The Impact of Policy Networks on Ontario's Research and Innovation Infrastructure: Explaining the Development of the Ontario Network of Excellence

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Introduction

Research and innovation policy serves as a blueprint for governments seeking to identify and strengthen areas of strategic comparative advantage in a competitive, knowledge-based economy. Leading economies around the world continue to develop the infrastructure and policy support necessary for creating innovation ecosystems[2] that generate transformative research, enable R&D partnerships and advance knowledge diffusion and technology transfer. Between 2003 and 2007, the Ontario government established a number of policy initiatives to build the province's research and innovation ecosystem, including the Ministry of Research and Innovation (MRI), the Ontario Innovation Agenda[3], the Ontario Commercialization Network (OCN) and a suite of research and innovation funding programs. The Ontario government – in consultation with regional and local leaders from the province's intellectual community[4], industry, and innovation intermediary organizations – created a broad range of policies to improve knowledge and technology flows between research and innovation actors across different sectors of the economy.

The provincial government demonstrated a focused effort at implementing a regional innovation systems approach[5] to commercialization. Early in its first mandate, the McGuinty administration acknowledged that enhanced levels of collaboration between research and innovation actors as well as increased business engagement in innovation at the regional level were imperative for improving Ontario's economic well-being. The growing body of literature on regional innovation systems resonated with MRI civil servants, particularly those with a

[1] In May 2013, the ONE was re-branded to the Ontario Network of Entrepreneurs.

[2] Stanford University's Innovation Ecosystem Network defines an innovation ecosystem as, "the inter-organizational, political, economic, environmental, and technological systems through which a milieu conducive to business growth is catalyzed, sustained, and supported." http://www.innovation-ecosystems.org/innovation-ecosystem/

[3] The Ontario Innovation Agenda was a key policy statement released by MRI in 2008. It articulated the provincial government's commitment to act as a catalyst for innovation and commercialization.

[4] The intellectual community consists of universities, colleges, academic hospitals and other research institutions.

[5] According to Philip Cooke (2004), "a regional innovation system consists of interacting knowledge generation and exploitation sub-systems linked to global, national and other regional systems for commercializing new knowledge." (p. 3). As such, the Regional Innovation System (RIS) approach focuses on how innovation occurs and is sustained by regional communities of research and innovation actors and networks of institutions that share a particular knowledge reserve and have access to a common set of assets and resources (De Laurentis, 2012; Wolfe, 1997). The RIS approach derives from the systems of innovation literature which emphasizes the social nature of the innovation process by underscoring the idea that innovation results from the interaction between specific agents/components of invention, research, technical change and learning that comprise the system (Bramwell, Hepburn, Wolfe, 2012). The systems of innovation approach has two streams of analysis: national and regional.

heightened appreciation for the influence of geography on innovation, joint value creation and regional economic development. The lessons learned from earlier efforts at developing innovation clusters, along with assessments conducted on the successes and challenges of other leading jurisdictions with strong innovation ecosystems, informed the government's decision to build up a commercialization network that would enhance entrepreneurial activity, improve the province's capacity to commercialize innovative products and services, leverage regional innovation strengths, and in turn, bolster regional technology-based economic development.

The economic downturn of 2008 brought a new fiscal reality with increased pressure placed on both the Ministry of Research and Innovation and Ontario's research and innovation actors to demonstrate a return on public investments made up to this point. Members of the province's research and innovation policy community discussed a range of policy solutions that would contribute to regional economic recovery. Among the set of ideas that were taken seriously were those that advanced a regional innovation systems approach, promoted commercialization in areas that were deemed to be of strategic importance to the province[6], and were capable of being implemented despite a limited increase of public resources available to actualize these ideas. The Ontario Network of Excellence (ONE) emerged from these deliberations as one of the province's most powerful innovations capable of realizing the Ontario government's goals of economic growth and job.

The ONE was established in 2009 as a province-wide innovation and commercialization program and delivery system that would provide a comprehensive set of services and resources to its clients – i.e. local technology-based entrepreneurs, companies, investors, and researchers – who wished to commercialize an innovative product, process or service; create a global advantage; and, generate new wealth in Ontario. The ONE was expected to strengthen the province's innovation infrastructure given its capabilities in identifying customer demand, supporting the growth of new firms, and providing entrepreneurs with the business support (including mentorship, market intelligence and risk capital) they needed to translate their ideas into innovations. While the activities of the ONE are supported by public funding from the provincial government, resource allocation decisions to clients are largely made by a group of ONE members, i.e. a set of private sector actors consisting of local business experts as well as a small number of innovation intermediary organizations, including the Ontario Centres of Excellence and MaRS. This paper focuses on the evolution of Ontario commercialization framework, and poses the question: Why did the ONE develop the way it did? Policy network analysis is used to explain how groups of research and innovation actors influenced the formation of the ONE. More specifically, the paper discusses how the context, structure and agency of the policy network that formed around the issue of commercialization in Ontario impacted the creation of this one-of-a-kind technology-based innovation ecosystem.

[6] The provincial government identified four areas of strength in Ontario: Bio-economy and clean technologies; advanced health technologies; pharmaceutical research and manufacturing; and Digital media and information and communications technologies (MRI, 2008a:12).

Governance and Policy Development

A governance approach to policymaking provides an ideal lens for analyzing the decision-making process associated with the creation of the Ontario Network of Excellence. This approach brings to bear the complex, "pluri-centric" nature[7] of policy making in the area of research and innovation where multiple networks of governmental and non-governmental actors are involved. Despite the often conflicting ideas various actors may promote, these agents are all committed to working together to develop policy that would intensify Ontario's research and innovation capacity and contribute to economic growth and job creation. As such, a governance approach to research and innovation policy development draws attention to a number of behaviours and challenges associated with state-societal governance arrangements including collaboration; balancing of competing interests; power struggles between societal and state actors; and the impact of uncertainty on decision-making.

The dynamic interaction between these groups of research and innovation actors who influence the policy process in Ontario is most readily captured by Torfing et al's concept of *interactive governance* – "the complex process through which a plurality of social and political actors with diverging interests interact in order to formulate, promote, and achieve common objectives by means of mobilizing, exchanging, and deploying a range of ideas, rules and resources" (p. 14). Interactive governance has become a more prominent mode of decision-making, particularly in policy areas with a formidable degree of uncertainty, power struggles and the need to share a common set of assets and resources (Torfing et al., 2012: 32). In the policy area of research and innovation, not only is interactive governance featured, but depending on the particular issue at hand, *associative governance* is also common. Deliberations that took place during the policy formation and implementation stages of the ONE occurred within the scope of an associative governance framework. Wolfe (2007) suggests that more associative and participative (i.e. interactive) forms of governance are ideal for developing policies in a field that is highly dependent on the strategic cooperation and collaboration of a wide spectrum of societal actors[8] operating within knowledge-based economies. He maintains that these governance models engender trust, social norms and loyalty between the state and societal actors which are invaluable for effectively exercising economic power in an innovation-based economy (Wolfe, 2007: 121).

The policy network approach lends well to a discussion on the governance arrangement that developed around the issue of intensifying commercialization in Ontario, and in turn impacted the development of the ONE. Borzel (1998) identifies these state-societal relations as *policy networks* which she defines as "a set of relatively stable relationships which are of non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue those shared interests acknowledging that co-operation is the best way to achieve common goals" (Borzel, 1998, 254).

[7] Kersbergen and Waarden, 2001: 22.

[8] Research and innovation societal actors in Ontario include the intellectual community (i.e. universities, colleges, academic hospitals and research institutes); private investors (i.e. venture capitalists, pension funds, insurance companies, banks, angel investors, etc.); industry (i.e. start-ups, spin-outs, SMEs, LMEs, etc.); individual entrepreneurs; intermediary innovation organizations; and the government.

Studies focused on policy networks provide insight into a number of important questions regarding power, politics, and decision-making, including "Who rules?" "How they rule?" and "In whose interest do they rule?" (Rhodes, 1997, 10; Skogstad, 2005, 2).

Over time, the literature on policy network analysis (PNA) has grown to include different approaches such as the structural approach, inter-organizational analyses/interpersonal approach, and diversified frameworks. (Thatcher, 1998; Skogstad 2008). The first approach to policy networks proposes that structural linkages between the state and societal actors vary across sectors and these differences impact access to the policy process and the prospect of policy change/development (Coleman and Skogstad, 1990: 2). Six different patterns of society-state relations can emerge - pressure pluralism, clientele pluralism, parentela pluralism; corporatism and concertation; and, state directed – which are grouped under three broad categories: pluralist, closed and state-directed networks (Coleman and Skogstad, 1990, 26-29). The second approach, the inter-organizational analysis, focuses principally on the interaction of actors. Proponents of this approach consider policy to be the product of the complex interactions – which feature components of conflict and cooperation – between state and societal actors (Thatcher, 1998, 398; Knoke et al., 1996:6). According to Thatcher (1998) these actors are partly interdependent and partly autonomous; in other words, while they are linked horizontally, they do not belong to a single organizational hierarchy (p. 398). Additionally, the relations between the actors are based on resource and information exchange (Thatcher, 1998, 399). The third approach to policy networks – the diversified frameworks – is a response to the criticisms directed towards the other policy network approaches (Thatcher, 1990). The diversification of policy network approach takes two forms: (1) Environmental factors from other approaches are added to network analyses to explain change; or (2) Policy networks frameworks are linked to another analytical approach like rational choice, institutionalist analysis and/or advocacy coalition approaches, sociological institutionalism, Marxism, etc., so that the insights, hypotheses, methods and/or rigour of other models are applied (Thatcher, 1990: 405).

In this review of the ONE, tenets from each of the three PNA approaches will be used to show how the policy network structure, agency and context influenced policy development. The case study will demonstrate how a "strong" state coordinates policy-making with a highly mobilized, sophisticated group of societal actors to evince the usefulness of the structural approach. Secondly, the case study will draw attention to the capacity of the research and innovation actors involved in the development of the ONE to promote their ideas and ensure a collaborative, cooperative environment for decision making; the agency of the actors involved in the policy process is an integral component of the interpersonal approach. Thirdly, the ONE case study will underscore how the political, economic and historical context within which the policy network was located impacted the policy process; a focus on context considers how environmental factors affected policy development.

The Case Study: The Ontario Network of Excellence

The ONE is a collaborative, client-focused network of organizations designed to streamline the delivery of flexible programs and services that support technology-based entrepreneurs, companies (including start-ups, emerging growth companies, SMEs and large domestic and multi-national enterprises) and researchers from various institutes, colleges and universities seeking to commercialize an innovative idea into "globally competitive products and services."[9] It is based on a "mesh" network rather than a hub and spoke model, and as such, clients can access the ONE through one of the fourteen Regional Innovation Centres (RICs) located across the province. Each RIC is a not-for-profit organization mandated by MRI to deliver programs and services tailored to meet the needs of their local entrepreneurs, enterprises, investors, and researchers. The list of active RICs includes[10]:

1. Communitech (Waterloo)
2. Launch Lab (Kingston)
3. Innovation Guelph (Guelph)
4. HalTech Innovation Centre (Oakville)
5. Spark Centre (multiple locations: Whitby, Oshawa, Cobourg)
6. Innovation Factory (Hamilton)
7. MaRS Discovery District (Toronto)
8. Niagara Interactive Media Generator (Niagara)
9. Northern Technology Alliance (multiple locations: North Bay, Sudbury, Thunder Bay, Sault Ste. Marie)
10. Invest Ottawa (Ottawa)
11. Research Innovation Commercialization Centre (Mississauga)
12. We-Tech Alliance (Windsor)
13. TechAlliance of Southwestern Ontario (London)
14. ventureLAB (Markham)

RICs provide an array of resources, including educational programs to enhance entrepreneurial skills/talent development; advisory services to provide clients with coaching and mentorship opportunities; industry-academic programs to encourage knowledge exchange and resource sharing; customer development opportunities to provide clients the opportunity to engage with users; and, leads to financing programs and opportunities with potential investors from the private sector as well as from municipal and federal sources.[11] Furthermore, the RICs were intended to be strongly integrated and highly collaborative. As such, if clients accessed a RIC and required a specific service that that particular office did not offer, RIC staff could tap into the ONE network and acquire the resources from another RIC to ensure that the clients' needs would be addressed no matter where they are based within the province.

The ONE is also comprised of two other sets of organizations: the Provincial Innovation Centres (PICs) and Sector Innovation Centres (SICs). The PICs – MaRS and the Ontario Centres of Excellence – manage the funding programs that support the activities of the ONE. MaRS coordinates the provincial government's Business Acceleration Program (BAP) which funds a number of programs and services delivered by the RICs to facilitate the development of

[9] MRI website: http://www.mri.gov.on.ca/english/programs/one/program.asp
[10] This list is current as of March 2013.
[11] ONE website: http://www.oneinnovation.ca/en/ServicesPrograms.aspx

entrepreneurial talent and globally competitive innovative companies.[12] The OCE coordinates the government's Industry-Academic Collaboration Program (IACP) by providing technology transfer networks and research institutions across the province with the resources they need to fund initiatives that support technology transfer partnerships, encourage collaborative commercialization and advance the development of research and entrepreneurial talent.[13] RIC activities are largely financed by the funds delivered through the PICs, however, some RICs also receive funding from different sources including the federal government, local private sector organizations, and the municipal government. The activities of the PICs are complemented by the SICs, a group of non-governmental organizations that provide clients with sector-specific knowledge and resources they need to bring their innovations to the global marketplace. SICs include The Health Technology Exchange-HTX (health), Communitech (digital media), GreenCentre Canada (green chemistry), and Coral CEA (digital media). Together, the RICs, PICs and SICs are expected to drive best practices across Ontario.

The Policy Network in Action

Context: Economic, Historical, Political Factors

In 2007, Ontario lagged behind its North American peer jurisdictions in terms of levels of productivity[14]; according to the Task Force on Competitiveness, Productivity and Economic Progress, Ontario ranked fourteenth out of the sixteen North American jurisdictions with at least six million people (Task Force on Competitiveness, Productivity and Economic Progress, 2008: 9). The crisis of 2008 played a critical part in raising the province's productivity and competitiveness challenge onto the political agenda. Similar to other economic development ministries, MRI came under increased pressure to demonstrate value-added for investments made during the Liberal government's first term in office. Indeed, these economic conditions forced the Ministry to reassess the resource allocation decisions it had made between 2005 and 2008 and evaluate the effectiveness of the programs it had established to advance innovation.

To address the current economic and political pressures, MRI sought to drive a "market-driven" or demand-side innovation approach to policy development. This meant that an increased focus would be placed on establishing public initiatives that would increase the demand for innovations, improve the conditions for the uptake of innovations and/or improve the articulation of demand in order to spur innovation and its diffusion (Edler et. al 2012: 34). More generally, the government committed to act as a catalyst for stimulating the province's research and innovation capacity. Efforts were focused on building up the confidence of the asset class in Ontario and attracting new risk-capital to the province; supporting the emergence of lead

[12] BAP includes funding for initiatives like Entrepreneur in Residence programs, Embedded Executive programs, market intelligence programs, Introductory Entrepreneurial Training Courses, and capital network events.
[13] IACP includes funding for initiatives like institutional proof of principle programs and knowledge exchange initiatives which promote technology transfer partnerships. Funding was also targeted towards establishing value-added personnel programs and outreach scholarships. Programs that supported college applied R&D and technical problem solving were also funded under the IACP.
[14] Productivity growth is measured by increases in GDP per capita.

markets; incentivizing business innovation activity; improving commercialization; and, supporting entrepreneurial and research talent. Similar to Ontario, a number of other leading jurisdictions had assumed a more interventionist approach to harnessing the research and innovation strengths of its regions in order to mitigate the impact of the economic downturn;[15] however, efforts at public interventionism varied considerably across regions/nations based on a number of variables including but not limited to the jurisdiction's existing suite of support programs and economic policies, the needs of its research and innovation actors, the political ideology of the ruling party, and the political and entrepreneurial culture of the region/nation.

As for Ontario, the Ministry made a number of changing to its existing policy mix. The potential for enhancing commercialization efforts came into focus, and MRI turned its energies towards reviewing its existing commercialization infrastructure, which included the Ontario Commercialization Network (OCN)[16]. The OCN was formally announced in Budget 2005 as a collection of Regional Innovation Networks (RINs), i.e. regionally based, multi-stakeholder, not-for-profit organizations driven by the private sector to identify a region's comparative advantages and establish a regional-focused vision and mission for the future (Ministry of Finance 2005: 110). RINs supported innovation excellence and commercialization in a range of sectors, including information technology, energy conservation, and advanced materials, bioenergy, biotechnology, medical diagnostics, nanotechnology, pharmaceuticals, etc. (ORIN, 2007: 11). Small firms, researchers and entrepreneurs accessed commercialization programs, services and other resources by tapping into one of these nodes (Ibid.). By 2007, twelve RINs had been established along with three other organizations – all intended to work collaboratively to support commercialization. These additional organizations included:[17]

- Provincial Innovation Networks (PINs): provided linkages to provincial programs and served as a gateway to global business, science, and investment resources. The PINs included the Innovation Synergy Centre in Markham, MaRS and the OCE.

- Sector Innovation Networks (SINs): had a strong sector focus with provincial scope and the capacity to deliver commercialization and other expertise. There were five SINs: BioEnterprise Corporation, HTX, Ontario BioAuto Council, the Ontario Centre for Environmental Technology Advancement and the Ontario Institute for Cancer Research.

[15] Gilles Duruflé (2010) outlines a range of policy instruments eight national governments have implemented to advance innovation activity. He also discusses the case for government intervention in support of innovative technology companies. Also see Lerner (2009).

[16] The OCN is the successor to the Conservative government's Biotechnology Cluster Innovation Program (BCIP), a matching program approximated at $30 million, launched in 2003. BCIP was designed to maximize biotechnology investment in Ontario; enhance the commercialization of new research discoveries in biotech; drive company creation; support the diffusion of biotechnologies into other sectors; and create up to 3,000 jobs in regions across the province (MEOI, 2003). Research and innovation actors who received funding through the program were organized into regionally based "partnerships" or "consortia," and were committed to working collaboratively to build biotechnology capacity in their region (MEOI, 2003; McMaster University: 2003). Regionally based consortia was comprised of a mix of the following partners: industry (biotech and convergent industries), entrepreneurs, municipalities (economic development agencies), universities and other research institutions, researchers, colleges, venture capital firms/investors, federal government agencies, school boards and industry/grower associations (MEOI: 2003).

[17] Source: MRI website, "Ontario Commercialization Network Review: From Good to Great," OCN Review, webpage last modified 5/12/2010 http://www.mri.gov.on.ca/english/ocnreview/default.asp

- Incubators: organizations that cultivated technological entrepreneurship by promoting commercialization of research and technology from, and to, academic institutions.

The OCN achieved a number of successes up to 2008. It was credited for establishing more than eighty companies across Ontario, and these enterprises created over 700 new projects or products (Wilkinson, 2008). Moreover, OCN members assisted more than forty-five clients in accessing over $20 million worth of private sector funding and leveraging more than $60 million in total funding (Ibid.). However, there were a number of problems associated with the OCN that compromised its full potential. Most notably, it was criticized for being a "fragmented collection of organizations" (MRI, 2009b: 2). While several of the OCN members exemplified service delivery best practice, this quality of resource distribution was not spread uniformly across the Network. There was a lack of centralized direction and coordination between the Network members which resulted in inconsistent roles and responsibilities. These conditions exacerbated a number of clients' limited understanding of the OCN and its services. OCN also did not have measurable objectives and performance metrics for member organizations.

Changes made to Ontario's commercialization network after 2008 were expected to be incremental. Even before the Liberal administration assumed office in 2003, much of the provincial government's decision-making regarding resource allocation related to science and technology/ research and commercialization had been conditioned by path dependency. From the Davis years to the McGuinty era, each administration developed institutions that over time became more deeply embedded in the organizational structure of Ontario. The stickiness of these institutions forced the policy process in particular directions, thereby eliminating or distorting the range of options successor governments might have perceived as preferred or implementable (Pierson, 2000). Moreover, the innovation systems paradigm that linked economic development with collaborative research and commercialization existed well before the McGuinty government came to power and has remained in place. As such, policy changes in this particular sector have historically been confined at the level of Hall's (1993) first- and second-order change, representing "normal policymaking" (p. 279).

Political factors also influenced the decision-making process that informed the development of the OCN's successor. First, changes made to the province's commercialization framework had to align with the Ontario government's goals vis-à-vis research and commercialization. These goals were outlined in the *Ontario Innovation Agenda*. Key elements of the Agenda included "extracting value from investment in public research through commercialization"; supporting R&D partnerships in sectors where Ontario has demonstrated R&D strengths; building up HQP and leveraging the skills and knowledge of Ontarians across a broad array of disciplines; and building a business-friendly climate (p. 3-4). Secondly, changes made to the province's commercialization framework also had to advance the Ministry of Research and Innovation's mandate, which was to (MRI, 2006):

- Develop an integrated innovation strategy and lead in its delivery;
- Align and coordinate Ontario Government investments in both policies and programs to deliver on the innovation strategy;
- Foster a culture of innovation and showcase Ontario, nationally and internationally, as an innovation culture

To this end, the successor to the OCN had to build on the government's existing efforts at driving an integrated approach to innovation by intensifying the growth and sustainability of inclusive, collaborative partnerships across multiple research and innovation actors across different sectors. Thirdly, the renewed commercialization framework had to be implementable despite the Ministry's budgetary constraints; indeed, a modest amount of stimulus funding was directed towards MRI after the onset of the economic crisis.[18]

Structure: Closed, Corporatism

The policy network that emerged around the issue of renewing the province's commercialization framework most resembled the closed, corporatist ideal type. Coleman and Skogstad (1990) describe this network as one in which the government's decision-making capacity is concentrated and well-coordinated, while societal interests, represented by two or more groups, are highly organized and capable of participating with the state in the formulation and implementation of policy (p. 28). Between 2008 and 2009, the state worked closely with representatives from Ontario's private sector and intellectual community to assess the operations and impact of the existing commercialization framework, and develop an alternative service and delivery model. In line with Coleman and Skogstad's (1990) analysis of the closed corporatist policy network, the state – represented by the Ministry of Research and Innovation – drew variable societal interests inside the policy arena "to formulate a policy compromise" (Ibid.)

In September 2008, MRI launched the Ontario Commercialization Network Review. The Review was overseen by the OCN Steering Committee which was chaired by Deputy Minister Alastair Glass and comprised of senior members of Ontario's intellectual community and the private sector. The deliberations of the OCN Steering Committee were informed by the work of two other sources: (1) an OCN Review Expert Panel consisting of members from industry and academia, and (2) an external audit conducted by PricewaterhouseCoopers (MRI, 2009a). The final report on the OCN Review was drafted by the Steering Committee and delivered to then Minister John Wilkinson for his consideration. Together these actors constituted the "sub-government" [19] that drove the development of the ONE.

The OCN Review established structural linkages between the state and society that enabled the state to retain a high degree of authority, capacity and autonomy. To demonstrate

[18] According to the 2009 Ontario Budget, the government launched a 2-year $34 billion "smart stimulus" action plan to address the economic decline. (Ministry of Finance, 2009a; Ministry of Finance, 2009b) Funding to advance job creation in innovation-related sectors was delivered through the $1.15 billion Next Generation of Jobs Funds (NGJF). The NGIF was part of the Ontario government's 2008 *five-point economic action plan* announced in Budget 2008 in anticipation of the challenges of the economic downturn. NGJF had three program streams: Biopharmaceutical Program (BIP), the Strategic Opportunities Program (SOP), and the Jobs and Investment Program (JIP); BIP and SOP came under the purview of MRI. BIP was a $150 million matching fund intended to increase the level of biopharmaceutical R&D and advanced manufacturing in Ontario; enhance biopharmaceutical investments in Ontario; and strengthen Ontario's biotech cluster (MRI, 2008b). SOP was designed as a discretionary, non-entitlement grant program to support industry-led projects in the focus areas included in the Ontario Innovation Agenda.

[19] Coleman and Skogstad (1990) describe the "sub-government" as the group of state and societal actors that makes policy in a given field (p. 25).

state authority, the Review came under the purview of a single government department, MRI. Ministry officials drew up Terms of Reference documents for the Expert Panel and the Steering Committee; these documents outlined the scope, purpose and proposed outcome of the Review as well as the roles and responsibilities of the members of the sub-government. In regards to the scope, the Review included all members of the OCN partners including the Ontario Centres of Excellence (OCE), the MaRS Discovery District (MaRS), the Sector Innovation Networks (SINs) and the Regional Innovation Networks (RINs) (MRI, 2008c). The purpose of the Review was to:

- Establish a clear vision for a commercialization "ecosystem" in Ontario which will:
    - Improve the transfer of knowledge and intellectual property (IP) from research institutions to the private sector;
    - Transform industry-led research into innovative products and services for a global marketplace;
    - Accelerate the development of high growth potential start-ups, and small- and medium-sized enterprises (SMEs);
    - Align with Ontario's Innovation Agenda.
- Develop a program implementation model that will provide a:
    - core set of commercialization programs and services from the OCN hub;
    - clear access point to programs and services, primarily at the regional level;
    - common approach to diagnose client needs and deploy appropriate resources;
    - method by which frontline organizations are empowered to achieve timely service delivery.
- Achieve full government accountability and transparency in the OCN programs/delivery model with a focus on performance standards and results that will ensure OCN resources meet the needs of both government and clients.[20]

By establishing "a non-negotiable corpus of law and regulation"[21] that specified a clear separation between the activities of the external auditor, the Expert Panel and the Steering Committee from the decision-making responsibilities of the Ministry, government officials exemplified a notable level of state autonomy. As such, PwC was commissioned to provide the Panel and the Steering Committee with an objective assessment of the state of Ontario's existing commercialization framework; options for an alternative service delivery model to address the challenges the current model faced; advice on transitioning the existing OCN into the new model; and feedback on how the new model would align with the Ontario government's goals vis-à-vis commercialization as well as the Ministry's mandate for developing an integrated approach to innovation. Members of the Expert Panel were commissioned "to validate or suggest changes to the proposed OCN models recommended by [PwC] in conjunction with input from the Steering Committee and MRI staff" as well as provide the Ministry with a best practices strategy (MRI, 2008c). The OCN Review Steering Committee was mandated to provide advice to MRI throughout the review process; consider the alternative service delivery models proposed by PwC; provide feedback regarding the re-tooling of the funding programs associated with Ontario's commercialization framework and identifying program gaps; and, identify overlap and duplication across the OCN[22] (MRI, 2008d). It is important to note that by enforcing the Terms of Reference documents, the Ministry also demonstrated a high level of capacity given its ability to generate the information it needed to pursue its objective of reviewing and renewing the OCN.

[20] MRI, 2008c
[21] Atkinson and Coleman, 1989: 52
[22] MRI staff provided secretariat support for the OCN Steering Committee (MRI, 2008d)

The structure of the policy network demonstrated a high concentration of state authority given the leadership role the Ministry assumed on the OCN Review Steering Committee. The committee was designed to promote a collaborative, horizontal style of governance where societal members from a diverse set of groups within Ontario economy could promote their ideas for revamping the commercialization infrastructure. However, by assigning DM Glass as the Chair of the Steering Committee, this assured the government that the recommendations offered in the final report would reflect and support MRI's mandate and address the following set of outcomes the Ministry expected to realize as a result of conducting the OCN Review[23]:

- The identification of an alternative global best practice model to deliver government's commercialization programs;
- The alignment of OCN programs with government priorities, including the maximization of government return on investment in R&D and commercialization;
- The development of clear organization mandates for OCN member organizations;
- The promotion of OCN member organizations that are client-focused and responsive to the needs of its clients and government.
- Fewer OCN programs
- A more centralized delivery process at a regional level
- A single or unified hub to provide a provincial anchor for OCN programs
- OCN brand recognition

A high level of state authority and autonomy was evidenced by the fact that even though ideas were being pooled at the policy formation and implementation stages of the policy process, the final decision-making power remained in the hands of MRI. Indeed, the Ontario government – and by extension, Minister Wilkinson – retained the prerogative to accept or decline parts or all of the Review. Finally, it is also worth noting that all of the individuals who served on the Expert Panel and the Steering Committee were hand-picked by the government. This level of control over the membership of the policy-making bodies associated with the OCN Review once again demonstrated a prominent level of state authority.

As for the societal actors outside of the Expert Panel and Steering Committee, many of these agents organized successfully in their attempt to influence the development of the ONE from outside the policy-making apparatus. Overall, they were a highly mobilized group consisting of representatives from the intellectual community and the private sector. The interests of many of these actors were represented through the advocacy efforts of a number of associations that took part in the OCN Review consultations, including the Ontario Council on University Research (OCUR), Council of Academic Hospitals of Ontario (CAHO) – Council of Ontario Research Directors (CORD), and Colleges Ontario (MRI, 2009b: 1). These associations were well-resourced with a high degree of internal coordination. Indeed, they possessed a considerable in-house capacity for generating the information they needed to provide the government with a coherent set of ideas for influencing the development of the province's commercialization framework. Moreover, these associations were capable of galvanizing the support of their members and establishing a common policy position on the OCN Review that transcended any specialized interests that some of the members had. Individual organizations like Communitech, Ottawa Centre for Research and Innovation (OCRI), Ontario Centres of

[23] MRI, 2008c; MRI, 2008d

Excellence Inc. (OCE), and MaRS Discovery District (MaRS), as well as representatives from the investment community also took part in the OCN Review consultations (MRI, 2009b: 1).

Agency: The Actors and their Ideas

Research and innovation actors in Ontario promoted themselves as "partners", committed to working collaboratively to advance research and commercialization and build up Ontario's reputation as a world leader in innovation. They all subscribed to the importance of developing a research and innovation system in Ontario with strong linkages between business, research and government to ensure the transfer of resources, the development of HQP, the dissemination of brilliant ideas, and the commercialization of these ideas into innovative products, processes and services. It was agreed that once trust and mutual understanding of the strengths, demands and roles of actors have been established, government, industry and academic partners would benefit significantly from shared expertise. To this end, collaboration, the pursuit of sustainable economic development, the intensification of regional competitiveness, and a commitment to engage in social learning across multiple sectors and disciplines were some of the fundamental operative norms endorsed by all of these actors.

Members of the sub-government were emphatic about working collaboratively to establish policy that would actualize their interests. The government's rationale for initiating a review of the OCN was framed as a pivotal part of their reassessment of the existing suite of Ontario's programs and services that supported innovation and commercialization. It was suggested that a review was necessary for ensuring that all of these initiatives aligned with the Ontario Innovation Agenda – the government's principal policy statement on building up the province's innovation capacity. Furthermore, this review was promoted by Ministry officials as imperative for strengthening Ontario's research and innovation ecosystem. According to MRI, changes derived from this review would be significantly beneficial not only for the province's research and innovation actors specifically, but for Ontarians in general (MRI, 2009a). The Ministry succinctly, yet effectively, publicly communicated the goal of the OCN Review as "to ensure that Ontario establishes the kind of policy, program and service environment needed to support our world-class scientists and innovators in their efforts to turn research excellence and best-in-class technologies into new industries, new jobs, and future social and economic prosperity."[24]

The establishment of the OCN Expert Panel and the OCN Review Steering Committee arguably demonstrated the Ontario's government's efforts at driving an interactive style of governance that reflected the importance of incorporating the ideas of their societal partners into the policy-making process. The OCN Expert Panel primarily relied on their own knowledge and expertise to come up with a set of ideas for influencing the policy formation process. It is worth noting that the work of the Expert Panel provided societal actors from a range of sectors with direct input into the policy-making process; this level of policy participation is typically much more influential than conducting advocacy from outside the policy-making apparatus. As for the Steering Committee, this group conducted a number of interviews with research and innovation

[24] MRI Website: http://www.mri.gov.on.ca/english/ocnreview/default.asp

actors from across the province (MRI, 2009b: 1). Interviewees responded to a list of questions designed to provide the Committee with a better understanding of the goals/objectives, operations and successes of the members of the OCN. Interviewees also provided feedback on the level of interdependence that existed between their organization and other members of the Network. Additionally, these respondents were asked to offer ideas regarding the most ideal future direction and structure of the OCN. Several interviewees also gave suggestions on the type of metrics the provincial government should implement to measure the performance and impact of the new commercialization framework.

The Steering Committee received a long list of policy ideas from persons they interviewed, members of the Expert Panel as well PwC. The ideas that were seriously considered and/or accepted had to be economically feasible in light of MRI's budgetary constraints. Unable to dedicate a significant amount of new funding to the commercialization framework as a result of reduced levels of government spending, policy ideas that promoted a substantive increase in resources were less likely to be accepted. Nonetheless, a number of representatives from the intellectual community advocated for enhanced levels of support for research excellence and ongoing efforts at building collaborative partnerships with industry in order to advance the commercialization of research. Colleges were particularly focused on advocating for increased funding to support efforts at conducting applied research and experimental development in cooperation with local industry partners. A number of research and innovation stakeholders underscored the importance of the Ontario and federal government working in partnership to support innovation and commercialization. It was suggested that both governments could pool their resources to leverage more funding which would enhance commercialization efforts across the province. Participants in the consultation process also acknowledged that decision-makers were more open to suggestions for increased funding that "strategically" targeted a particular sector the government had identified as one of several focus areas where Ontario had emerging or potential R&D strengths; as such, different groups of actors operating within those sectors promoted the advantages of increased public investments that would address their own interests.

The ideas stakeholders offered also had to readily demonstrate the potential for addressing the political pressure MRI was under to realize a return on the investments made to advance the innovation and commercialization activities of its research and innovation partners. In turn, the most ideal ideas had to demonstrate a real capacity for driving economic recovery. Additionally, ideas that intensified the private sector engagement in the innovation space were most attractive to MRI officials. The potential for injecting an enhanced level of private sector expertise into the operations of the new commercialization framework was deemed most valuable and as such, the input from a number of private sector participants on how to achieve this goal was sought after and taken seriously. The investment community in particular emphasized the importance of incentivizing investment in locally-based, Canadian-owned companies associated with the new commercialization framework. To this end, ideas for creating programs that would increase entrepreneurs' access to risk-capital to support different stages of technology development were prioritized. Finally, ideas that aligned with the tenets and objectives of the Ontario Innovation Agenda, that reduced levels of systemic uncertainty associated with policy-making, and that advanced the existing regional innovation system approach to commercialization policy were also more readily considered.

Results: The OCN Steering Committee Recommendations

In February 2009, Deputy Minister Glass presented the *Ontario Commercialization Network Review Steering Committee Report* to Minister Wilkinson. A list of recommendations was made for improving the OCN's governance model, delivery model and the set of programs and services associated with it. Many of these recommendations evinced the adoption of ideas various societal actors promoted as members of the policy-making apparatus and as advocates participating outside of the decision-making circle. It is also apparent that a number of the recommendations were intended to actualize the provincial government's economic goals, political objectives and policy preferences, thereby evincing the capacity of the state to drive its own agenda. However, given that many of the sub-government members held a great deal of ideas in common and promoted a shared vision for advancing commercialization, many of these recommendations suited the interests of multiple stakeholders, making it difficult to clearly distinguish which set of recommendations most readily came from a particular set of research and innovation actors.

Suggestions for change mentioned in the final report included establishing a governance structure that would inform and align the mandates of the OCN organizations to guarantee that clients have access to the same high quality of service no matter where they were located in Ontario. By streamlining programs and services and developing them centrally, not only would this make it easier for innovators to access and navigate the Network, but it would also help the government reduce duplication of services and resources. The Report also proposed that the programs and services of the renewed commercialization framework should be structured to ensure that its clients were able to address the needs of its customers. By facilitating these entrepreneurs in meeting marketplace demands, it was anticipated that individual firm profits would increase which would in turn contribute to firm growth, regional economic development and provincial productivity. The Steering Committee also recommended the development of funding structures that would foster collaboration and enable organizations to build trust relationships with other members of the renewed commercialization framework. The Ministry took seriously the recommendations enumerated, and in April 2009, the government responded to the OCN Review by agreeing to evolve the OCN into the new Ontario Network of Excellence (ONE).[25]

[25] MRI website: http://www.mri.gov.on.ca/english/ocnreview/default.asp

Conclusion

The development of the ONE reveals the efficacy of interactive, associative governance. This renewed commercialization framework is a product of a concerted effort made on behalf of Ontario's research and innovation actors to actualize a common and complimentary set of goals. Using policy network analysis to explain change, this paper has underscored the impact of state-societal relations on policy development. By focusing on the structural linkages between these actors this paper has demonstrated how a "strong" state and a highly mobilized set of organized interests can effectively work together to produce regional economic policy for the common good. In considering the context within which the policy network was situated, the case study of the ONE has demonstrated how political, economic and historical factors can affect policy direction. Finally, by paying attention to the agency of the policy network, this paper has discussed how members of the sub-government related to each other, the set of ideas these actors promoted as well as their capacity to influence policy development. Altogether an analysis of the context, structure and agency of the policy network helps to shed light on the complexity of the policy-making process at a sectoral level.

Bibliography

Atkinson, M. A. and Coleman, W. D. (1989). "Strong States and Weak States: Sectoral policy networks in advanced capitalist economies", *British Journal of Political Science*, 19, 47-67.

Borzel, T. A. (1998). "Organizing Babylon - on the Different Conceptions of Policy Networks," *Public Administration*, 76 (Summer), 263-73.

Bramwell, A., Hepburn, N., and Wolfe, D. (2012). "Growing Innovation Ecosystems: University-Industry Knowledge Transfer and Regional Economic Development in Canada," Knowledge Synthesis Paper on Leveraging Investments in HERD, Final Report to the Social Sciences and Humanities Research Council of Canada, May 15th.

Cooke, P., M. Heidenreich and H. J. Braczyk (eds.) (2004), *Regional Innovation Systems: The Role of Governance in a Globalized World*, 2nd ed. London: Routledge.

Coleman, W. and Skogstad, G. (1990). *Policy Communities and Public Policy in Canada: A Structural Approach*. Mississauga: Copp Clark Pitman Ltd.

De Laurentis, C. "Renewable Energy Innovation and Governance in Wales: A Regional Innovation System Approach," *European Planning Studies*, (December) 20:12.

Duruflé, G. (2010). "Government Involvement in the Venture Capital Industry – International Comparisons" CVCA (May).

Edler, J. Georghiou, L. Blind, K. and Uyarra, E. (2012). "Evaluating the Demand Side: New Challenges for Evaluation," *Research Evaluation*, 21:1, 33-47.

Hall, P. (1993). "Policy Paradigms, Social Learning and the State: The Case of Economic Policy-Making in Britain," *Comparative Politics*, (April) 25:3.

Kersbergen, K. and F. van Waarden. (2001). *Shifts in Governance.* Nijmegen: NIG.

Knoke, D., Pappi, F., Broadbent, J. and Tsujinaka. (1996). *Comparing Policy Networks: Labour Politics in the U.S., Germany, and Japan.* Cambridge: Cambridge University Press.

Lerner, J. (2009). Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed – and What to Do About It. Princeton: Princeton University Press.

McMaster University. (2003). "Province Launches Biotechnology Cluster Innovation Program," Posted March 18, 2003 by the Ministry of Enterprise, Opportunity and Innovation. http://dailynews.mcmaster.ca/article/posted-on-march-18-province-launches-biotechnology-cluster-innovation-program/

Ontario Commercialization Network Review Steering Committee. (2009). *Ontario Commercialization Network Review*. Steering Committee Report, Toronto, Ontario.

Ontario. Ministry of Finance. (2005a). *2005 Ontario Budget.* Toronto: Queen's Printer for Ontario.
----. (2009a). *2009 Ontario Budget.* Toronto: Queen's Printer for Ontario.
----. (2009b). "Ontario Budget Creates Jobs for Families Today and Builds Economy for Tomorrow – McGuinty Government Invests $32.5 Billion in Infrastructure, Proposes Sales Tax Reform and $10.6 Billion in Tax Relief for People." News Release (March 26) (Online) Available: http://www.fin.gov.on.ca/en/budget/ontariobudgets/2009/nr.html

Ontario. Ministry of Enterprise, Opportunity and Innovation. 2003. "Biotechnology Cluster Innovation Program." Presentation made by the Life Sciences and Technologies Branch. Toronto, Ontario.

Ontario. Ministry of Research and Innovation. (2006). *Strategic Plan.* Toronto: Queen's Printer for Ontario.
----. (2008a). *Seizing Global Opportunities: Ontario's Innovation Agenda*. Toronto: Queen's Printer for Ontario.
----. (2008b). *2008-09 Results-based Plan Briefing Book*. Toronto: Queen's Printer for Ontario.
----. (2008c). "Ontario Commercialization Network Review – Expert Panel", Terms of Reference. (Online) Available: http://www.mri.gov.on.ca/english/ocnreview/steeringcommittee.asp
----. (2008d). "Ontario Commercialization Network Review Steering Committee," Terms of Reference. (Online) Available: http://www.mri.gov.on.ca/english/ocnreview/steeringcommittee.asp
----. (2009a). "Ontario Commercialization Network Review: Moving from Good to Great," Backgrounder, March 13th. (Online) Available: http://www.mri.gov.on.ca/english/news/OCN031309_bd1.asp
----. (2009b). *Ontario Commercialization Network Review*, Steering Committee Report. (February) Toronto: Ontario.

Pierson, P. (2000). "Increasing Returns, Path Dependence, and the Study of Politics." *American Political Science Review* 94: 2 (June), 251-268.

Rhodes, R. (1997). *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability*. Buckingham: Open University Press.

Skogstad, G. (2005). "Policy Networks and Policy Communities: Conceptual Evolution and Governing Realities." Prepared for the Workshop on "Canada's Contribution to Comparative Theorizing" Annual Meeting of the Canadian Political Science Association, University of Western Ontario, London, Ontario. June 2, 2005. (Online) Available: http://www.cpsa-acsp.ca/papers-2005/Skogstad.pdf

Skogstad, G. (2008). "Policy Networks and Policy Communities: Conceptualizing State-Societal Relationships in the Policy Process." In (eds.) White, L., Simeon, R., Vipond, R., and Wallner, J. *The Comparative Turn in Canadian Political Science*. Vancouver: UBC Press.

Task Force on Competitiveness, Productivity and Economic Progress. (2008). *Leaning in the Wind*, Seventh Annual Report (November), The Institute for Competitiveness and Prosperity, Toronto, Ontario.

Thatcher, M. (1998). "The Development of Policy Network Analyses: From Modest Origins to Overarching Frameworks." *Journal of Theoretical Politics,* 10:4, 389-416.

Torfing, J. Peters, B. G., Pierre, J., Sorensen, E. (2012). *Interactive Governance: Advancing the Paradigm*. New York: Oxford University Press Inc.

Wilkinson, J. (2008). "Ministry of Research and Innovation," Standing Committee on Estimates, Hansard, (September 23). (Online) Accessible: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts_details.do?locale=en&Date=2008-09-23&ParlCommID=8857&BillID=&Business=Ministry+of+Research+and+Innovation&DocumentID=23237

Wolfe, D. (1997). "The Emergence of the Region State," in ed. Thomas J. Courchene, *The Nation State in a Global Information Era: Policy Challenges*, Bell Canada Papers on Economic and Public Policy 5. Kingston: John Deutsch Institute for the Study of Economic Policy, pp. 205-40.

Wolfe, D., (2007). "The Role of Higher Education and New Forms of Governance in Economic Development – The Ontario Case," in eds. Shahid Yusuf and Kaoru Nabeshema, *How Universities Promote Economic Growth*, Washington: The International Bank for Reconstruction and Development.