas or experiences through formal or informal means.
Sharing	Rs120	Expressing experiences or ideas with others so they can learn from you.
Seeking	Rs130	Actively searching for new ideas from other organizations through research or interactions.
Innovation Support	Ip100	A project or program that explicitly addresses innovation.
Public Sector	Ip110	An innovation support project sponsored by a public organization.
NGO	Ip120	An innovation support project sponsored by a Non-government organization.
Private Sector	Ip130	An innovation support project sponsored by a private firm or group of firms.
Examples of Innovation and Openness to Creativity	Op100	The respondent (and/or their organization) is open to new ideas or different ways of doing things.
New products or services	Op110	Introduced a new product or service in the past 3-5 years. This may also be a new initiative or process considered innovative by the respondent.
Self-employment	Op120	Evidence of entrepreneurism in the region/organization
Support High Risk Financing	Op130	Projects that may not be successful are supported; indication of risk taking.

Entrepreneur Training	Op140	Training is available that betters the region's entrepreneurial spirit.
Social Enterprise	Op150	An organization that improves regional social and economic well-being.
Support Local Actors	Op160	There is evidence of support for local firms or non-private organizations through consumerism
Culture open to change	Op170	The region or respondent is open to changing/adapting their way of doing things
Knowledge Infrastructure	Ki100	There are structures in place that foster the acquisition or dissemination of knowledge.
Presence of Post-secondary institutions	Ki110	There is a learning institution such as a college or university in the area (or comments that these did not exist = absence).
New Technologies	Ki120	Organizations have incorporated new technologies into their ordinary operations (or comments that technologies have not been incorporated = absence)
Technology Centers	Ki130	A concentration of technological actors in the region.
Challenges to Innovation	Ci100	Anything that limits actors' innovation or innovative capacity.
Trust Issues	Ci110	Actors lack a willingness to work together due to a lack of trust.
Demographics	Ci120	Problems with the regional population limit the region's innovative potential.
Policy Conflict	Ci130	There is an existing policy that restrains an organizations ability to innovate.
Leadership Issues	Ci140	The leader or executive of an organization is preventing the organization from innovating.
Access to Capital	Ci150	An organization cannot access some form of capital such as human, financial, or resources.
Human Resource Issues	Ci160	An organization cannot innovate because of problems with staff or human interactions.

N.B. Each bolded heading is the overarching theme and subsequent headings are subthemes. Each theme had and unclear code (xx190) that simply reflects an unclear statement that did not fit with any other subtheme.

Canadian Regional Development
A Critical Review of Theory, Practice, and Potentials

Développement régional canadien
Un examen critique des théories, des pratiques et des potentiels

The *Canadian Regional Development: A Critical Review of Theory, Practice and Potentials* project is a multi-year research initiative funded by the Social Sciences and Humanities Research Council of Canada. The project is investigating how Canadian regional development has evolved over the past two decades and the degree to which Canadian regional development systems have incorporated ideas, policies and practices associated with "New Regionalism" into their policy and practice.

The project is conducting an empirical assessment of Canadian regional development using a multi-level, mixed methods case study approach in four provinces: British Columbia, Newfoundland and Labrador, Ontario, and Québec. The assessment of regional development across the case studies is based on the five key themes of New Regionalism: i) collaborative, multi-level governance; ii) integrated versus sectoral and single objective approaches; iii) fostering knowledge flow, learning and innovation; iv) place-based development; and v) rural-urban interaction and interdependence.

Kelly Vodden (Environmental Policy Institute, Grenfell Campus and Department of Geography, Memorial University) is leading the project, together with co-investigators David Douglas (School of Environment Design and Rural Development, University of Guelph), Sean Markey (Geography, Simon Fraser University), and Bill Reimer (Sociology and Anthropology, Concordia University). In addition, graduate students at all four universities are engaged on the project.

Further information on the project can be obtained at *http://cdnregdev.ruralresilience.ca*. The project has been financially supported by the Social Sciences and Humanities Research Council of Canada and the Leslie Harris Centre for Regional Policy and Development.

Université Concordia University

Memorial University

SFU Simon Fraser University Thinking of the World

University of Guelph

Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada

Canada

The Harris Centre Memorial University