



**THE HARRIS
CENTRE**
Memorial University

CHALLENGES, OPPORTUNITIES AND STRATEGIES FOR ADVANCING INNOVATION IN NEWFOUNDLAND AND LABRADOR

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DISCLAIMER

We have attempted to capture the opinions of innovation stakeholders across the province as accurately as possible, however, the views and opinions expressed in this report are those of the authors and do not necessarily reflect the views, policies and opinions of members of the Advisory Committee or workshop participants.

THANK YOU TO THE FOLLOWING FOR FINANCIAL ASSISTANCE:

- *Social Dynamics of Economic Performance in City-Regions*: Social Sciences and Humanities Research Council of Canada; Office of the VP (Research), Memorial University; Department of IBRD Industrial Research and Innovation Fund
- *Canadian Regional Development: A Critical Review of Theory, Practice and Potentials*: Social Sciences and Humanities Research Council of Canada; Rural Secretariat – Executive Council; Harris Centre Applied Research Fund; Canada Summer Jobs – Service Canada
- Navigate Entrepreneurship Centre, Grenfell Campus – Memorial University
- Industry Canada

EXECUTIVE SUMMARY

In January 2013, the Leslie Harris Centre of Regional Policy and Development at Memorial University in partnership with the Navigate Entrepreneurship Centre (Grenfell Campus) and the Canadian Regional Development: A Critical Review of Theory, Practice and Potentials project team launched the **Advancing Innovation in Newfoundland and Labrador** project to synthesize, share, and ground-truth knowledge related to innovation and ways it can be fostered with key innovation stakeholders (businesses, community representatives, all levels of government, and postsecondary institutions) to support economic development.

The **Advancing Innovation in Newfoundland and Labrador** project deliverables included:

- A **Knowledge Synthesis**, summarizing the latest research on innovation and providing insights for advancing innovation strategies in Newfoundland and Labrador;
- A series of workshop reports based on the **Innovation Workshops** in the Kittiwake region, Labrador Straits, the Northern Peninsula, St. John's and Corner Brook;
- A series of **Innovation Case Studies** on firms in Newfoundland and Labrador;
- A **Final Report** summarizing the key findings from the AINL project and providing recommendations for policy and practice; and
- The <http://innovationnl.ca> website to host these and other innovation-related research studies and promote and support knowledge exchange related to innovation in Newfoundland and Labrador.

The overall goal of the **Advancing Innovation in Newfoundland and Labrador** project was to generate dialogue and ideas for future policy and research directions and to respond to the overarching question of – what can firms, community organizations, all levels of government, Memorial University and the College of the North Atlantic do to advance innovation in Newfoundland and Labrador? This report highlights key findings from the knowledge synthesis, innovation workshops, and innovation summit as well as provides key recommendations for policy and practice.

Knowledge Synthesis

The Knowledge Synthesis, completed by Heather Hall and Jacqueline Walsh, was designed to provide a summary of the latest research on innovation. It focused on a number of themes including: *what is innovation; innovation and firms; innovation and regional development; innovation in rural and peripheral regions; innovation in Canada; and innovation in Newfoundland and Labrador*. We advocate using the OECD (2005) description of innovation, which takes into account various aspects of innovation including significantly improved or new products, processes, organizational methods, and/or marketing that can be new to the world or new to a region. We also highlight how firm-level innovation is a complex process and success is influenced by a number of variables

that are both internal and external to the firm. Key to this approach is that firms in all sectors can be innovative and that innovation can occur in all aspects of a firm's operation.

With regards to the link between innovation and regional development, one of the most significant arguments emerging from the innovation literature over the last several decades is that innovation is not a linear process. Rather, "innovation is increasingly recognized as a social process" (Wolfe 2009: 15) that includes interaction and learning between a wide variety of actors including individuals, firms, industry associations and support institutions like government, universities, colleges and innovation centres (Asheim et al., 2011; Tödtling and Trippel 2011; Nauwelaers 2011; Rodríguez-Pose 2013). This 'regional innovation system' (Cooke 1992; Cooke and Morgan 1998) that includes 'quadruple helix' (Leydesdorff 2012) stakeholders – business, community, governments, and postsecondary institutions – is increasingly recognized as vital for innovation in a region.

The knowledge synthesis also highlights a number of significant differences that face rural and peripheral regions, including peripheral realities (Hall and Donald 2009; 2012), institutional thinness and lock-in (Tödtling and Trippel 2005), and the innovation paradox (Oughton et al. 2002). We further describe several recent reports that provide a bleak picture of the landscape of firm level innovation in Canada. Finally, the knowledge synthesis provides a brief overview of innovation-related research and policy in Newfoundland and Labrador.

Innovation Case Studies

A series of Innovation Case Studies were prepared by Kyle White and Heather Hall in partnership with the *Canadian Regional Development: A Critical Review of Theory, Practice, and Potentials* project in the Northern Peninsula and Kittiwake regions. The businesses and social enterprises profiled showcase the various aspects of innovation including product (new or improved), process (new or improved), and organizational. All of the case studies **highlight the importance of government funding programs and working with government for enhancing innovation and economic development**. They also show the **economic and research benefits that result when business and postsecondary institutions work together**. Finally, the case studies showcase the **importance of business networks in rural regions for serving as a surrogate for agglomeration**. The case studies include:

- **Versatile Stones Inc.** – *Innovation in Newfoundland's only Cultured Stone Producer*
- **New Wood Manufacturers Inc.** – *Adaptability and Sustainability in Dynamic Production*
- **Chatman's Bakery** – *Diversification and Innovation in the Family Business*
- **St. Anthony Basin Resources Incorporated (SABRI)** – *Expanding Regional Social and Economic Benefits*
- **Holson Forest Products Ltd.** – *Innovative Adaptations in Forestry*

Innovation Workshops

In May and June 2013, five Innovation Workshops were held across the province in Kittiwake, Labrador Straits, the Northern Peninsula, St. John's and Corner Brook. Seventy-six (76) people attended the workshops including sixteen (16) representatives from business and social enterprises and the balance from community-based organizations, industry associations, postsecondary institutions and all levels of government. The workshop breakdown was as follows: St. John's – 23 participants; Corner Brook – 17 participants; Kittiwake – 16 participants; Northern Peninsula – 11 participants; and Labrador Straits – 9 participants.

The innovation workshops highlighted a number of challenges, including: **time** – business owners and managers are too busy working **in** the business instead of **on** the business; **access to capital** – participants described a disconnect, as government representatives say money is available, while businesses indicate a lack of capital; perhaps related to this are **program exclusions** for some sectors (particularly the service sector) and some regions; the **complex paperwork** associated with government funding was also cited by businesses who in some instances turn to consultants for assistance; a **lack of confidence** that what they are doing is innovative and, related to this, a lack of **understanding of what innovation is**; businesses and government become **complacent** or **risk averse**; **labour shortages**, especially related to mega projects and long-distance commuting; **local jealousies**; and **no strategy** to guide innovation support institutions.

However, a number of important insights for enhancing innovation also emerged including the importance of: **access to markets**; strong **management** and **leadership that supports innovation**; **access to infrastructure** (e.g. knowledge, transportation and technology); **networking**; a **regional strategy** with short-term and long-term goals/deliverables that includes mechanisms for monitoring and evaluation; **champions**; effective and engaged government **regional presence**; **strong collaboration** between firms, community, postsecondary institutions and government; **business networks**; and **public procurement**.

Innovation Summit

On 10 October 2013, we held a full-day Innovation Summit in St. John's. Targeted invitations were sent to key stakeholders representing business, community, government and postsecondary from each of the workshop locations as well as provincial and national organizations. Forty-six (46) people attended the summit including: eleven (11) representatives from business, industry and social enterprises including a participant from Labrador; thirteen (13) participants from Memorial University; seven (7) participants from the College of the North Atlantic from across the province; fourteen (14) representatives from all levels of government and government organizations; and one (1) representative from labour. A number of key points were raised during the discussions at the innovation summit including: the **impacts of megaprojects**; **fear of failure**; and **policy disconnects**. Participants also identified five critical gaps:

- 1) A lack of awareness, knowledge and culture around innovation;
- 2) A lack of collaboration and strategy between key stakeholders in the quadruple helix [business, community, postsecondary and government];

- 3) A lack of business and management skills necessary to foster entrepreneurship, intrapreneurship and innovation;
- 4) A policy disconnect between government and small business; and
- 5) A lack of government policy and program flexibility.

Advancing Innovation in NL: Recommendations for Policy and Practice

It is the role of governments at all levels to create the climate for innovation and to work closely with all stakeholders to ensure that policies and strategies are properly designed, implemented and monitored to ensure success. The citizens of Newfoundland and Labrador, as represented by the stakeholders who attended the Innovation Workshops and Summit, see a role for all levels of government to work collaboratively with community organizations, businesses and postsecondary institutions to foster and enhance innovation within the province. A comprehensive and collaborative place-based strategic plan is the tool that will unite the stakeholders and act to boost the culture of innovation and commercialization required in this province. At the same time entrepreneurs, managers, and employees within firms as well as non-government organizations also have a role to play. We offer several future directions for advancing and supporting innovation in the province that involve each of these groups, including:

CREATE AN INNOVATION AWARENESS CAMPAIGN

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Innovation Awareness Campaign

- Focus on the various aspects/definitions of innovation – new and improved products, processes, organizational methods and marketing; including new to the world and new to a place
- Include a diversity of sectors (not just high-tech and product innovation)
- Include both urban and rural firms and social enterprises
- Government and support organizations need to do a better job promoting and clarifying their programs to help businesses navigate through the complex paperwork and collection of programs¹
- Celebrate successes using a social media campaign
- Celebrate business/investment successes - innovation awards that recognize all aspects of innovation (product, process, organizational, marketing) with all players in the quadruple helix
- Ad campaign (e.g. Getting the Message Out (GMO) style; Manufacturing Insights; awards gala events) to showcase innovation in a diversity of sectors as well as within rural and urban NL

¹ After the Innovation Summit, the provincial government launched the “Innovation Lives Here NL” campaign to showcase innovative businesses. The AINL Team supports this initiative and encourages the province to include a diversity of sectors, rural firms, and various aspects of innovation (products, processes, organizational, and marketing) that are new to NL or a specific region.

- Hold training/information sessions within government to promote alignment and increase knowledge/awareness about innovation
- Expand Made Right Here/Manufactured Right Here and link to a buy local campaign, with emphasis on innovative products and services
- Hold training/information sessions with business groups/associations to rebrand what innovation is; has to be relevant, easy and accessible
- Hold an annual or bi-annual innovation event to bring together innovation stakeholders, showcase innovative businesses, and highlight innovation support programs
- Use the AINL Knowledge Synthesis to help build education and awareness
- Engage MUN and CNA students to produce innovation case studies on firms, social enterprises and other models like co-ops and business networks

CREATE A QUADRUPLE HELIX INNOVATION STRATEGY

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Create a long-term, cohesive and collaborative strategy with all levels involved

- Establish discussion tables where all levels of government can explore commonalities and include clients
- Collaborate on program delivery
- Provincial and federal innovation strategies need to be 'joined-up' and current
- Create advisory groups to both levels of government
- Link any strategy to implementation with an evaluation loop – with consultation at all levels
- Need two lenses – be sure urban-rural differences are recognized
- Examine requirements for program changes
- Utilize existing toolkits; develop baseline data and appropriate indicators for measuring all aspects of innovation
- Explore possible roles for co-operatives and charitable foundations etc.

Facilitate more contact/interaction between quadruple helix

- Need mechanisms and processes in place to bring innovation stakeholders together
- Need a visible, focussed champion of innovation
- Embed all members of quadruple helix in decision-making programs and policies

Policies have to support more than just “employing NLers” – need to support small business in this Province

- Policies have to support more than just “employing NLers” – need to support small business in this province
- Invest in provincial expertise to manage mega-projects
- More supply chain integration efforts
- Help SMEs in rural NL take advantage of megaprojects

Fix the policy disconnect between government and local business

- Government needs to request engagement of other stakeholders
- Need two way communication
- Examine the BR+E (business retention and expansion program) responses to determine what types of funding are needed for SMEs to identify the finance disconnect (e.g. government representatives saying money is available, while businesses indicate a lack of capital)
- Expand and support vouchers for R&D, Marketing, Training, Legal, Intellectual Property, Commercialization, Management Skills Development, and Leadership Skills Development
- Consider providing specific seed funding programs for innovation projects, develop a strategy to engage with NL Angel Business Network and venture capital
- Consider a tax credit policy

Encourage policy adaptability

- Facilitate and step back
- More communication of lessons learned from programs that work/adopt best practices

Include applied outputs in recognition and evaluation for tenure, promotion and renewal for university faculty members

POSITION NL AS A LEADER IN INNOVATION EDUCATION

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Position NL as a Leader in Innovation Education

- Talk about innovation in K-12, Junior Achievement; mandate programs in high school
- MUN should offer specialized courses in business, management and leadership training focusing specifically on innovation
- MUN should offer training and develop courses related to innovation for all degree programs and consider postgraduate diplomas/masters programs in innovation
- Promote Yaffle more to the business community as a matchmaking database between businesses and researchers that is easy to use
- Postsecondary Knowledge Brokers – more people and resources on the ground; regional dispersion is key
- Medium for engaging MUN researchers to investigate specific innovation questions derived from quadruple helix (ie. creating a baseline measurement of business innovation in Newfoundland and Labrador; creating diagnostic tools for firms)
- More connector events like those held by industry associations such as Newfoundland and Labrador Environmental Industries Association
- Increase MUN faculty resources/time to dedicate to academic-industry-community collaboration
- Demonstrate/promote good examples to institutional leaders and government

- Highlight the value of researchers that are doing applied research and outreach work (eg. include applied outputs in recognition and evaluation for tenure, promotion and renewal)
- Engage CNA as a key innovation stakeholder due to its strategic location in many regions across the province and its industry driven programming

PROMOTE AND SUPPORT BUSINESS NETWORKS

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

More support for Business-to-Business Mentoring

- Stronger role and support for chambers and industry associations but need new methods of getting people in the seats at events
- More research on the role of business networks in rural regions and more financial support to establish business networks
- Encourage more innovation/business tours so managers can learn from each other, share success stories and discuss business failures

ENCOURAGE MORE COMMERCIALIZATION IN NL

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Focus on Commercialization Education and Dialogue

- Government create policies to support local business through a public procurement strategy (ie. consider NL products/services first)
- Government should raise awareness among stakeholders about issues of commercialization and seek input as to how to close these gaps
- Memorial University and College of the North Atlantic must become leaders in engaging with industry with an emphasis on commercialization, not only knowledge transfer
- Government must create special funds for business skills development leading to commercialization
- Postsecondary researchers can help fill in the gaps of what we know and what we need to know to assist firms in NL with commercialization issues
- Industry associations should be aware of skill shortages and educate their membership to seek assistance
- Industry associations should lobby government to include commercialization needs in an innovation strategic plan
- Firms need to be proactive and must acknowledge and seek out training for the skills they lack

Encouraging More Inclusive Innovation in NL

Utilizing an interactive and inclusive approach among innovation stakeholders in Newfoundland and Labrador, this project and the recommendations contained herein attempt to answer the overarching question posed by our project team: what can firms, community organizations, all levels of government, Memorial University and the College of the North Atlantic do to advance innovation in Newfoundland and Labrador? In summary, this report suggests a broad suite of innovation support mechanisms that should be considered by all levels of government, post-secondary institutions, business and community players. There are some key findings from this project that are worth re-emphasizing:

First, this project has sparked important dialogue among key members of the innovation community. It is clear from the consultations that this dialogue is long overdue and that there is a disconnect between firms and innovation support institutions over the definition of innovation and how innovation impacts firm-level growth. As advanced in this report, innovation includes the broad spectrum of a firm's activities – from the idea, invention, and R&D stage; through to the implementation of internal processes in HR, organizational structure, technology adaptation, manufacturing and the development of new or improved products and services; to the commercialization phase of creating business models and strategies for sales and marketing and intellectual property protection. To be successful in the global marketplace, firms in Newfoundland and Labrador need to engage in innovation at all three stages. Education and awareness activities around innovation will be key for the future success of the private sector.

Second, all members of the quadruple helix (business, community, government and postsecondary) have a role to play in advancing innovation in Newfoundland and Labrador. Working together, we can have a greater impact. During the consultations, the project team observed a passionate appeal to the Government of Newfoundland and Labrador. This province needs a voice to champion and direct the process of promoting and fostering innovation among local businesses. Members of the community are also looking to the Government of Newfoundland and Labrador for guidance and support. This report suggests several ways for the province to embrace this responsibility and meet the expectations of stakeholders.

Third, there seems to be a general dissatisfaction, ignorance or indifference with respect to many of the existing innovation support mechanisms. This finding should serve as a wake-up call to all stakeholders. The issues identified include the broad spectrum from awareness, education, tailored financial support programs, networking, mentoring, skills development, training and collaboration. There also appears to be a great opportunity for governments, post-secondary institutions and the broader community of industry associations and innovation experts to unite and provide comprehensive innovation support for the private sector. The solutions required are fundamental and foundational to creating a culture of innovation among our business leaders.

Finally, this advancing innovation conversation must continue. One potential opportunity is to facilitate brainstorming sessions and collaborative dialogue with the goal of creating an action plan to deal with the findings of this report. We also suggest that the parties of the quadruple helix consider creating an Innovation Support Network, with representation of key stakeholders who will use this report to create specific programs and strategies to deal with the gaps identified.

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INTRODUCTION

This is the Final Report for the Harris Centre-led 'Advancing Innovation in Newfoundland and Labrador' project. It provides a summary of the Knowledge Synthesis, the Innovation Workshops, Innovation Case Studies, and the Innovation Summit. It concludes with a number of recommendations for advancing innovation policy and practice in Newfoundland and Labrador. More information on this project can be found at <http://innovationnl.ca>.

In January 2013, the Leslie Harris Centre of Regional Policy and Development at Memorial University in partnership with the Navigate Entrepreneurship Centre (Grenfell Campus) and the Canadian Regional Development: A Critical Review of Theory, Practice and Potentials project team launched the **Advancing Innovation in Newfoundland and Labrador** project to synthesize, share, and ground-truth knowledge related to innovation and ways it can be fostered with key innovation stakeholders (businesses, community representatives, government, and postsecondary institutions). More specifically, the project was focussed on addressing the following questions:

- **What are the biggest impediments to realizing innovation-driven economic development in NL?**
- **What are the biggest opportunities?**
- **What strategies by firms, industry associations, all levels of government, regional development organizations, the university and college are needed to enhance innovation-driven economic development in NL?**

The **Advancing Innovation in Newfoundland and Labrador** project included a team of researchers from Memorial University and a 14-member **Advisory Committee** made up of representatives from industry associations, business, the provincial government, the federal government, the university, college, and labour. The role of the Advisory Committee was to: provide feedback on proposed workshop locations; provide advice and comments on the workshop reports; identify existing relevant data and resources; identify key local contacts in each of the workshop locations; highlight important local or stakeholder specific issues for consideration; review emerging themes and lessons and provide advice to the Project and Research Teams on the final report (final content of the report is the responsibility of the Project Team); and assist with publicity for all Advancing Innovation in Newfoundland and Labrador events and reports.

The **Advancing Innovation in Newfoundland and Labrador** project deliverables include:

- A **Knowledge Synthesis**, summarizing the latest research on innovation and providing insights for advancing innovation strategies in Newfoundland and Labrador;
- A series of workshop reports based on the **Innovation Workshops** in the Kittiwake region, Labrador Straits, the Northern Peninsula, St. John's and Corner Brook;
- A series of **Innovation Case Studies** on firms in Newfoundland and Labrador;
- A **Final Report** summarizing the key findings from the AINL project and providing recommendations for policy and practice; and

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- The <http://innovationnl.ca> website to host these and other innovation-related research studies and promote and support knowledge exchange related to innovation in Newfoundland and Labrador.

The overall goal of the **Advancing Innovation in Newfoundland and Labrador** project was to generate dialogue and ideas for future policy and research directions and to respond to the overarching question of – What can firms, community organizations, all levels of government, Memorial University and the College of the North Atlantic do to advance innovation in Newfoundland and Labrador? This report highlights key findings from the knowledge synthesis, innovation workshops, and innovation summit as well as provides key recommendations for policy and practice. Please refer to the <http://innovationnl.ca> website for the full material of the **Advancing Innovation in Newfoundland and Labrador** project.

KEY FINDINGS FROM THE KNOWLEDGE SYNTHESIS

*What is Innovation?*²

Innovation is a complex subject that has commanded much attention in the academic literature. The OECD (2005) categorizes four types of innovation: product innovation, process innovation, organizational innovation, and marketing innovation. More specifically, the OECD (2005: 46) states: “an innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations”. At the firm level, researchers often define innovation in a more task and goal oriented manner. For example, Drucker (2002: 95) defines innovation as “the means by which the entrepreneur creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth”. This definition highlights the fact that change has to be proactive and focused on enhancing the firm’s potential to prosper. Change can come from all areas of the business, through new or existing resources, whether it relates to products, processes, strategies, marketing, human resources, organizational structure, management or technology.

In terms of measuring innovation, as Sternberg (2009: 487) argues, “innovation research is still searching for the ideal data”. Patent activity is most commonly used, however, as Slaper et al. (2011) explain, patents are insufficient when used as the sole indicator of innovation. As they further describe, there are geographic issues related to using patents including the availability of smaller, disaggregated geographic data. As we have outlined elsewhere (White et al. 2013) other innovation indicators include: R&D expenditures, educational attainment, GDP, utilization of technology, occupational mix, industrial mix, proximity to an urban area, government provisions, applications for funding, training programs, productivity, venture capital, and access to broadband (see also Slaper et al. 2011).

² The full **Knowledge Synthesis** can be found at <http://innovationnl.ca>

These definitions and indicators present a number of issues for rural regions and smaller cities on the periphery. First, is the debate over what constitutes 'new' – new to the world or new to a region (OECD 2005). In many rural regions and smaller cities on the periphery, innovations are new to the region versus new to the world. This means that innovations might be overlooked or ignored in these regions. In terms of indicators, many are simply not available at smaller units of geography (i.e. local and regional). Without access to good data, many rural regions and smaller cities are once again passed over. Another significant issue is that innovations in these regions are often disregarded because they occur within sectors tied to natural resources (e.g. forestry, oil & gas, mining, fisheries). Ultimately, this creates a perception that rural regions and smaller cities on the periphery are deficient or devoid of innovative firms and activities (Polèse et al. 2002; Hall and Donald 2009; 2012).

Innovation and Firms

Research on business innovation is largely concentrated on the manufacturing sector and high technology companies and much of this literature relates to product innovation as opposed to process innovation (Becheikh et al. 2006). This research also confirms that innovation is a complex process and success is influenced by a number of variables that are both internal and external to the firm. Becheikh et al. (2006) review existing literature on innovation in the manufacturing sector and identify the following external factors that affect firm innovation: customer demand; industry concentration; regional infrastructure; specialized workforce; proximity of potential partners such as universities, R&D and financial institutions; networking; knowledge and technology acquisition; government policies and government financial support programs.

In the same study, the following internal factors are identified: use of export, differentiation and intellectual property protection strategies; organizational flexibility; transformational leadership; managers' qualifications, experience and perceptions; R&D activity; acquisition of sophisticated equipment and production technologies; an educated, experienced, diverse and technically qualified workforce; use of HR strategies such as training and motivation; good financial performance; and funds dedicated to innovation-related activities. Another important internal characteristic of innovative firms is the role of management. Managers must have effective innovation project management skills (Sanchez et al. 2011); create a climate for innovation to occur (Kmieciak et al. 2012); pay special attention to the hiring and development of employees, as well as strategic HR practices; and employ the proper organizational structure to enhance communication and decision making (Cosh et al. 2012; Koski et al. 2009).

There are many obstacles that prevent firms from engaging in innovative activities including firm size, industry characteristics and previous experience (Blanchard et al. 2012; D'Este et al. 2012). Financing is considered the most significant impediment, mainly due to cash flow issues and lack of metrics to show value. Other major challenges to innovation include: managers' belief that their firm is too small to innovate; industry specific characteristics (supply of skilled labour, regulatory environment, level of competitiveness in market, and government support for innovation); corporate culture and

lack of risk taking; technical difficulties in innovation; low cost competition; and poor capacity to implement ideas (Conference Board of Canada 2013a).

Innovation and Regional Development

One of the most significant arguments emerging from the innovation literature over the last several decades is that innovation is not a linear process. As Sternberg (2009: 481) explains, “for a long time, the innovation process ... was presented as a linear process consisting of the phases of scientific discovery (invention), product development (innovation in its true sense), market introduction, and diffusion.” However, “innovation is increasingly recognized as a social process” (Wolfe 2009: 15) or simply put “firms do not innovate in isolation” (Nauwelaers 2011: 468).

A number of territorial innovation concepts have emerged since the 1980s including industrial districts (Becattini 1990), clusters (Porter 1990), learning regions (Florida 1995; Morgan 1997), triple helix/quadruple helix (Leydesdorff 2012), and regional innovation systems (Cooke 1992; Cooke and Morgan 1998). The common link between these concepts is the emphasis on interaction and learning between a wide variety of actors including individuals, firms, industry associations and supporting institutions like government, universities, colleges and innovation centres (Asheim et al., 2011; Tödtling and Trippel 2011; Nauwelaers 2011; Rodríguez-Pose 2013).

Innovation in Rural and Peripheral Regions

One challenge in the innovation literature is that it is largely based on the experiences of large cities and core regions. While this literature does offer important insights, there are a number of significant differences that face rural and peripheral regions. For example, Hall and Donald (2009; 2012) describe a number of ‘peripheral realities’. Likewise, Tödtling and Trippel (2005) argue that a major characteristic of many peripheral regions is institutional thinness while older industrial regions are locked-in to mature industries (see also Lagendijk 2011). Another significant issue is what Oughton et al. (2002) call the ‘regional innovation paradox’. This paradox “refers to the apparent contradiction between the comparatively greater need to spend on innovation in lagging regions and their relatively lower capacity to absorb public funds earmarked for the promotion of innovation and to invest in innovation related activities, compared to more advanced regions” (98). Similarly, Lagendijk (2011) explains how many peripheral regions lack the financial and human resources to make adequate plans or match funding opportunities for regional innovation. Perhaps more importantly, rural and peripheral regions often try to copy regions like Silicon Valley, typically ignoring their own regional strengths and challenges.

More recently, however, increased attention on innovation in rural and peripheral regions has provided a number of important insights. This includes work in rural Quebec (Doloreux and Dionne 2008), Norway (Fitjar and Rodríguez-Pose 2011), and the European Union (Woods and McDonagh 2011; Roep and Wellbrock, 2011; Copus et al. 2011). Important insights include the role of business networks which can act as a “surrogate for agglomeration” and to support the transfer of entrepreneurial knowledge (Copus et al. 2011: 7). An approach termed *Research and Innovation Strategies for Smart Specialization* or RIS3 has captured the attention of policymakers across Europe, including the European

Union and OECD. RIS3 is described as “integrated, place-based economic transformation agendas” (Foray et al. 2012: 8). The RIS3 approach includes six steps: *first*, the analysis of the regional context and potential for innovation; *second*, creating an inclusive governance structure to ensure participation and ownership; *third*, creating a shared vision for the future of the region; *fourth*, identifying a small number of priorities for regional development; *fifth*, defining appropriate policies, a road map and an effective action plan; and *sixth*, integrating monitoring and evaluation mechanisms (for more detail see Foray et al. 2012).

Innovation in Canada

Several recent reports provide a bleak picture of the landscape of firm level innovation in Canada. The findings suggest, among other things, that many Canadian companies do not have access to venture capital funding; lack investment in training staff; do not absorb new technologies; have a narrow value chain and unsophisticated production processes; lack the capacity to innovate using advanced operations and strategies in such areas as marketing, branding and distribution; do not invest sufficient monies on R&D; lack collaborative relationships with universities; and do not derive their competitive advantage from the creation of unique products, processes or services (Conference Board of Canada 2012; 2013a; 2013b; Jenkins 2012; Bibbee 2012).

These reports also include a number of recommendations to improve this bleak innovation picture. For example, the federal Jenkins (2011) report includes a strong role for government in supporting innovation through procurement and a Minister for Innovation. It also encourages regional programs like ACOA to play a strong role in supporting business innovation by assisting firms to compete globally. In addition, like the ‘regional innovation systems’, approach the Jenkins report emphasizes the ‘innovation ecosystem’. Likewise, the President of the Social Sciences and Humanities Research Council of Canada (SSHRC) argues that, “successful innovation emerges from robust cultures of innovation” (Gaffield 2012; SSHRC 2013). The most recent World Economic Forum *Global Competitiveness* report (2013: 4) argues that “Canada's competitiveness would be further enhanced by improvements in its innovation ecosystem, such as increased company-level spending on R&D and government procurement of advanced research products”. Other Canadian insights include several reports by the Conference Board of Canada (2012; 2013a; 2013b) and their new Centre for Business Innovation as well as the Coalition for Action on Innovation in Canada (2010) and the Canada Foundation for Innovation (2012). All of these organizations emphasize the importance of education and research institutions for fostering an innovative economy. They also call for more action on strengthening our research institutions, university–industry partnerships, and cluster developments. These reports also highlight one significant gap in Canada, which has been the underutilization of our colleges as part of this system.

Innovation in Newfoundland and Labrador

Over the last several years, a number of research projects have explored innovation in Newfoundland and Labrador. This includes research that was part of a national project looking at the social dynamics of economic performance in city-regions, led by David Wolfe and Meric Gertler at the University of Toronto. This project was focused on three themes:

the social dynamics of innovation, talent attraction and retention, and civic governance and inclusion. Rob Greenwood led the Newfoundland and Labrador component, which included case studies on St. John's, Clarenville, Corner Brook, and Labrador West as well as the Ocean Technology Sector (see Lepawsky 2009; Lepawsky et al. 2010; Lepawsky, Hall and Donald 2014; Hall 2010a; 2010b; Greenwood et al. 2011; Greenwood forthcoming; Greenwood and Hall forthcoming).

Another example is the *Networks for Business Innovation: Building Social Capital in Corner Brook, NL* initiative. This project was led by Jose Lam (Memorial University – Grenfell Campus) and included a team of individuals from government, the university and business. The project was designed to assess the rural innovation system (adapted territorial innovation models for rural and small regions) in the city of Corner Brook. Using interviews and surveys to investigate who people talk to and work with, this study mapped out these connections and networks. Ultimately, this information will be used to bring these players together to further develop social and economic innovation in the city and region.

One final example includes a cross-Canada initiative led by Kelly Vodden (Memorial University, Grenfell Campus – Newfoundland and Labrador), Bill Reimer (Concordia University – Quebec), David Douglas (University of Guelph – Ontario), and Sean Markey (Simon Fraser University – British Columbia) focused on current approaches in Canadian Regional Development. Five themes are being explored including: place-based development, collaborative, multi-level governance, rural-urban interactions, integrated development, and innovation and learning. In Newfoundland and Labrador these themes are being explored in the Kittiwake region and the Northern Peninsula.

These innovation-related research projects have identified a number of barriers to innovation. These include: a reluctance to share knowledge and collaborate; access to capital; talent attraction and retention; population aging and youth out-migration; infrastructure constraints; access to broadband in rural and remote regions; challenges with unemployment and seasonal employment and a mobile workforce; along with low levels of learning, education and limited exposure to lessons and ideas from other regions. One important opportunity is the strong commitment to place that exists in Newfoundland and Labrador. For example, in the social dynamics of economic performance study, researchers discovered that some employers use the dense social networks of current workers to help friends and family find jobs 'back home'. This is important because these 'Been Away's' return with skills and contacts and contribute to new ideas and knowledge (Greenwood and Hall forthcoming). Results of the Canadian Regional Development study also point to a range of financial supports and expertise available to support innovation in the province, along with business networks and efforts to enhance broadband access and undertake training and professional development, as innovation assets or strengths in rural regions (White et al. 2013; White and Vodden 2013).

Unfortunately, there is a lack of formal evaluation of business innovation within the province of Newfoundland and Labrador. The information that is available is consistent with what is known at the national level. In 2006, the Government of Newfoundland and

Labrador released its province-wide Innovation Strategy – *Innovation Newfoundland and Labrador: A Blueprint for Prosperity*. The report states that Newfoundland and Labrador lags behind the other provinces in Canada on a number of measures of innovation performance. A number of business innovation related challenges are cited including: a relatively low level of investment in R&D by the private sector; limited access to private-sector risk capital and financing for commercialization; limited linkages and collaboration among post-secondary institutions, industry and communities; entrepreneurs, managers and professionals lacking experience in using innovation and building innovative enterprises; and a continuing out-migration of the knowledge industry and other skilled workers (INTRD Innovation Strategy 2006: 29).

KEY LESSONS FROM THE INNOVATION WORKSHOPS

In May and June 2013, five Innovation Workshops³ were held across the province in Kittiwake, Labrador Straits, the Northern Peninsula, St. John's and Corner Brook. The format for these workshops included:

- A presentation based on research undertaken in the region or on themes related to innovation in the regional economy by Heather Hall, Kelly Vodden or Ken Carter;
- A presentation on firm-level innovation in Newfoundland and Labrador by Jacqueline Walsh;
- A panel discussion with regional representatives from business, the community, government, or university/college to speak about what strategies were needed to enhance innovation in their regions;
- A breakout discussion on innovation challenges, opportunities, and strategies; and
- A survey using TurningPoint technology (voter keypads) to select the top challenges, opportunities, and strategies according to participants.

Seventy-six (76) people attended the workshops including sixteen (16) representatives from business and social enterprises and the balance from community-based organizations, industry associations, postsecondary institutions and all levels of government. The workshop breakdown was as follows: St. John's – 23 participants; Corner Brook – 17 participants; Kittiwake – 16 participants; Northern Peninsula – 11 participants; and Labrador Straits – 9 participants.

Findings from the **Innovation Workshops** are divided between *commonalities*, *rural versus urban* (including St. John's and Corner Brook), and *distinctly regional* for each of the following categories: challenges, opportunities and strategies. The responses for 'distinctly regional' are based on the top voter keypad survey results from each of the workshops.

³ Full **Workshop Reports** can be found at <http://innovationnl.ca>

CHALLENGES

Common Challenges – All five workshops shared a number of common challenges to enhancing economic development and innovation. These included: **time** – business owners and managers are too busy working **in** the business instead of **on** the business; **access to capital** – participants described a disconnect, as government representatives say money is available, while businesses indicate a lack of capital; perhaps related to this are **program exclusions** for some sectors (particularly the service sector) and some regions along with challenges related to lack of private sector financing alternatives; the **complex paperwork** associated with government funding was also cited by businesses who in some instances turn to consultants for assistance; a **lack of confidence** that what they are doing is innovative and, related to this, a lack of **understanding of what innovation is** (e.g. they assume that innovation is synonymous with invention rather than taking into account the different types of innovation – organizational, marketing, products and processes); businesses and government become **complacent** or **risk averse**; **labour shortages**, especially related to mega projects and long-distance commuting; **local jealousies**; and **no strategy** to guide innovation support institutions.

Rural versus Urban Challenges - Rural-specific challenges included: **a retreat from rural** in terms of government programs, staff, and support; **limited presence of regional staff** on the ground; volunteer and support institution **burnout**; and **access** to markets, postsecondary institutions and external connections. On the other hand urban challenges included: **messy “institutional thickness”⁴** between innovation support institutions – meaning that urban areas have access to postsecondary institutions, government offices, industry associations, and economic development organizations, however these organizations/institutions are not always on the same page or joined-up; and a **lack of collaboration** between innovation support institutions.

The responses for **Distinctly Regional** are based on the top three voter keypad survey results from each of the workshops. These results were based on the breakout discussions and voted on by participants using TurningPoint Technology.

⁴ Institutional thickness takes into account not only the ‘hard institutions’ (i.e. the presence of institutions) but also the ‘soft institutions’ (i.e. social and cultural factors) that play a role in regional economic success (Amin and Thrift 1994; 1995).

Distinctly Regional Challenges	
St John's	<ul style="list-style-type: none"> ▪ Lack of management skills related to innovation ▪ Perceived lack of critical mass ▪ Messy institutional thickness/dysfunctional governance
Corner Brook	<ul style="list-style-type: none"> ▪ Youth out-migration/skilled labour force ▪ Local jealousies/cliques/isolated social networks ▪ Time
Kittiwake	<ul style="list-style-type: none"> ▪ Understanding innovation ▪ Access to capital (may include issues such as time, process, programs) ▪ Time
Northern Peninsula	<ul style="list-style-type: none"> ▪ Lack of entrepreneurs/interest in expanding ▪ Lack of champions ▪ Access to capital (may include issues such as time, process, programs)
Labrador Straits	<ul style="list-style-type: none"> ▪ Lack of strong local governance ▪ Youth out-migration ▪ Broadband and cell coverage/ Transportation

OPPORTUNITIES

Common Opportunities – All five workshops shared a number of common opportunities for enhancing economic development and innovation. These included: optimism around the *mega-projects* in the province but uncertainty with regards to harnessing their full potential; a *strong commitment to place*; an abundance of *natural amenities* and great *quality of life*; and *natural resources* including berries, fish, minerals, forestry and natural amenities for tourism.

Rural versus Urban Opportunities – Urban specific opportunities included: *urban amenities* like restaurants, arts, and culture; a *strong economy*; access to quality *technology and knowledge infrastructure*; and an overall feeling that they were on the “*cusp of something big*”, especially in Corner Brook.

The responses for **Distinctly Regional** are based on the top three voter keypad survey results from each of the workshops. These results were based on the breakout discussions and voted on by participants using TurningPoint Technology.

Distinctly Regional Opportunities	
St John's	<ul style="list-style-type: none"> ▪ Connection to the North/Arctic ▪ Ocean technology expertise ▪ "Metropolis on the margins" (Its size and relative location in comparison to other Canadian city-regions place it on the margins, but it has many big city characteristics) (see Lepawsky et al. 2010)
Corner Brook	<ul style="list-style-type: none"> ▪ Transportation infrastructure ▪ Natural resource/mega-projects ▪ Knowledge infrastructure
Kittiwake	<ul style="list-style-type: none"> ▪ Engage employees ▪ Showcase success stories ▪ Amenities/lifestyle
Northern Peninsula	<ul style="list-style-type: none"> ▪ Resource assets (including berries, fish, natural amenities and forestry) ▪ Right size operations for niche markets ▪ Mega-projects
Labrador Straits	<ul style="list-style-type: none"> ▪ Strong small business community ▪ Natural resources ▪ Commitment to place ▪ History of innovative initiatives

STRATEGIES

Common Strategies – All five workshops shared a number of common strategies for enhancing innovation. These included: the need to **identify and support a local champion** to spearhead and keep initiatives alive; **develop stronger partnerships** between innovation support institutions and businesses; sharing **business success stories; business-to-business mentoring; training and HR development** (including skills and knowledge related to entrepreneurship, innovation and commercialization); and **creation of a place-based innovation strategy**.

Rural versus Urban Strategies – Rural specific strategies included: a **stronger role** for some College of the North Atlantic campuses and for Memorial University; and more **effective and engaged government regional presence**.

The responses for **Distinctly Regional** are based on the top three voter keypad survey results from each of the workshops. These results were based on the breakout discussions and voted on by participants using TurningPoint Technology.

Distinctly Regional Strategies	
St John's	<ul style="list-style-type: none"> ▪ Innovation strategy ▪ Commercialization & management skills training ▪ Knowledge infrastructure bridges (methods for connecting the university and college with industry and other partners) ▪ Small firm strategy
Corner Brook	<ul style="list-style-type: none"> ▪ Education/training for entrepreneurs ▪ Increased business support & HR support ▪ Enhanced collaboration with postsecondary institutions
Kittiwake	<ul style="list-style-type: none"> ▪ Innovation open house/innovation tours ▪ Training & HR strategies ▪ Increased collaboration with postsecondary institutions
Northern Peninsula	<ul style="list-style-type: none"> ▪ Stronger business collaboration/networking ▪ Value added development ▪ Regional innovation strategy
Labrador Straits	<ul style="list-style-type: none"> ▪ New multi-sector regional economic development structures ▪ Enhanced collaboration with postsecondary institutions ▪ Innovative HR approaches ▪ Government regional presence

WHAT MATTERS FOR ENHANCING INNOVATION IN NL?

There are a number of important insights for enhancing innovation based on the findings from the knowledge synthesis and innovation workshops. These include the importance of: **access to markets**; strong **management** and **leadership**; **access to infrastructure** (e.g. knowledge, transportation and technology); **networking**; a **regional strategy** with short-term and long-term goals/deliverables that includes mechanisms for monitoring and evaluation; **champions**; more effective and engaged government **regional presence**; **strong collaboration** between firms, community, postsecondary institutions and government; **business networks**; and **public procurement**.

A BRIEF SUMMARY OF THE INNOVATION CASE STUDIES

A series of Innovation Case Studies were prepared by Kyle White and Heather Hall in partnership with the *Canadian Regional Development: A Critical Review of Theory, Practice, and Potentials* project in the Northern Peninsula and Kittiwake regions. The businesses and social enterprises were identified through the *Canadian Regional Development* project and then profiled to showcase the various aspects of innovation including product (new or improved), process (new or improved), and organizational. All of the case studies **highlight the importance of government funding programs and working with government for enhancing innovation and economic development**. They also show the **economic and research benefits that result when business and postsecondary institutions work**

together. Finally, the case studies showcase the ***importance of business networks in rural regions for serving as a “surrogate for agglomeration”*** (Copus et al. 2011: 7).

For example, several of the case study firms are members of the Canadian Manufacturers and Exporters’ (CME) Central Continuous Improvement Network (CCIN), which was formed three years ago and includes seven manufacturing firms that meet regularly to share business advice and ideas. The CCIN network also receives one-on-one coaching/mentoring from CME. As part of the network all firms receive LEAN training to help improve their businesses. Other firms are part of the Northern Peninsula Business Network, which was formed in 2002 by the Department of Innovation, Trade, and Rural Development (INTRD) – now referred to as the Department of Innovation, Business, and Rural Development (IBRD) – and the NORTIP Community Business Development Corporation (CBDC). The following is a summary of each of the case studies⁵:

Versatile Stones Inc. – Innovation in Newfoundland’s only Cultured Stone Producer

In 2005, John Verville established Versatile Stones in the town of Centreville-Wareham-Trinity. Verville was introduced to a cultured stone provider in Montreal and he saw potential for this industry in Newfoundland and Labrador. The firm now employs 7-8 full-time local staff in the summer months and 3 during the winter when housing construction is slower. The company currently has seven distributors in Stephenville, Deer Lake, Bishop’s Falls, Gander, Conception Bay South, Mount Pearl, and St. John’s as well as a showroom in Centreville.

Versatile worked with the Canadian Manufacturers and Exporters (CME) and the National Research Council (NRC) to bring a Memorial University researcher, Dr. Assem Hassan, to Centreville. Dr. Hassan worked with Versatile to discover new methods of curing the stone faster and more efficiently. As a result, this new method of production allows the stones to be created and shipped to the client in approximately 10 days versus the previous method, which often took up to 6 weeks. Verville also sends his stone to the concrete laboratory at Memorial University to test the product’s strength to ensure quality.

⁵ The full **Innovation Case Studies** can be found at <http://innovationnl.ca>

New Wood Manufacturers Inc. – *Adaptability and Sustainability in Dynamic Production*

In 1989, Bill Noble established New Wood Manufacturers Inc. in Centreville with three partners. Initially, the firm was focused on producing moldings. However, in the early 1990s Noble bought out his partners and diversified the firm's products to incorporate finger jointing and flooring. In 2003, Bill was joined by his son Shane when he returned to the province after working in Ontario.

Innovative thinking at New Wood has affirmed their position in the Newfoundland wood manufacturing market and has contributed to their continued growth. One example is their diversification of products. In an effort to stay ahead of the market, the Nobles strategically change their production and outputs. For instance, the firm shifted into finger jointing, flooring, spindles, treads, stairs, and posts along with other customized products. As a small-scale manufacturing company, New Wood has the advantage of offering flexibility and customization. They also recognize and are keenly aware of shifting market demands and New Wood can quickly respond to maintain productivity unlike larger firms that are focused on mass production.

Another example of innovation at New Wood is their method for reusing sawdust waste from their operations. As a wood manufacturing company, the firm generates large amounts of sawdust. As a result, the Nobles sought methods for utilizing this waste in a more sustainable way that could benefit the business. They worked with a furnace producer in Prince Edward Island that incinerated waste to heat buildings. Burning the sawdust in the furnace has reduced their propane consumption significantly within the plant and has provided cost-savings on energy. Operators at the Catalina seal tannery and more recently Carino Processing Ltd. in South Dildo approached New Wood on purchasing their sawdust for seal pelt processing. By collaborating with an equipment manufacturer in Buffalo, New Wood acquired the necessary equipment that would produce the appropriate grain/consistency of sawdust for the seal pelt processing. There have been instances when New Wood has sold all of its sawdust for seal pelt processing. In this event, sawdust is purchased from a nearby sawmill to be burned. This innovative thinking provides an example of how firms can generate profits and cost-savings with waste in a more sustainable manner.

Chatman's Bakery – *Diversification and Innovation in the Family Business*

In 1979, Jean Chatman founded Chatman's Bakery in Charlottetown, NL in the middle of Terra Nova Provincial Park. In 1996, Jean's daughters Lorraine and Roxanne entered the family business with new ideas while upholding the same values as their mother. In 2005, Roxanne and Lorraine formally became owners of the firm and moved the business into a new 7000ft² building. While their production varies seasonally, Chatman's employs approximately 20 employees from the community.

Chatman's products are innovative because of their commitment to quality. Since 1979, the company has refrained from using any preservatives in their products. Chatman's has also recently eliminated all trans-fat from their products. Another of Chatman's commitment to quality is their desire to undergo audits by the Guelph Food Technology Center. In 2009 they received a bronze standard for food safety and quality and a gold standard in each subsequent year. The firm is now preparing their operations for a global food safety initiative that will appeal to more distributors. More recently, Chatman's introduced a traceability system that would track their inputs and outputs to ensure accountability. Through Internet research, Chatman's found a Quebec firm with the necessary equipment for implementing the traceability system. The technology was acquired through funding assistance from the National Research Council's (NRC) Digital Technology Adoption Pilot Program (DTAPP). In addition, Chatman's acquired a metal detector that would ensure safe production and high quality with the financial assistance of the Department of Innovation, Business, and Rural Development's (IBRD) Technology Utilization Program.

Another innovative practice at Chatman's is their custom made packaging that protects their products during shipping. Chatman's worked with Reynolds, a packaging producer, to design customized containers that perfectly fit their dessert squares.

St. Anthony Basin Resources Incorporated (SABRI) – *Expanding Regional Social and Economic Benefits*

St. Anthony Based Resources Incorporated (SABRI) is located in St. Anthony on the Great Northern Peninsula (NL), but it represents the communities from Big Brook to Goose Cove. This not-for-profit social enterprise was created in 1997 when it was granted a community-based shrimp quota. As a social enterprise, SABRI invests profits back into the creation of new industries as well as social and economic development. It also has a unique opportunity to participate in regional development initiatives as well as work with local industries.

Since 1997, SABRI has led several notable initiatives in the region including an oral history project, a mussel-farming project, and a cold storage facility. After conducting research into the mussel farming industry, SABRI acquired their first license in 2002 and two additional licenses in 2003. The farm provides employment for three seasonal workers and an aquaculture specialist. It also provides a unique setting for training and education. For example, since 2008 SABRI has employed College of the North Atlantic (CNA) students, which provides invaluable experience and engages youth in a regional industry. The overall goal of this project was to achieve mussel production that will support primary and secondary processing in the region.

Another example includes the construction of a cold-storage facility in the region. This \$7.5 million project was led and financed through SABRI using a \$3 million interest free loan from ACOA. The construction phase provided employment for 25 to 30 people while operating the facility employs approximately 30 people. The cold storage facility is the first of its kind in the region and it has become the destination for many vessels making trans-Atlantic voyages. In July 2005, EIMSKIP – an international container shipping company – made its first stop in St. Anthony to pick up containers from the cold storage facility. Since that time, the company has made regular stops at St. Anthony Cold Storage while en route to Europe. This makes St. Anthony the second international container port in the province.

Holson Forest Products Ltd. – *Innovative Adaptations in Forestry*

Holson Forest Products Ltd. is located in Roddickton-Bide Arm, a small community of approximately 1,000 people on the northeastern tip of the Northern Peninsula. The company was founded in 2004 by Ted Lewis who has decades of experience in the provincial forest industry.

Since 2004, Holson created a more integrated production system through the establishment of a sawmill and a pellet plant. Timber from the logging operations are processed into lumber in the sawmill while sawdust waste is processed into pellets in the pellet plant. While producing pellets is not new to the world, it is unique to the Northern Peninsula and the province. The pellets produced at Holson also provide a more sustainable energy source for the province. In total, Holson operations directly employ 80-100 seasonal workers and another 150 through contracts.

While these cases illustrate the presence of and potential for innovation in the province's rural regions, a number of challenges were also identified in the case studies. These include: **competition for local skilled labour** associated with NL-based megaprojects and workers commuting to Alberta; **peripheral realities** such as access to broadband Internet and cell service; poor – both quality and options – transportation infrastructure; distance to suppliers and customers; high transportation costs; **youth out-migration and a**

declining population; lack of programs to **properly train and educate workers** with the skills needed in the forestry industry; some workers only **desire to work the minimum requirement** of 14 weeks to receive Employment Insurance; and the **paperwork and time-intensive process of applying for government loans and/or grants**.

KEY LESSONS FROM THE INNOVATION SUMMIT

On 10 October 2013, we held a full-day Innovation Summit in St. John's. The format for the summit included:

- A presentation on the key findings from the knowledge synthesis
- A Q&A panel on the knowledge synthesis
- A presentation on the key lessons from the innovation workshops
- A Q&A panel on the innovation workshops
- A panel discussion with representatives from business, community, government and postsecondary
- A breakout discussion on the critical gaps that need to be addressed to advance innovation in NL from the perspective of each of the following innovation stakeholders – business, government, postsecondary, and community
- A closing panel wrap-up with representatives from business, community, government and postsecondary.

Targeted invitations were sent to key stakeholders representing business, community, government and postsecondary from each of the workshop locations as well as provincial and national organizations. Forty-six (46) people attended the summit including: eleven (11) representatives from business, industry and social enterprises including a participant from Labrador; thirteen (13) participants from Memorial University; seven (7) participants from the College of the North Atlantic from across the province; fourteen (14) representatives from all levels of government and government organizations; and one (1) representative from labour.

Findings from the Innovation Summit are divided as follows:

- Highlights from the summit discussions;
- The top 3 critical gaps that need to be addressed to advance innovation in NL from the perspective of each of the following innovation stakeholders – business, government, postsecondary, and community group – selected by participants in each of the four breakouts; and
- The results of a survey using TurningPoint technology (voter keypads) to select the top issues identified by all summit participants.

Highlights from the Summit Discussions

A number of key points were raised during the discussions at the innovation summit including: the **impacts of megaprojects**; **fear of failure**; and **policy disconnects**. Many participants argued that we're not doing enough to capture the benefits from the megaprojects across the province. SMEs described how we have a small window of opportunity for the benefits to be spread throughout the province but policy has not done enough to support this approach. For example, the NL Benefits Agreements are overly focussed on securing employment for people in the province. However, SMEs in the province are too small to bid on the large tenders and a large number of people working for SMEs are leaving to work for large national and international companies who are bidding. When the work is done many of these workers will be laid off. However, if outside companies were encouraged to partner with SMEs in Newfoundland and Labrador it would grow the expertise here in the province and allow smaller firms to develop new products, processes and markets – to innovate. The mentality is that “it's enough to hire a Newfoundlander” but participants felt that more sustainable development requires innovative NL firms not just jobs.

It was also noted that the old style of economic development in Newfoundland and Labrador was to maximize job creation and the use of labour. For example, we have often received our resource rents in the form of labour (seasonal) and it was argued that this approach is in “zombie mode” and will be dead in the next ten years. Instead they suggested that we should extract alternative resource rents in the form of royalties and invest them. For example, oil revenues should be invested in research and development. Another participant explained that other countries with oil-based economies do a much better job with investing in alternative industries to prepare for declines in the oil industries. They argued that we should never abandon our traditional industries but we also need to prepare for when they decline or even disappear.

On the topic of business failure, many SMEs explained that there is a lot of risk aversion and complacency because people are afraid to fail. One participant noted that it is very easy to gain acclaim in the province but it really hurts when you lose it. Others talked about how politicians and policymakers are also risk averse and do not want to see their programs fail. However, there was a shared sentiment that some of the best information comes from people sharing their failures and mistakes. As Jacqueline Walsh described on her final slide at each of the workshops, quoting from Henry C. Link: *“While one person hesitates because he feels inferiors, the other is busy making mistakes and becoming superior.”*

In terms of policy and programs, participants discussed how the excessive program paperwork takes considerable time and discourages businesses from seeking support or collaborating with government or other support agencies. This has been exacerbated by government cuts to regional offices and thus the loss of local personnel that business owners can turn to for assistance. There was also a discussion about the reputation of some government departments, where access to programs and funding was seen as increasingly difficult and needlessly problematic. There is a need to explore different models and best practices for delivering innovation support and to further examine apparent challenges

such as the need for additional training for government employees, improvement of skills in developing strong applications, identification of areas that are not well resourced, lack of awareness and understanding, and funding programs that appear disconnected from the needs of the private sector.

Top 3 Critical Gaps From Each Breakout Group

The afternoon consisted of four facilitated breakouts, each tasked with identifying the critical gaps that need to be addressed to advance innovation in NL from the perspective of each of the following innovation stakeholders – business, government, postsecondary, and community. After identifying these critical gaps each group selected the top 3 priorities from all of the critical gaps identified. The following Table highlights the 3 critical gaps from each breakout group and their overlap.

Breakout Group One (RURAL)	Breakout Group Two (SMALL URBAN)	Breakout Group Three (NE AVALON)	Breakout Group Four (NE AVALON)
Lack of market knowledge			Business and management skills especially for early stage firms/ commerce gap
Lack of mentoring			
Limited postsecondary-industry connections	Resources/time to dedicate to academic-industry-community collaboration		
	Lack of cohesive collaborative strategy with all levels involved	Lack of contact/interaction between quadruple helix	Lack of a long term strategy
	Awareness and understanding regarding what innovation is	Lack of knowledge of what innovation really means	
	Teaching commitments/ publish or perish in postsecondary		
		Policy disconnect between government and local business	Policy adaptability/ government policies/programs impeding other organizations' adaptability

Top Critical Gaps Voted by Participants

The top 3 critical gaps from each breakout group were reported back to all summit participants and then voted on using TurningPoint Technology. Overall the top five critical gaps identified by participants include:

- 1) A lack of awareness, knowledge and culture around innovation;
- 2) A lack of collaboration and strategy between key stakeholders in the quadruple helix [business, community, postsecondary and government];
- 3) A lack of business and management skills necessary for entrepreneurship, intrapreneurship and innovation⁶;
- 4) A policy disconnect between government and small business; and
- 5) A lack of government policy and program flexibility.

Each breakout group also discussed how best to address these critical gaps. The remainder of this report focuses on some of these recommendations for advancing innovation policy and practice in Newfoundland and Labrador. These insights have been informed by all the work described in this report and available on <http://innovationnl.ca/> as well as through input from the Advisory Committee. We have attempted to capture the opinions of innovation stakeholders across the province as accurately as possible, however, the views and opinions expressed are those of the authors and do not necessarily reflect the views, policies and opinions of members of the Advisory Committee or workshop participants.

ADVANCING INNOVATION IN NL: RECOMMENDATIONS FOR POLICY AND PRACTICE

"This is the way my father did it, this is the way his father did it, this is how I do it." - Labrador Straits

It is the role of governments at all levels to create the climate for innovation and to work closely with all stakeholders to ensure that policies and strategies are properly designed, implemented and monitored to ensure success. The citizens of Newfoundland and Labrador, as represented by the stakeholders who attended the Innovation Workshops and Summit, see a role for all levels of government to work collaboratively with community organizations, businesses and postsecondary institutions to foster and enhance innovation within the province. A comprehensive and collaborative place-based strategic plan is the tool that will unite the stakeholders and act to boost the culture of innovation and commercialization required in this province. At the same time entrepreneurs, managers, and employees within firms as well as non-government organizations also have a role to play. Several future directions for advancing and supporting innovation in the province that involve each of these groups are presented below.

⁶ The AINL team reworded the summit participants' actual response for greater clarity.

CREATE AN INNOVATION AWARENESS CAMPAIGN

“Businesses complain about a lack of government support, while government claims businesses are not asking for assistance.” – Corner Brook Workshop

The need for an **Innovation Awareness Campaign**, which would in turn help to foster a culture of innovation in the province, was a major topic of discussion in a number of the Innovation Workshops as well as the Innovation Summit. In many of the workshops, participants highlighted a lack of awareness of

innovation policies and programs, the complex paperwork required for applications, and a lack of effective and engaged government regional presence for some government departments and industry associations. We also heard about a lack of awareness of what innovation is and a lack of celebration of innovative companies in Newfoundland and Labrador aside from high-tech firms. We offer the following insights for an **Innovation Awareness Campaign** in Newfoundland and Labrador.

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Innovation Awareness Campaign

- Focus on the various aspects/definitions of innovation – new and improved products, processes, organizational methods and marketing; including new to the world and new to a place
- Include a diversity of sectors (not just high-tech and product innovation)
- Include both urban and rural firms and social enterprises
- Government and support organizations need to do a better job promoting and clarifying their programs to help businesses navigate through the complex paperwork and collection of programs⁷
- Celebrate successes using a social media campaign
- Celebrate business/investment successes - innovation awards that recognize all aspects of innovation (product, process, organizational, marketing) with all players in the quadruple helix
- Ad campaign (e.g. Getting the Message Out (GMO) style; Manufacturing Insights; awards gala events) to showcase innovation in a diversity of sectors as well as within rural and urban NL
- Hold training/information sessions within government to promote alignment and increase knowledge/awareness about innovation
- Expand Made Right Here/Manufactured Right Here and link to a buy local campaign, with emphasis on innovative products and services
- Hold training/information sessions with business groups/associations to rebrand what innovation is; has to be relevant, easy and accessible

⁷ After the Innovation Summit, the provincial government launched the “Innovation Lives Here NL” campaign to showcase innovative businesses. The AINL Team supports this initiative and encourages the province to include a diversity of sectors, rural firms, and various aspects of innovation (products, processes, organizational, and marketing) that are new to NL or a specific region.

- Hold an annual or bi-annual innovation event to bring together innovation stakeholders, showcase innovative businesses, and highlight innovation support programs
- Use the AINL Knowledge Synthesis to help build education and awareness
- Engage MUN and CNA students to produce innovation case studies on firms, social enterprises and other models like co-ops and business networks

CREATE A QUADRUPLE HELIX INNOVATION STRATEGY

The lack of an **Innovation Strategy** was a major topic of discussion in all of the Innovation Workshops as well as the Innovation Summit. In 2006, the Government of Newfoundland and Labrador released its province-wide Innovation Strategy – *Innovation Newfoundland and Labrador: A Blueprint for Prosperity*. The strategy identified four strategic directions to promote innovation in the province, including:

“Innovation stakeholders are working in silos” – St. John’s Workshop

- Fostering a culture of innovation that encourages new ideas and collaboration among industry, labour, government, educational institutions and other stakeholders throughout the province;
- Positioning Newfoundland and Labrador as a competitive economy with recognized international strengths and advantages;
- Broadening education and skills development, and aligning them with the future economic direction and labour market development needs of the province; and
- Supporting enhanced R&D capacity, and improving financing and investment tools to facilitate commercialization (INTRD, 2006: 44).

A number of new initiatives were announced under the strategy including a new commercialization program and a new innovation enhancement fund focused on: supporting the development of strategic clusters; creating an innovation awards program; forming a Federal-Provincial Innovation Team; supporting youth innovation; establishing an innovation scholarship fund; enhancing graduate employment opportunities; informing

“They spoke of how if 10 people were at a table and 8 said we’re going this way and 2 said we should go another way, they would come out of the room with all 10 agreeing. However, in NL the 2 who advocate another way will make sure it never happens” –

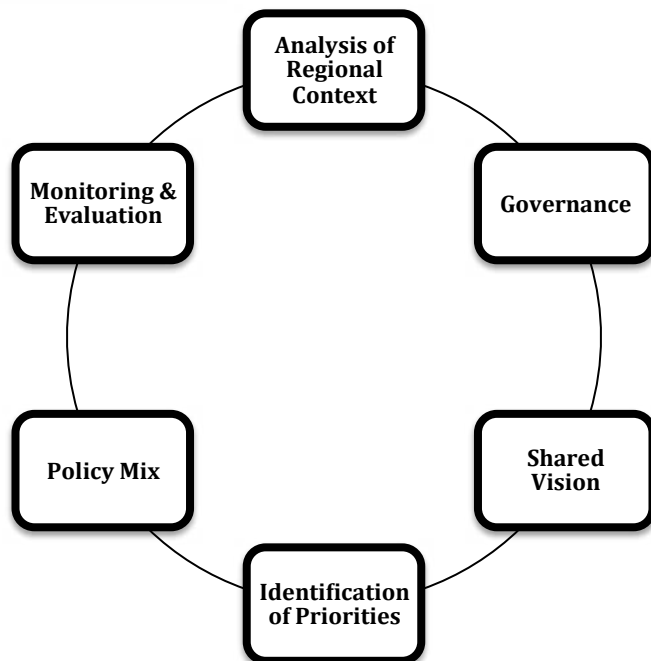
Northern Peninsula Workshop

the business community on R&D incentives; and establishing an Advisory Council on Innovation (INTRD, 2006: 54-56). However, this strategy is a province-wide approach and lacks any kind of guidance for an integrated, place-based approach. It also fails to discuss a clear process for growing and enhancing the innovation system by bringing together the key innovation stakeholders. Finally, there is no publicly available evaluation to monitor the progress of this strategy.

An approach termed *Research and Innovation Strategies for Smart Specialization* or RIS3 has captured the attention of policymakers across Europe, including the European Union and OECD. In fact, it will form the basis for EU Structural Funds as part of the Cohesion Policy for 2014-2020. Recent research reports in NL have suggested that RIS3 might be successfully employed in the province (Lam et al. 2013; White et al., 2013).

Rooted in the regional innovation systems literature and discussions on related variety, RIS3 are described as “integrated, place-based economic transformation agendas” (Foray et al. 2012: 8). The RIS3 approach includes six steps: *first*, the analysis of the regional context and potential for innovation; *second*, creating an inclusive governance structure to ensure participation and ownership; *third*, creating a shared vision for the future of the region; *fourth*, identifying a small number of priorities for regional development; *fifth*, defining appropriate policies, a road map and an effective action plan; and *sixth*, integrating monitoring and evaluation mechanism (for more detail see Foray et al. 2012).

RIS3 Approach



Source: Foray et al. 2012

Based on the innovation literature and what we heard at the **Innovation Workshops** and the **Innovation Summit** we offer the following insights for an **Innovation Strategy** in Newfoundland and Labrador:

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Create a long-term, cohesive and collaborative strategy with all levels involved

- Establish discussion tables where all levels of government can explore commonalities and include clients
- Collaborate on program delivery
- Provincial and federal innovation strategies need to be 'joined-up' and current
- Create advisory groups to both levels of government
- Link any strategy to implementation with an evaluation loop – with consultation at all levels
- Need two lenses – be sure urban-rural differences are recognized
- Examine requirements for program changes
- Utilize existing toolkits; develop baseline data and appropriate indicators for measuring all aspects of innovation
- Explore possible roles for co-operatives and charitable foundations etc.

Facilitate more contact/interaction between quadruple helix

- Need mechanisms and processes in place to bring innovation stakeholders together
- Need a visible, focussed champion of innovation
- Embed all members of quadruple helix in decision-making programs and policies

Megaproject Coordination

- Policies have to support more than just “employing NLers” – need to support small business in this province
- Invest in provincial expertise to manage mega-projects
- More supply chain integration efforts
- Help SMEs in rural NL take advantage of megaprojects

Fix the policy disconnect between government and local business

- Governments need to request engagement of other stakeholders
- Need two way communication
- Examine the BR+E (business retention and expansion program) responses to determine what types of funding are needed for SMEs to identify the finance disconnect (e.g. government representatives saying money is available, while businesses indicate a lack of capital)
- Expand and support vouchers for R&D, Marketing, Training, Legal, Intellectual Property, Commercialization, Management Skills Development, and Leadership Skills Development
- Consider providing specific seed funding programs for innovation projects, develop a strategy to engage with NL Angel Business Network and venture capital

Consider a tax credit policy

Encourage policy adaptability

- Facilitate and step back
- More communication of lessons learned from programs that work/adopt best practices

Include applied outputs in recognition and evaluation for tenure, promotion and renewal for university faculty members

POSITION NL AS A LEADER IN INNOVATION EDUCATION

“Entrepreneurs should never be afraid to try new things – or too busy to think about the future” - Kittiwake workshop

Related to the need for an innovation awareness campaign, participants at the Innovation Workshops and Innovation Summit called for more education on innovation and better connections between postsecondary institutions and business. Based on this discussion we offer the following insights for **Positioning NL as a Leader in Innovation Education.**

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Position NL as a Leader in Innovation Education

- Talk about innovation in K-12, Junior Achievement; mandate programs in high school
- MUN should offer specialized courses in business, management and leadership training focusing specifically on innovation
- MUN should offer training and develop courses related to innovation for all degree programs and consider postgraduate diplomas/masters programs in innovation
- Promote Yaffle more to the business community as a matchmaking database between businesses and researchers that is easy to use
- Postsecondary Knowledge Brokers – more people and resources on the ground; regional dispersion is key
- Medium for engaging MUN researchers to investigate specific innovation questions derived from quadruple helix (ie. creating a baseline measurement of business innovation in Newfoundland and Labrador; creating diagnostic tools for firms)
- More connector events like those held by industry associations such as Newfoundland and Labrador Environmental Industries Association
- Increase MUN faculty resources/time to dedicate to academic-industry-community collaboration
- Demonstrate/promote good examples to institutional leaders and government
- Highlight the value of researchers that are doing applied research and outreach work (eg. include applied outputs in recognition and evaluation for tenure, promotion and renewal)
- Engage CNA as a key innovation stakeholder due to its strategic location in many regions across the province and its industry driven programming

PROMOTE AND SUPPORT BUSINESS NETWORKS

“Businesses should get informed, avoid doing things how they’ve always been done, hire young people, create business networks, get best practices, and reach out to institutions to find out how they can help you.” – Labrador Straits Workshop

Traditional theories of innovation and economic development emphasize the importance of “agglomeration economies” or the benefits of spatial proximity. This is largely seen as a competitive advantage in urban areas. However, research in the EU is highlighting how networks in rural regions can act as a “surrogate for agglomeration” and support the transfer of entrepreneurial knowledge (Copus et al. 2011). In this research, networks included local, regional,

national and international businesses, customers, suppliers, and support institutions. Motivations cited for business networking included: joint marketing approaches; learning about new opportunities for development; complying with rules and regulations; improving production processes; and reacting to customers needs. Overall, this study found that the major benefit from networking was acquiring market intelligence. This was followed by gaining information to improve products or production processes. This research also identified the importance of having face-to-face contact with support institutions. Finally, this study emphasized the role of network brokers who act as match-machers and forum facilitators. While this research is more focused on informal networks, in one case study more formal networks organized by government or other support organizations were viewed as ‘stepping stones’ for making new business contacts.

In Newfoundland, the Innovation Case Studies highlight the positive impacts of the CME business network in Kittiwake and the Northern Peninsula Business Network. Based on these examples and what we heard at the **Innovation Workshops** and the **Innovation Summit** we offer the following insights for supporting **Business Networks** in Newfoundland and Labrador:

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

More support for Business-to-Business Mentoring

- Stronger role and support for chambers and industry associations but need new methods of getting people in the seats at events
- More research on the role of business networks in rural regions and more financial support to establish business networks
- Encourage more innovation/business tours so managers can learn from each other, share success stories and discuss business failures

ENCOURAGE MORE COMMERCIALIZATION IN NL

***“Great People, Great
Ideas, Poor
Commercialization” -***

Conference Board of
Canada

The Conference Board of Canada recently acknowledged that the emphasis on improving R&D, academic research and technology development has meant that sufficient attention has not been given to critical elements of competitiveness and innovation such as business models, financial capabilities, commercial processes, and the entrepreneurial, cultural and organizational aspects of leadership (Conference Board of Canada 2013a; 2013b). The focus is shifting to look at firm-level business skills and whether the firms have the necessary capabilities to allow maximum commercialization output. This important understanding was evident during the Workshops and the Summit. Among the 5 top critical gaps reported in the Summit were “a lack of awareness, knowledge and culture around innovation” and a lack of business and management skills leading to greater innovation among existing businesses and new start-ups.

Business innovation, by definition, is not about creating good ideas, it is about creating wealth and more sustainable enterprises from these good ideas. Innovation will only lead to economic development when the new or improved products, processes and strategies lead to commercial gain within an organization. The focus on firm-level success requires a concerted effort from all members of the quadruple helix.

INSIGHTS FOR NEWFOUNDLAND AND LABRADOR

Focus on Commercialization Education and Dialogue

- Government create policies to support local business through a public procurement strategy (ie. consider NL products/services first)
- Government should raise awareness among stakeholders about issues of commercialization and seek input as to how to close these gaps
- Memorial University and College of the North Atlantic must become leaders in engaging with industry with an emphasis on commercialization, not only knowledge transfer
- Government must create special funds for business skills development leading to commercialization
- Postsecondary researchers can help fill in the gaps of what we know and what we need to know to assist firms in NL with commercialization issues
- Industry associations should be aware of skill shortages and educate their membership to seek assistance
- Industry associations should lobby government to include commercialization needs in an innovation strategic plan
- Firms need to be proactive and must acknowledge and seek out training for the skills they lack

ENCOURAGING MORE INCLUSIVE INNOVATION IN NL

Utilizing an interactive and inclusive⁸ approach among innovation stakeholders in Newfoundland and Labrador, this project and the recommendations contained herein attempt to answer the overarching question posed by our project team: what can firms, community organizations, all levels of government, Memorial University and the College of the North Atlantic do to advance innovation in Newfoundland and Labrador? In summary, this report suggests a broad suite of innovation support mechanisms that should be considered by all levels of government, post-secondary institutions, business and community players. There are some key findings from this project that are worth re-emphasizing:

First, this project has sparked important dialogue among key members of the innovation community. It is clear from the consultations that this dialogue is long overdue and that there is a disconnect between firms and innovation support institutions over the definition of innovation and how innovation impacts firm-level growth. As advanced in this report, innovation includes the broad spectrum of a firm's activities – from the idea, invention, and R&D stage; through to the implementation of internal processes in HR, organizational structure, technology adaptation, manufacturing and the development of new or improved products and services; to the commercialization phase of creating business models and strategies for sales and marketing and intellectual property protection. To be successful in the global marketplace, firms in Newfoundland and Labrador need to engage in innovation at all three stages. Education and awareness activities around innovation will be key for the future success of the private sector.

Second, all members of the quadruple helix (business, community, government and postsecondary) have a role to play in advancing innovation in Newfoundland and Labrador. Working together, we can have a greater impact. During the consultations, the project team observed a passionate appeal to the Government of Newfoundland and Labrador. This province needs a voice to champion and direct the process of promoting and fostering innovation among local businesses. Members of the community are also looking to the Government of Newfoundland and Labrador for guidance and support. This report suggests several ways for the province to embrace this responsibility and meet the expectations of stakeholders.

Third, there seems to be a general dissatisfaction, ignorance or indifference with respect to many of the existing innovation support mechanisms. This finding should serve as a wake-up call to all stakeholders. The issues identified include the broad spectrum from awareness, education, tailored financial support programs, networking, mentoring, skills development, training and collaboration. There also appears to be a great opportunity for governments, post-secondary institutions and the broader community of industry associations and innovation experts to unite and provide comprehensive innovation

⁸ Ken Coates. 2012. Inclusive Innovation: What is the Role of Rural and Remote Regions in the Knowledge Economy? Presentation hosted by the Canadian Federation for Humanities and Social Sciences in partnership with the Canada Foundation for Innovation.

support for the private sector. The solutions required are fundamental and foundational to creating a culture of innovation among our business leaders.

Finally, this advancing innovation conversation must continue. One potential opportunity is to facilitate brainstorming sessions and collaborative dialogue with the goal of creating an action plan to deal with the findings of this report. We also suggest that the parties of the quadruple helix consider creating an Innovation Support Network, with representation of key stakeholders who will use this report to create specific programs and strategies to deal with the gaps identified.

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