

2. Detailed Description

2.1 Overview and Objectives

It is now widely accepted that innovation and creative capacity are essential determinants of economic prosperity in a globalizing, knowledge-based economy. Furthermore, the recent literature on innovation systems suggests that the region is a key level at which this innovative capacity is shaped. For a country such as Canada, with its diverse and strongly differentiated regional economies, the relationships between economic actors, organizations, and institutions at the local and regional scale are likely to be crucial factors underlying national prosperity. More recent analyses of creativity in the economy highlight the importance of city-regions as the site at which this economic dynamism is generated. This work argues that the social dynamics of city-regions are crucial in shaping economic outcomes. The proposed major collaborative research initiative will test these assertions by investigating how the social dynamics of the city-region shape our national innovative and creative capacity.

From the mid-1970s onwards, the connection between the city and economic activity appeared to become tenuous. As globalization processes gathered steam, more and more goods production relocated to exurban sites or overseas, driven by the cost-reducing locational logic of an international division of labour. With the growing use of new information and communication technologies, many service activities showed similar tendencies. By the turn of the millennium, confident predictions about the end of the city as we know it, and the ‘death of distance’, became commonplace (Mitchell 1995; Cairncross 1997).

And yet, there is countervailing evidence that many aspects of contemporary economic change make cities *more* – not less – important as sites of production, distribution and innovation. Paradoxically, as economic processes adopt a global scale of operation, the centrality of the local may in fact be enhanced rather than diminished (Glaeser 2000). If so, scholars argue that it is the *social character* of cities that is responsible for the renewed importance of the local in the global economy. In this view, the social qualities of urban places are the foundations of economic success and creativity in a competitive world. Accordingly, the decisions that shape the social character of our cities will also have direct consequences for our economic wellbeing.

Most Canadians live in city-regions, and this shapes our social, cultural and political institutions to a growing degree. In this sense, cities are as much social and political spaces as they are economic ones, and some have argued recently that the economic success of cities is linked to their effectiveness in encouraging and promoting new forms of democratic and civic engagement. As a result, measures to enable civic engagement and policies to promote openness, diversity and inclusion – in other words, many of the factors that shape the social character of our cities – may have direct consequences for their economic performance.

At the same time, globalization and the evolving knowledge economy pose a set of challenges and opportunities for city-regions. Alongside increasing capital flows are people flows that bring large numbers of immigrants predominantly to major urban areas. As the populations of city-regions become increasingly diverse and ethnically mixed, complex social challenges arise for urban governance to counter discrimination and foster positive attitudes towards diversity. Some scholars have recently argued that those urban regions that are most successful in developing tolerant attitudes towards social diversity are likely to be the ones that attract and retain highly educated workers. They argue further that the success of an urban region in generating and retaining creative activity also

depends on its quality of place and community characteristics that promote social cohesion. Strong, vibrant neighbourhoods, relative freedom from social deprivation, and access to employment and social services, such as shelter, education, nutrition and health care, are essential components of quality of place. This point has been emphasized in a recent address to the Federation of Canadian Municipalities by the Prime Minister of Canada: “The quality of life in a large city has a direct bearing on the ability of its people to be creative and productive, to innovate, to compete with the best that the rest of the world has to offer, to thrive in an era of increased competition and unparalleled opportunity” (Martin 2005).

The task of responding to these challenges – to compete on the basis of quality of place, quality of life and innovation, to prevent social polarization and spatial segregation and to accommodate ethnic diversity and cultural pluralism – demands a coherent response from all levels of government, from the national to the local. Yet, the city-region is critical as the level at which such strategies must be coordinated and implemented. The thesis that constitutes the focus of the proposed collaborative research initiative is that the social dynamics of city-regions constitute the foundations of economic success in the global economy.

2.2 Key Themes and Concepts

The proposed research initiative will address this thesis by exploring *three specific dimensions* of social dynamics and their relationship to the economic dynamism of city-regions: the social nature of the innovation process, the social foundations of talent attraction and retention, and the degree of community inclusiveness and civic engagement. Our overarching thesis is that these three social dimensions comprise the foundations of local economic dynamism and creativity.

2.2.1 The Social Nature of the Innovation Process

There is a growing consensus that the defining feature of capitalism at the start of the new millennium is the central importance of knowledge and learning in the creation of economic value and competitive success (Lundvall 2005). Learning implies the building of new competencies and capabilities. According to this thesis, the ability of individuals, firms, regions and nations to learn and adapt to rapidly changing economic circumstances will determine their future economic success in the global economy (Lundvall and Borrás 1998).

While major research institutions may play a major role in the production and dissemination of knowledge, the innovation systems approach argues that innovation rests on socially organized learning processes – interactive learning and knowledge circulation between economic agents (Morgan 1997; Maskell and Malmberg 1999; Feldman 2000; Gertler and Wolfe 2002; Cooke 2004; Asheim and Gertler 2005). As Lundvall (2005: 10) notes: “learning and innovation are best understood as the outcome of *interaction* ... interactive learning is a socially embedded process and...therefore a purely economic analysis is insufficient”. If true, this suggests that we need a broad conception of social learning encompassing the capacity of institutions to facilitate the process of economic growth and adjustment. This concept of learning is critical for the kinds of organizational changes associated with the knowledge-based economy: it implies that the organizational challenge for societies is how to pool and structure knowledge and intelligence in social ways, rather than to access them on an individual basis. Seen in this light, the capacity for social learning is thus essential for tapping into the collective intelligence of workers, firms and organizations within a given region.

Moreover, many have argued in recent years that the region is a critical level for innovation and learning because spatial proximity between economic actors, and the common socio-institutional context they share, enable the easy circulation of knowledge that underpins innovation (Krugman 1991, Christopherson 2002; Grabher 2002). The development of local 'untraded interdependencies' strongly shapes the innovative capabilities of firms (Dosi 1988, Storper 1997). These interdependencies are strengthened by the presence of local infrastructures for knowledge generation and circulation that underpin innovation and creativity in city-regions: specialized educational institutions and research facilities, unique support services for industry, and institutions that build and strengthen network relationships amongst firms and other key actors to facilitate the circulation of knowledge (Scott 2004). At the same time, it has been suggested that regional networks can also stimulate learning through their tendency to engender strong local competitive dynamics (Malmberg and Maskell 2002; Rantisi 2002).

A closely related argument holds that innovation depends on the sharing of both codified and tacit forms of knowledge (Nelson and Winter 1982). The tacit form of knowledge is difficult to transmit between economic actors unless they share a common code of communication, as well as shared norms and expectations governing the practices of individual firms. Research on the geography of innovation suggests that these commonalities are most likely to arise when the parties concerned are located in the same region, because regional institutions play a key role in producing and reproducing shared codes and norms (Saxenian 1994; von Hippel 1994, Morgan 1997; Maskell and Malmberg 1999; Audretsch 2002). In this view, these shared codes of communication and norms of behaviour constitute a regionally specific intangible asset that enables the establishment of collaborative, social learning relationships by reducing uncertainty, building trust, and enhancing the flow of tacit knowledge between local economic players.

Important as these regional learning processes are, recent conceptual and empirical work reminds us that these relationships – and the codes of communication and behavioural norms that underpin them – are shaped and constrained by a set of institutions at the national level. Institutions define the underlying rules that structure the operation of labour markets and employment relations, capital markets, corporate governance, competition and inter-firm relations (Whitley 1999; Hall and Soskice 2001; Gertler 2004). They also exert a strong influence over the ease with which knowledge is shared between firms, and the primary mechanisms through which knowledge is circulated (Christopherson 2002; Gertler 2003).

Bathelt et al. (2004) argue that successful clusters are effective at building and managing a variety of channels for accessing relevant knowledge from around the globe, while also circulating knowledge freely inside the cluster. They refer to these two complementary forms of learning dynamics as 'global pipelines' and 'local buzz', respectively. According to Storper and Venables (2004) buzz incorporates both the ability to gather knowledge locally through intentional face-to-face interaction, as well as the more diffuse forms of knowledge acquisition that arise from chance encounters, informal interaction, and the mere fact of being in the same location. Buzz is the force that facilitates the circulation of knowledge within a local economy and supports the functioning of local economic networks. In contrast, pipelines are the channels of communication and interaction with other localized clusters of knowledge production outside the region. According to Bathelt et al., these long-distance knowledge flows are critically important in helping firms stay abreast of new ideas emerging from other locations.

Firms need access to the knowledge acquired through both local buzz and global pipelines to maintain their creativity and innovative capability.

Although innovation processes are strongly shaped by national institutions and global knowledge flows, nonetheless, city-regions appear to be the principal sites for innovation, creativity and production of knowledge-intensive goods and services (Cortright and Mayer 2002). Given the interactive and social nature of innovation, city-regions would seem to provide the ideal space in which social learning processes can unfold. The sheer density and concentration of economic players in large cities offer multiple opportunities for contact, interaction and knowledge circulation (Orlando and Verba 2005). Supporting this interaction is a large concentration of specialized suppliers operating within a rich and deep social division of labour in the city (Porter 2000). Alongside this capacity for specialization is an equally important characteristic of city regions: their diverse mix of economic activities. The urban economics literature going back to Jacobs (1969) suggests that the diversity of activity within cities enhances their economic growth (Glaeser et al 1992) and innovative capacity (Feldman and Audretsch 1998; Duranton and Puga 2000; 2001). After all, ideas that are commonplace within one particular sector may have novelty value in another, and the possibility of inter-sectoral (or inter-cluster) knowledge exchange and spillovers arising from this form of economic variety enhances the learning potential for local economic actors. These processes provide a compelling explanation why, despite the advent of globally organized industries and the widespread use of the internet and other forms of information and communications technology, innovation and knowledge-intensive production have become *more*, not *less*, geographically concentrated, above all in city-regions.

However, a number of pressing questions remain unresolved. First, while there seems to be an emerging consensus around the role that city-regions play in facilitating the circulation of knowledge that underlies innovation, some analysts see these processes operating primarily within individual sectors or clusters (groups of closely related sectors) (Porter 2000), while others emphasize the learning opportunities that arise from knowledge circulating across sectoral and cluster boundaries within the city-region (Feldman and Audretsch 1998). Second, while the advantages of the largest city-regions as centres of innovative activity appear to be well established, there is no clear consensus on the prospects for mid-size and smaller urban regions in this regard (Orlando and Verba 2005; Duranton and Puga 2005). Third, while the arguments asserting the importance of global linkages and ‘pipelines’ make conceptual sense, there is still very little accumulated empirical evidence to support this claim, or to demonstrate how these distant connections complement local dynamics of knowledge circulation.

2.2.2 Social Foundations of Talent Attraction and Retention

As noted above, there is now widespread agreement that competitive success in many sectors of the economy rests increasingly on intangible assets such as knowledge and creativity. If so, this suggests that the locational factors of earlier eras – such as access to good natural harbours or proximity to raw materials – no longer exert the same pull. Instead, the most prized resource is now highly educated and creative workers – what Cooke (2005: 16) has recently called “regional talent pools of global significance” – that have the potential to attract and embed globally mobile investment, as well as generating innovative growth *in situ*. There is an emerging view that those attributes of particular places that make them attractive to talented workers are now of paramount importance in determining local economic prosperity (Florida 2002; Gertler et al. 2002; Saxenian 2002). The argument here is that such talent is attracted to and retained by cities, but not just *any* cities. In particular, those places

that offer a richness of employment opportunity, a high quality of life, a critical mass of cultural activity, and social diversity – low barriers to entry for newcomers – are said to exert the strongest pull. According to this view, the success with which an urban region can generate and retain creative activity also depends on its quality of place and community characteristics that promote strong neighbourhoods and social cohesion (Markusen and King 2003; Bradford 2004; Hutton 2004; 2006).

Migration of skilled labour, both interregional and international, has been one of the most important flows to reshape the character and geography of Canadian cities in recent decades. However, its impact on particular places has been highly differentiated according to city size and relative location. For our largest metropolitan areas, especially Toronto, Vancouver, Montréal, Calgary and Ottawa, international immigration has brought incredible dynamism and vitality by providing a key source of new human capital or talent (Statistics Canada 2000; Ley and Germain 2000; Gertler 2001). Evidence from technology hot spots documents how recent immigrants play a prominent role as both skilled workers and prospective entrepreneurs. Saxenian's recent work shows that the flows of skilled human capital from countries such as India and Taiwan to Silicon Valley have helped overcome acute local labour shortages (1999; 2002). While some of these immigrants eventually return to their home countries to establish new businesses, they continue to maintain strong linkages to the Valley through branch operations, labour mobility and other connections – prompting Saxenian to reject the commonplace language of 'brain drain/gain' in favour of 'brain circulation.' Recent Canadian research conducted under the auspices of the Metropolis Project identifies similar forms of transnational economic activity that is especially prevalent amongst recent business immigrants from particular countries and regions within Southeast Asia (Hiebert and Ley 2003).

Furthermore, immigration flows to Canada's largest cities undoubtedly enrich their cultural economies by endowing them with distinctive forms of cultural capital. In cities such as Toronto, Vancouver, and Montreal, the influence of immigrant talent, creativity and dynamism is strongly felt in sectors such as literature, music, broadcasting, film-making, gastronomy, and specialty foods. In short, immigration enhances the diversity and distinctiveness of these places, which likely strengthens their long-run economic prospects. It may also represent an important indicator of a city-region's openness to newcomers and its tolerance of social diversity in all its various forms. In some cases, most notably Calgary since 1996, these international flows are further compounded by strong net in-migration from other regions of Canada.

Despite the positive aspects of immigration to Canadian cities, challenges to the social inclusion of new Canadians are significant. For example, recent immigrants are consistently amongst the most economically disadvantaged groups in Canadian (urban) society (Lee 2000). Further research from the Metropolis Project highlights the uneven and contingent nature of this process (Lo et al. 2003). Clearly, a major challenge facing Canada's metropolitan regions is to build on their enviable legacy of diversity and tolerance while generating new institutions and community capacity to deal effectively with emerging obstacles to social integration and inclusion.

For Canada's mid-size and smaller communities, particularly those that are more remote from larger urban regions, the prospects for sharing in the benefits from interregional and international migration are considerably more limited. Many such urban regions are struggling to contend with the loss of home-grown talent to other regions of Canada, as well as the inability to attract and retain well-educated migrants from other regions and countries (Polèse and Shearmur 2002; Slack et al. 2003). For

such communities, the challenges of pursuing a talent-based strategy to enhance local innovation, creativity and economic dynamism may be considerable.

Some have argued recently that the pursuit of a talent-based strategy across the broadest cross-section of society is essential for tapping into the full knowledge resources of the labour force. The greater the degree of social inclusion, so the argument goes, the larger the potential pool of labour market participants available to contribute to the creative processes essential for innovation. In particular, those groups that have traditionally faced a variety of barriers to adequate employment could constitute a valuable part of the creative labour supply in the future. A key challenge for education and labour market policy – both regionally and nationally – is to create the macroinstitutional conditions that facilitate access to the education, skills, and labour market opportunities that disadvantaged groups require to overcome the existing barriers. This theme is underscored in Florida's most recent work on the importance of creative labour: "If we are to truly prosper, we can no longer tap and reward the creative talents of a minority; everyone's creative capabilities must be fully engaged" (2005, 35). If the arguments presented above are accurate, then the long-run economic prosperity of our city-regions may well depend on their ability to achieve socially inclusive growth.

Attractive as these arguments may be, the empirical base supporting them still remains modest and highly contested. The work of Florida and colleagues has generated much interest internationally, but has also been the subject of pointed criticism for, *inter alia*, the narrowness of its conception of quality of place (Gordon 2004). For example, Donald and Morrow (2003) argue that key aspects of quality of *life* have been excluded from this analysis, and raise important questions about the potentially exclusionary nature of talent-based strategies for developing city-regions. Furthermore, others argue that some of the US cities that score most highly on Florida's indicators of quality of place also exhibit signs of economic decay, instability and social polarization (Kotkin 2005). Moreover, Gertler (2001) and others (United Way of Greater Toronto 2004) document alarming trends in Canadian cities – especially growing income polarization and its increasing entrenchment in chronic spaces of exclusion within large metropolitan areas – that have the potential to undermine the very social characteristics on which a region's economic prosperity had been based. Hence, an important question for this aspect of the analysis is: can city-regions pursue a socially inclusive talent-based strategy for economic development – or does a focus on talent attraction and retention necessarily imply outcomes that are favourable to the 'talented' but exclude others? A second and equally pressing issue concerns the applicability of these arguments to mid-size and smaller urban regions. While it is apparent that many large urban regions exhibit a strong quality of place, does the transition to a talent-driven economic era necessarily consign smaller urban regions to also-ran status?

2.2.3 Inclusive Communities and Civic Engagement

Institutions play a central role in social processes by channeling the behaviour of individuals in an economic and political context. Institutions are the complex of customs, norms and conventions that prescribe behavioural roles, constrain activity and shape expectations. They facilitate relationships in the economy by reducing uncertainty in the way individuals and firms interact, as well as by creating the conditions necessary for cooperation and trust (Putnam 1993; Cooke and Morgan 1998; Wolfe and Gertler 2002; Gertler 2004; Gertler and Wolfe 2004). The focus on the institutional context for the innovation process is associated with a related issue in the political dimension: a shift in emphasis from government to governance. Whereas government is associated with the hierarchical authority

structures of traditional forms of bureaucracy, governance implies a more flexible and multilevel process of negotiated power in which different levels of political organization work in partnership with each other, and private sector actors and agencies, to deliver policies.

The innovation systems literature has argued recently that government, especially at the regional and local levels, retains an essential role in the learning economy, but one that departs from traditional forms. A key societal challenge, according to this perspective, is to create the conditions in which firms, associations, and public agencies engage in a collective process of interactive learning and adaptation to stimulate innovation and creativity. This conception of governance delegates certain tasks from formal government agencies to business associations or community organizations that possess relevant assets, such as knowledge of, and credibility with, their members, needed to ensure the effectiveness of their policies. Sharing power and responsibility with lower levels of government and community organizations creates the opportunity for dialogue or discussion, which is central to the process by which parties come to reinterpret their roles and relationship to other actors within the local economy (Morgan 1999; Wolfe and Creutzberg 2003).

Recent case study evidence suggests that, for local communities to formulate successful strategies for economic development, they require the presence of an 'economic community' – strong, inclusive relationships between private firms, community-based organizations and public agencies that create a sustained region-wide advantage. These relationships are mediated by key people and organizations that bring the respective economic, social and civic interests in the community together to collaborate on foresight exercises and strategy development (Henton et al. 1997; Bradford 2003; Koschatzky 2005). However, the literature suggests that not every community rises to this challenge, though there is still no consensus on the reasons for this failure. Communities may suffer from a deficit of civic capital: an inability to generate sufficient trust or cooperation among key players to provide the supportive institutional arrangements required to promote local growth. This may result in a 'governance' failure, as opposed to a state or market failure, arising from the inability for key players to develop effective new institutional structures. It may also result from a lack of policy coordination, especially from the three levels of government, which are frequently unaware of the actions and initiatives being pursued by the others at the local and community level (Gertler and Wolfe 2004).

Others have advanced the thesis that the essential criterion for success is to engage key members of the community in a sustained effort to advance economic opportunities. In this view, the recruitment of a committed, creative and collaborative leadership is essential for the success of these efforts. Such leaders invariably share certain characteristics: they can see the opportunities created by the emergence of the knowledge-based economy; they exhibit an entrepreneurial personality, in both a business and a 'civic' sense; they are willing to cross functional, political, social and geographic boundaries in pursuit of their strategic goals; they demand a sharing of both responsibility and results, and consequently are trusted as credible intermediaries; and they are committed to, and comfortable working in teams (Montana et al. 2001, 31–35).

Given the lack of consensus in the existing literature, there is a clear need to investigate the specific conditions that facilitate or inhibit the emergence of effective collaborative leadership and the broadly based civic engagement that integrates community stakeholders within a social process of interactive learning. In doing so, it would be important to consider the influence of intervening variables such as

city-region size, economic structure, and past history by examining these processes in a range of city regions across the country.

Thus, for all three themes presented above, the city-region appears to be a critical scale for analysis and intervention. In each case, there is a clear relationship hypothesized between the social dynamics of the city-region – the social nature of the innovation process, the social foundations of talent attraction/retention, and the social or civic foundations of governance – and its economic success. In the remaining sections of this proposal, we describe how the proposed research initiative will address these core issues confronting Canadian cities and society.

2.3 The Research Team and its Relevant Expertise

The core membership of the proposed research initiative is comprised of scholars associated with the Innovation Systems Research Network (ISRN), a collaborative, multidisciplinary network of university-based researchers analysing how innovation systems influence the processes of technological change and economic development. For the new project described in this proposal, the membership of the team has been augmented to draw upon relevant research strengths for key areas of the proposal, recruit a new generation of rising young scholars, and replace members who have retired. Since its inception in 1998, the network has focussed on the question of how the interaction among the major components of the regional innovation system shape the process of innovation and social learning that is critical for Canada's success in the knowledge-based economy. Its primary objectives have been: (i) to understand the process by which regional innovation systems foster the production and circulation of knowledge that is critical to the innovation process, and (ii) to deepen our understanding of the role of public policy in facilitating (or impeding) this process. The approach focuses on understanding several dynamic processes: the nature of inter-firm relationships; the role of human capital, principally the supply and use of highly skilled personnel; the influence of a region's institutional assets and infrastructure; the use of technology; and a region's cultural and social bonds that facilitate the collaboration necessary for the exchange of knowledge leading to innovation. Given its central interests in public policy analysis and development, the network has developed strong relationships with domestic partners and stakeholders at all three levels of government and in the private and not-for-profit sector.

This proposal builds on the work and research findings of a current (2001-2005) MCRI grant 'Innovation Systems and Economic Development: The Role of Local and Regional Clusters in Canada'. The primary unit of analysis for this research has been the *industrial cluster*, situated within a *regional innovation system*. While this approach has provided an invaluable framework for advancing our understanding of the local foundations of the innovation process and cluster development, it has also led to the conclusion that the social characteristics, dynamics and relationships within the wider city-region – transcending any single cluster – are critically important determinants of economic performance, for the reasons outlined above. Consequently, the proposed new research initiative continues to investigate the social dynamics of innovation and economic performance, taking the *city-region* as its primary unit of analysis.

The key findings of the current project are critical for understanding the central question underlying this proposal. Concerning the relationship between local and global forces in the development of clusters, the dominant view in the literature holds that a strong local market and strong local

competition are two essential elements of internationally competitive clusters. In contrast, our findings indicate that in many of the most successful clusters, the markets served are continental or global, that local customers constitute a relatively small proportion of the firm's total market, and that firms' most sophisticated and demanding markets are not local.

That said, certain characteristics and properties of local clusters and innovation systems remain critical for the competitive success of firms in a wide range of industries. Despite the importance of non-local markets, knowledge flows, and (in some cases) supply bases, our research indicates that the local dynamics of social interaction between members of the cluster are crucial. These intra-cluster relationships promote the local circulation of knowledge, underpinning the learning processes that enable firms to succeed at innovation. The local participants in these social learning systems include firms, institutions of education and research, venture capitalists, producer associations and specialized government research labs. In this way, our case studies document a balance between local and non-local relationships and knowledge flows – in other words the dynamic tension described above between the local 'buzz' and global 'pipelines' that circulate knowledge locally and non-locally, respectively. Furthermore, while our analysis has been conducted largely at the level of the individual cluster, case study analysis tentatively suggests that the most successful clusters have profited from the development of strong social networks at the city-region level and the emergence of dedicated, community-based organizations. These entities seem to link leaders in the individual clusters to a broader cross-section of the community. They appear to be supported by new institutions of civic governance that identify problems impeding the growth of the cluster and help mobilize support across the community for proposed solutions. We have found some evidence to suggest that size is a critical variable in the success of civic engagement, with some of the larger urban centres actually encountering greater difficulty in achieving effective degrees of mobilization. Our analysis of these community-wide dynamics remains only preliminary, owing to the cluster-based orientation of our work thus far. However, this intriguing tentative finding has led us to emphasize in the proposed research initiative the question of how the generation of civic capital, new mechanisms for inclusive civic engagement, and the emergence of civic leadership at the city-region level contribute to stronger local economic performance.

Another finding of fundamental importance, relating to the role of local assets in the innovation process, concerns the relationship between research infrastructure and cluster development. The cluster literature identifies research infrastructure, especially post-secondary educational institutions, as the critical ingredient for cluster formation. Significantly, and to the contrary, our research indicates that, with a few notable exceptions, research infrastructure plays a *supporting, not causal*, role in the growth of clusters in Canada. In some significant instances, the local development of advanced educational and research programs clearly *follows* the emergence of a dynamic local cluster, rather than preceding it. This research infrastructure contributes to the presence of a deep labour market in the local economy, which serves as a magnet for firms in search of highly skilled labour. It may also attract firms to a city-region in the expectation of tapping into the knowledge base that exists. However, strong research infrastructure and a thick labour market are underlying conditions that extend beyond the boundaries of individual clusters.

To fully comprehend their importance, it is necessary for us to raise our scale of analysis from the cluster to the city-region. By doing so, we will then be able to document the relative importance of

general versus specialized educational programs and institutions. We will also be able to understand how the mobility of workers between (rather than within) clusters and sectors contributes to the innovative and creative dynamism of the city-region as a whole.

One of the most consistent findings from our work concerns the role of local labour markets and talent. If there is one type of input that is overwhelmingly local, it is highly skilled labour. It is clear that the depth and breadth of the local labour market is the key characteristic defining a cluster's ability to support knowledge-intensive production. It is also the factor that is most amenable to public policy influence. However, our work suggests that the creation of a talented labour pool depends on many different factors, including not only the strength of local post-secondary education and training institutions, but also a set of 'quality of place' characteristics that determine a region's ability to retain well-educated labour and attract it from elsewhere. However, this finding has also revealed a potential downside to talent-based growth strategies: not all locations in the country will necessarily succeed in the pursuit of this objective. In some of our cases, communities have encountered significant obstacles in developing a deep labour market, despite persistent efforts. Because the central analytical unit for our current work is the individual cluster, our analysis to this point has not been able to investigate these issues – which, by their very nature, transcend the scope of a single cluster – in a sufficiently detailed and systematic way. It is for this reason, as well as those presented above, that we have chosen to focus the current proposal on the city-region as the central unit of analysis. Given the consistency of our findings to date concerning the importance of local talent, our proposed project emphasizes the role of quality of place (including creative activity, diversity, openness and social inclusiveness) in shaping the attractive potential of city-regions.

The research proposed here has the potential to make very significant contributions to international and Canadian scholarship. As a tightly integrated, interdisciplinary national team of scholars, with close working relationships and critical input from widely recognized international colleagues (see below), we have developed expertise and international profile in three key research fields relevant to this proposal: the structure and evolution of innovation systems (national and regional); the local and global dynamics of cluster development; and the role of culture and creativity in city-regions. As a group, we are uniquely situated to integrate the conceptual and empirical insights arising from these three realms of knowledge, and to articulate findings of direct relevance to economic development policy, using the city-region as the primary device for integration. Our intent is to explore the points of convergence (and contradiction) between these three streams of scholarship, leading to a much more strongly integrated theory of innovation than the literature has yet produced, in which the role of proximity and place are clearly defined and set within a global context.

2.4 Research Hypotheses and Methodology

Our hypotheses and methodology are structured around the three dimensions of city-region social dynamics presented above. Together, they investigate the importance of both *internal*, local social dynamics and dimensions of openness to key flows from *outside* the city-region. Our primary dependent variable is the economic and creativity performance of city-regions, which will be measured through variables such as employment growth, new firm formation, and indicators of innovative performance developed in the current MCRI project in concert with Statistics Canada, one of our key institutional partners. Our research program will examine Canadian Census Metropolitan Areas (CMAs) and smaller Census Agglomerations (CAs), although we will devote special attention to a

selection of approximately 15 CMAs, including roughly equal numbers of large (1 million population and greater), medium (250,000 to 999,999), and small (100,000 to 249,999) city-regions from all regions of Canada. Following the successful practice of our current project, we shall ensure (to the extent possible) that co-applicants studying a particular CMA will be based at a local institution in the same region.

In addition to the extensive amount of case study material that we have developed in the context of the ISRN's current MCRI project, we have also assembled a comprehensive database of 58 indicators of economic performance and creative activity for all 27 CMAs and 113 CAs in Canada, in partnership with Statistics Canada. The purpose of this work has been to identify successful clusters using quantitative criteria, and to test the central hypothesis of our current project that firms located in clusters demonstrate superior economic performance compared to firms in non-cluster locations (all else equal). We have drawn upon publicly available data from the Census of Population (2001 and earlier) and Canadian Business Patterns (1998-2004), and have purchased data from Macdonald and Associates and the US Patent and Trademark Office.

We have been able to develop a set of indicators with respect to employment (absolute levels, growth rates, location quotients) within specific clusters, degree of knowledge intensity of the workforce (based on educational attainment) and the proportion of the labour force in creative occupations. We have also measured annual rates of establishment growth, employment income, the number of patents generated by firms in a particular location, the volume of venture capital investment and net migration into the labour force for each CMA and CA.

While these data have been used to identify clusters and evaluate their performance, the database has been constructed as a highly flexible research tool to facilitate our analysis of the research questions posed below at the scale of the city-region. With the results of the 2006 Census expected to become available in 2007-08, this new information will be integrated into our existing database in time to inform and further enrich our statistical work. For the city-region-level analysis proposed here, we will be able to derive a number of key measures of our primary dependent variable – local economic performance – from this database: knowledge intensity (with occupation and education-based indicators), and performance and creativity (with establishment growth, income growth, patenting, and in and out-migration indicators).

In addition to this indicators database, we have also made extensive use of two key establishment-level surveys produced by Statistics Canada's Science, Innovation and Electronic Information Division (SIEID): the *Survey of Innovation* and the *Survey of Biotechnology Production and Use*. These surveys have been provided by SIEID through their Facilitated Access Program, and have supported the production of papers for scholarly journals (see Amara and Landry 2005; Gertler and Levitte 2006). For the project proposed in this application, we intend to use data from the 1999 and 2005 *Survey of Innovation* in manufacturing firms, and the 2003 *Survey of Innovation* in advanced services, as well as surveys on R&D and adoption of advanced technologies to generate additional measures of innovative performance for CMAs (such as growth in the number and rate of product and process innovations). Statistics Canada has linked these surveys to related data from the Business Register as well as linking respondents to a CMA and CA location variable for the surveys that will be used in this project. Furthermore, we plan to work in collaboration with Statistics Canada to link these surveys to the ISRN data set on CMAs and CAs described above. These data will be analyzed at the micro level, providing

an important establishment-level complement to the CMA and CA-level analysis of the core research questions guiding the project. The data analysis will benchmark CMAs and CAs for comparison in terms of economic performance and creativity, help us identify the factors that enhance the creativity of CMAs and CAs, and allow us to differentiate between factors that explain performance and creativity at the firm level and at the city-region level.

2.4.1 Analysis of the Social Dynamics of Innovation

Our review of the literature in section 2.2.1 emphasized the importance of both local and non-local flows of knowledge in shaping the innovative potential of economic actors in city-regions. It also noted the advantages arising from local variety and a diverse economic structure. Consequently, the primary hypothesis for this part of our investigation is that the economic and creativity performance of city-regions depends on three key characteristics: the strength of local knowledge circulation processes *within* individual industries/clusters, the strength of local knowledge circulation *between* individual industries/clusters, and the strength of knowledge-based linkages between local and non-local economic actors.

The underlying theory alluded to above emphasizes the importance of knowledge flows and exchanges within the region and beyond. In contrast to our current MCRI project, in which these dynamics are being studied *within* individual clusters, our intent in the proposed new project is to focus on the region's ability to develop networks, labour market dynamics and specialized organizations that promote the circulation of knowledge *between* individual clusters in the regional economy, and between local and non-local actors. In this way, we can explore the importance of local knowledge diversity (Nooteboom 2000; Rodan and Galunic 2004) and linkages that extend beyond one's closest contacts to reach more diverse sources of knowledge (Reagans and McElvy 2003). Preliminary analysis from our current project has identified a set of economic sectors that appear to have strong, statistically verifiable interrelationships within city-regions – apparent expressions of distinctive local 'signatures' of economic diversity (Spencer et al. 2005). Our proposed project will enable us to examine these local cross-sector structures to uncover evidence of the innovation networks that might underlie them.

At the *meso level* (using the city-region as the unit of analysis), we shall use our indicators database to develop a set of measures of local knowledge intensity and circulation, local economic diversity (based on both sectoral and occupational composition), and non-local linkages and flows of knowledge. We shall test the primary hypothesis by modeling the relationship between the economic and creativity performance of city-regions, the diversity of their internal economic structure, and the relative strength of their local and external linkages.

Qualitative methods will complement and add depth to this quantitative analysis through the use of structured interviews with workers, managers, entrepreneurs, and members of support organizations such as economic development agencies, financial and legal services, unions, educational and research institutions in the 15-CMA sample. The purpose of these interviews will be to deepen our understanding of the social dynamics and relationships that foster knowledge circulation within the city-region. We shall document the processes through which knowledge may be circulated locally, including the mobility of skilled workers, managers, and entrepreneurs across local sectoral boundaries, the use of project forms of organization, and other forms of formal and informal interaction. This qualitative methodology has been developed and used extensively for the analysis of local cluster

dynamics in our current MCRI project (Wolfe and Gertler 2004), and will be adapted to address the above questions at the city-region level. Our goal will be to conduct a minimum of 25 interviews in each CMA, with larger numbers in those city-regions with larger populations. These interviews will also enable us to perform more detailed *micro-level* analysis to characterize the strength and nature of connections between economic actors in the region and beyond (see Owen-Smith and Powell 2004). For this analysis, our hypothesis is as follows: the economic performance of city-regions depends on the structure (density and diversity) of local networks – in particular, a mix of strong and weak ties, a mix of local and non-local ties, as well as the heterogeneity and diversity of economic actors belonging to these networks.

Members of the proposed research team have already developed and applied such models at the level of individual clusters (Kéroack et al. 2004; Ouimet et al. 2004), and will lead the development of network models in each city-region. Particularly for the larger city-regions in our sample, in which the networks of interest to us could potentially include thousands of members, we shall experiment in adapting social network analysis to the study of large-scale economic networks. If successful, these models will allow us to compare the strength and structure of such relationships within and between local industry clusters, and to identify key actors who link multiple clusters within the city-region. These models may also highlight the role played by intermediary organizations such as local technology associations, research alliances, or other entities whose membership typically draws from multiple sectors (Amara and Landry 2005). Once the network structure of each CMA has been characterized in this way, we should be able to link these quantitative measures of network structure and diversity to CMA economic performance using the dependent variable indicators in our database described above. In this way, we would be able to determine the extent to which the structure and diversity of relationships between local economic actors, and the strength and diversity of their relationships with non-local actors, is associated with strong economic performance of the CMA overall.

2.4.2 Analysis of the Social Foundations of Talent Attraction and Retention

Concerning the *social foundations of talent attraction and retention*, our primary hypothesis is as follows: the economic performance of city-regions depends on a set of characteristics that define quality of place, including cultural dynamism, social diversity, openness and tolerance, social inclusion and cohesion.

The work of Florida and colleagues identified above argues that social aspects of quality of place determine the ability of city-regions to attract and retain highly educated (or talented) labour. The recent critique of Florida's thesis suggests at least three other important research questions. First, can city-regions pursue a talent-based strategy for economic development while simultaneously ensuring socially inclusive outcomes (if so, what are the critical enabling factors)? Second, what evidence is there that the hypothesized relationships between quality of place and economic performance can also be found in mid-size and smaller urban regions? Third, are global decisions to invest in innovative activity and knowledge-intensive production anchored by regional talent pools offering distinctive capabilities?

Here again, we propose a mix of quantitative and qualitative approaches to the analysis of this hypothesis and related research questions. Gertler et al. (2002) have already developed a quantitative methodology at the *meso* (CMA) level for assessing Canadian city-regions using Florida's original

model, as have Polèse and Tremblay (2005). However, this approach requires further development to incorporate measures of social inclusion and socio-spatial polarization within the city-region, and to reflect distinctive characteristics of Canadian city regions that differentiate them from American metropolitan areas. It will also be extended to include CAs (where data are available), to benchmark smaller communities against CMAs on key measures of creativity, openness, social diversity and inclusion, and to test for the strength of hypothesized relationships between quality of place variables and economic performance.

Qualitative analysis will complement this statistical work through in-depth case studies in the 15-CMA sample that shed greater light on the complexity of relationships behind the numbers. We are especially interested in those institutions, policies and practices that ensure that talented newcomers are welcomed and readily integrated into a city-region's social and economic networks, and that enable members of disadvantaged social groups to participate fully in urban creative economies. Structured interviews with highly educated workers, their employers, and other key intermediary organizations will be designed to uncover how these social characteristics are shaped, and their impact on talent attraction, retention, and local economic performance. Once again, our minimum target, subject to city-region size, will be 25 interviews per CMA.

2.4.3 Analysis of Inclusive Communities and Civic Engagement

Concerning *community inclusiveness and civic engagement*, our primary hypothesis is as follows: the economic performance of city-regions depends on their ability to generate effective new forms of associative governance – including, but not limited to, government – and collaborative leadership. Moreover, in those cases where such new forms of governance have been designed in socially inclusive ways, we are particularly interested in documenting the impact this has on the nature of development strategies pursued by city-regions, as well as the ultimate success of their regional economies.

The literature reviewed above argues that region-wide institutions of associative governance are a necessary, if not sufficient, condition for successful knowledge-based growth – in both 'new' and 'old' industrial spaces alike (Cooke and Morgan 1998; Montana et al. 2002; Bradford 2002; Gertler and Wolfe 2004). Moreover, this literature further highlights the role of creative, collaborative leadership, embodied in 'animateurs' or 'civic entrepreneurs' who play a key role in aligning interests of disparate stakeholders and focusing strategic direction (Feldman et al. 2005; Feldman and Martin 2005). We shall investigate these claims through a set of qualitative metropolitan case studies in the 15-CMA sample that include both obvious 'success stories' as well as city-regions facing major challenges of long-term economic restructuring. Several members of the proposed team already possess considerable experience conducting such case studies: see Bradford (2003), Donald (2002) and Gertler (OECD 2003). Semi-structured interviews will be conducted with civic leaders from the business, government and community sectors, with representatives of key minority groups and with other socially disadvantaged segments of the city-region's population. We shall also conduct interviews with employers in knowledge-intensive and creative industries, to solicit their perspectives on the effectiveness of local governance mechanisms in securing the right conditions for the region's economic success.

Assuming our plans to develop new methods for social network analysis are successful, the same approach will be used to study leadership networks around local initiatives to promote economic

growth, as a convenient way to map their structure and degree of inclusiveness. As with the other segments of our analysis, our minimum target is 25 interviews per case study.

Once we have addressed these three dimensions of social dynamics, subsequent phases of work by team members will focus on the *integration* of our findings, both conceptual and empirical. We propose to use the city-regions included in our empirical cases as the analytical unit on which to base this integration exercise. In those cases where multiple scholars are working on different dimensions of social dynamics in a single city-region (see Table 3 below), they will produce a collaborative paper in which the linkages between the social nature of innovation, the social foundations of talent attraction and retention, and the social dynamics of inclusion and civic engagement will be explored and illuminated. Here it will be possible to consider, for example, the extent to which the ability to pursue socially inclusive local talent strategies is conditioned by policy choices of local, provincial and national governments and the dynamics of multilevel governance. We also plan to produce an integrative paper for each of the three themes, in which the findings from each case study city-region will be compared.

The following table provides a schedule for implementation of the main research activities.

Table 1: Project Schedule

Project Phase	Time Frame	Principal Responsibility
2.4 Finalization of tasks	01/06 – 06/06	Management Committee
2.4.1 Qualitative	06/06 – 06/09	Wolfe, co-applicants
2.4.2 Qualitative	06/06 – 06/09	Wolfe, co-applicants
2.4.3 Qualitative	06/06 – 06/09	Wolfe, co-applicants
2.4.1 Quantitative	01/06 – 12/09	Wolfe, Gertler, Landry
2.4.2 Quantitative	01/06 – 12/09	Wolfe, Gertler
Integrative papers	06/09 – 12/10	Wolfe, co-applicants

2.5 Nature of Collaboration and Integration of Team Members

David Wolfe will serve as project director of this proposed research initiative. Following the successful practice from the current MCRI project, he will continue to work closely with his Toronto colleague Meric Gertler to co-direct the proposed national study. Members of the project team are drawn from a wide range of scholarly disciplines, including political science, urban and economic geography, management, economics, science policy studies, and planning. ISRN’s existing network structure, composed of regional sub-networks based in Atlantic Canada, Québec, Ontario and Western Canada, is well suited to the study of local and regional innovation in Canada. This regional node structure allows the constituent research groups to focus on the study of their respective regions, while being simultaneously connected to a national group of researchers unified by a common set of research questions, a shared conceptual framework and analytical tools. The multidisciplinary nature of the ISRN is a distinctive and valuable feature that has forged a national community of scholars interested in innovation, economic development and social dynamics, strongly linked by a common analytical framework.

The ISRN is managed within the regionalized structure described above, with a national office based in the Centre for International Studies at the University of Toronto, and regional sub-networks distributed

across the country. Each sub-network is represented on the Management Committee (MC) by a senior member. The MC currently consists of David Wolfe (Toronto), Meric Gertler (Toronto), Adam Holbrook (Simon Fraser), Réjean Landry (Laval), and Charles Davis (Ryerson, formerly UNB-Saint John). Due to retirements and relocations, we have recently recruited new network members from Atlantic Canada and, if successful in the current competition, will invite one of these to join our Management Committee. Under the current arrangement, the MC meets twice yearly. It is responsible for all critical aspects of the project management under the current MCRI project, and will perform a similar role for the proposed research initiative. It considers all modifications and adjustments to the research methodology, including the addition of new case studies. The MC also oversees the involvement and integration of graduate students into the research program and has introduced innovations such as the highly successful graduate student sessions held at ISRN annual meetings.

2.5.1 Roles and Responsibilities of Team Members

Our tentative selection of CMAs, organized by size categories, is shown in Table 2. The final selection will take place at the first meeting of the research team early in the life of the new project. The objective is to cover a range of sizes and regions of the country, in order to understand the extent to which the relationships of interest to us remain consistent across these characteristics. As in our current project, our intent is to achieve broad regional representation to ensure the widest possible applicability of our findings to communities across the country.

Table 2: Tentative Selection of Case-Study City-Regions (CMAs) by 2005 Population Size

1,000,000 +	250,000– 999,999	100,000 – 249,999
Toronto	Québec City	Saskatoon
Montréal	Hamilton	St. John’s
Vancouver	Kitchener-Waterloo	Kingston
Ottawa-Gatineau	London	Saint John
Calgary	Halifax	Chicoutimi-Jonquière

The tentative allocation of co-applicants to the three themes and city-regions is shown in Table 3. Owing to their size and complexity, Canada’s three largest CMAs (Toronto, Montréal, Vancouver) will be studied by multiple co-applicants. While the scholars listed below will be responsible for leading the case studies, they will in many instances be joined by collaborators located in the same region (Amara, Québec City; Chamberlin, Ottawa; Brail, Britton, Desrochers, Toronto; Doloreux, Rimouski; Hawkins, Calgary; Maine, McCarthy, Vancouver).

Table 3: Tentative Allocation of Co-Applicants to Themes and City-Regions

Social dynamics of innovation	Social foundations of talent attraction & retention	Inclusive communities and civic engagement
Landry (Québec City)	Donald (Kingston)	Bradford (London)
Phillips (Saskatoon)	Barnes (Vancouver)	Haddow (Toronto)
Holbrook (Vancouver)	Hutton (Vancouver)	Wolfe (Kitchener-Waterloo)
Shearmur (Montréal)	Gertler (Toronto)	Grant (Halifax)
Langford (Calgary)	Leslie (Toronto)	Tremblay (Montréal)
Davis (Toronto)	Rantisi (Montréal)	Warrian (Hamilton)
Feldman (Toronto)	Mackinnon (Saint John)	Smith (Vancouver)

Greenwood (St. John's)	Landry (Chicoutimi)	Andrew (Ottawa-Gatineau)
Donald (Kingston)	Landry (Québec City)	Landry (Québec City)
Mackinnon (Saint John)	Phillips (Saskatoon)	Phillips (Saskatoon)
Landry (Chicoutimi)	Langford (Calgary)	Langford (Calgary)
Bradford (London)	Greenwood (St. John's)	Greenwood (St. John's)
Wolfe (Kitchener-Waterloo)	Bradford (London)	Donald (Kingston)
Grant (Halifax)	Wolfe (Kitchener-Waterloo)	Mackinnon (Saint John)
Warrian (Hamilton)	Grant (Halifax)	Landry (Chicoutimi)
Andrew (Ottawa-Gatineau)	Warrian (Hamilton)	
	Andrew (Ottawa-Gatineau)	

2.5.2 International Collaboration

Following our current successful practice, an international Research Advisory Committee (RAC) will play a key role in monitoring our research and providing critical feedback on a regular basis. The Research Advisory Committee consists of the following eminent international authorities on the geography of innovation and the social dynamics of local economic performance: Bjørn Asheim, Lund; Susan Christopherson, Cornell; Philip Cooke, Wales/Cardiff; Richard Florida, George Mason; Hervey Gibson, Cogent Strategies, Glasgow; Gernot Grabher, Bonn; Mark Hepworth, Local Futures Group, London; Anders Malmberg, Uppsala; Peter Maskell, Copenhagen Business School; Kevin Morgan, Wales/Cardiff; Claire Nauwelaers, MERIT, Maastricht; Tod Rutherford, Syracuse; AnnaLee Saxenian, Berkeley; Allen Scott, UCLA

While there is strong continuity in the composition of the proposed RAC (ten of the above scholars are on the RAC for the existing project), we have added several new members – Christopherson, Grabher, Hepworth, and Scott – to reflect the shift in project orientation in this application away from clusters and towards the city-region. Although they will not receive direct research support under the proposed project (except for support to attend annual project conferences), many of the RAC members are already actively engaged in research on themes closely aligned with the present application. Collaborative projects have recently developed between ISRN members and at least eight RAC members (Asheim, Cooke, Florida, Hepworth, Malmberg, Morgan, Rutherford). If past experience is any guide, further international comparative projects will emerge spontaneously over the course of the proposed research initiative. These activities demonstrate the ability of our research team to generate further leverage from our core SSHRC funding, in which active collaboration with leading researchers around the world has been fostered through the very judicious use of SSHRC support.

2.5.3 Partnerships and Interactive Engagement with Stakeholders

The regional node structure described above has enabled the ISRN to forge effective research partnerships with many actors in the public and private sectors. Through this structure, ISRN has developed a unique capacity to transfer research results to a broad cross-section of the policy community at the federal, provincial and local levels in both a timely and relevant fashion. ISRN has engaged this community in a series of policy fora conducted at all three levels, and in regular policy briefings and consultations with officials. Wider linkages to the policy community at all levels, members of the federal Industry portfolio, provincial economic development agencies, university technology transfer offices, and other organizations promoting local and regional economic growth have resulted in a better understanding of the innovation process within all of these constituencies, and

a deeper appreciation of the factors that contribute to innovation. Furthermore, several ISRN members are currently involved in a joint project with NRC to identify critical cluster linkages by using similar social network analytical tools as those described in 2.4.

The proposed non-academic partners include Statistics Canada (with the support of Industry Canada), the National Research Council, the Creative City Network, THECIS, Calgary Technologies Inc, Leading Edge BC, and the Ontario Ministry of Research and Innovation. Many of these partners have played an integral role within the ISRN since its inception. We propose a similar approach for the new research project. Our partners will continue to participate in regular seminars organized by each regional sub-cluster, as well as the annual national meetings of the ISRN. They will also engage in periodic briefings where the academic researchers will share the results of ongoing research.

Our long list of stakeholders includes other federal development agencies such as Western Economic Diversification, Canada Economic Development (Quebec), and the Atlantic Canada Opportunities Agency, other provincial ministries in all regions of the country, and numerous local agencies and organizations involved in local and regional economic development and innovation policy. As with the current project, these stakeholders will be invited to participate in regular regional and national meetings of the research team, as well as other ad hoc meetings, in order to share in our findings on an ongoing, real-time basis. Some of these organizations are already taking part in other research activities related to (though not directly funded by) our MCRI project. For example, Meric Gertler is conducting a comparative study of 'creative city' strategies in Canada, the US, and Europe, with the Province of Ontario, the City of Toronto and the London (UK) Development Agency as sponsors. This project (scheduled to conclude in mid-2006) will dovetail closely with the research plan for the proposed research initiative.

2.6 Student Training

Each of the co-applicants participating in this proposal is engaged in an active individual research program that attracts high-quality graduate students and postdoctoral fellows drawn from a broad range of disciplines. Under the existing MCRI grant, support for students has been increased and regularized, allowing the network to expand the number of training opportunities for graduates and to compete effectively with leading programs in Europe and the US to attract the best candidates. At present, some 48 students (including three postdocs) are engaged in research, and we expect this number to be maintained under the proposed research initiative.

The opportunity for students to interview senior managers, entrepreneurs, workers, and community leaders offers invaluable experience, fostering a set of skills that are essential to both social science research and non-academic work. They have also played a central role in the statistical work of the current project, including the development and analysis of the indicators database described above, the analysis of Statistics Canada survey data, and the analysis of micro data arising from our own surveys and interviews. This role will continue under the proposed project. Graduate students regularly participate in the regional sub-network workshops and the annual network conferences, as well as authoring or co-authoring research papers arising from SSHRC-funded work. Sub-networks have initiated graduate student workshops and seminars. Special sessions at annual network meetings provide opportunities for graduate students to explore common research interests, to feature their work to partners (and possible future employers) and to build their interdisciplinary skills. One of the great successes of the current project has been the graduate student sessions instituted at the annual meeting,

where co-investigators and RAC members have been consistently impressed by the high quality and sophistication of graduate student presentations. These sessions have also been highly effective in building a strong community amongst our many graduate students and postdocs, providing an integrating force that transcends geographical, linguistic, and disciplinary boundaries.

Our students have also been able to take advantage of the growing linkages with our international collaborators. They have been invited to present their work at both the Summer and Winter meetings of DRUID in Denmark (see 2.7 below), they have presented papers in seminars organized by colleagues in Sweden (Uppsala and Lund), and have also been invited to spend longer periods of time at these institutions as visiting researchers in residence. Similarly, as the international profile of our work has grown over time, we have begun to attract a steady stream of visiting graduate students from the research teams of our European collaborators. Their visits to Canadian departments have helped create a growing international network of peers among our graduate student and postdoc cohort, an unexpected but very significant benefit for future career development and networking for our most junior colleagues. We fully expect these activities to continue and thrive under the proposed new research initiative.

2.7 Dissemination Strategies: Ensuring Knowledge Impact

Members of the proposed research team have been actively engaged in a wide range of dissemination activities to ensure wider impact and application of the knowledge generated from their research. A sample of these activities is provided below.

Our research findings are disseminated through leading national and international conferences, including DRUID (the Danish Research Unit on Industrial Dynamics), Association of American Geographers, International Sociological Association, Canadian Association of Geographers, Canadian Political Science Association, Canadian Industrial Relations Association, and Society for the Advancement of Socio-Economics, and this practice will continue under the proposed research project. Papers will continue to be published in leading international journals such as *Economic Geography*, *Journal of Economic Geography*, *Regional Studies*, *Urban Studies*, *Research Policy*, *Industrial and Corporate Change*, *Industry and Innovation*, *Futures*, *Science and Public Policy*, *Technovation*, *European Planning Studies*, *Review of International Political Economy*, *Technological Forecasting and Social Change*, *Environment & Planning (A and C)*, *Transactions of the Institute of British Geographers*, *Governance*, *Canadian Journal of Political Science*, and *Canadian Public Administration*. In addition, we shall continue the practice of publishing refereed edited collections of research findings with a high-quality university press such as McGill-Queen's University Press. These volumes make our research results available in a format that is widely accessible to the scholarly and policy communities alike.

ISRN members will also remain active in disseminating research findings to the local, regional and national policy communities, both individually and through the coordinated efforts of the regional sub-networks. For example, the Québec sub-network has grown to 650 members drawn from academia, government and private sector organizations. It publishes a highly successful weekly electronic newsletter, disseminating recent work on innovation and its promotion in the manufacturing sector, particularly at the regional and local level. In Western Canada, our members disseminate research findings at community and cluster-based events, and also work closely with federal departments, provincial governments, regional development agencies and local civic promotional agencies. In

Ontario, sub-network meetings are used as opportunities to discuss ongoing research with staff of provincial ministries, local NRC-IRAP technology advisors and local government and development organizations. In addition, members of the Ontario sub-network, like their counterparts in Québec and Western Canada, have engaged in a wide range of outreach activities with local and provincial economic development officials, as well as the regional branches of Industry Canada and HRSD Canada. A bi-weekly electronic newsletter published by the Ontario sub-network reports on the latest research on innovation and local and regional economic development, with over 600 current subscribers in all levels of government, academia and business, across Canada and around the world. Similarly, members of the sub-network in Atlantic Canada regularly disseminate results to regional partners. Recently, they have worked closely with NRC and the Atlantic Canada Opportunities Agency to conduct policy-oriented research on key local industries.

Through the distribution of our newsletters, the network has forged strong links with the State Science and Technology Institute in the US, which frequently selects items of interest from our newsletters to distribute to its membership. Representatives of the SSTI have attended the last two ISRN annual meetings and ISRN members have been invited to present our research to the SSTI annual conferences. The project director and other ISRN members have also been invited to appear before the House of Commons Standing Committee on Industry, Natural Resources, Science and Technology and the Prime Minister's External Advisory Committee on Cities and Communities, as well as numerous other provincial and local bodies, and to make presentations to the 'Breakfast on the Hill' Series (organized by the Canadian Federation of Humanities and Social Sciences) and Industry Canada's 'Distinguished Speakers in Economics' series.

Another highly successful practice developed during our current grant – the organization of special 'policy days' preceding the annual national meeting of our research team – will be continued under the proposed research initiative. These events are day-long meetings during which members of the research team and senior policy staff from all three levels of government discuss pressing issues in economic development and innovation policy, and the implications for these issues arising from our work. These days have also proven to be crucially important in helping members of the project team to reshape their research activities in response to urgent priorities expressed by policy makers. In this way, we have succeeded in establishing an interactive and collaborative dialogue with the policy community in every major region of the country – an achievement that is unique in Canadian social science.

2.8 Conclusion

Recognizing Canada's unusually varied regional structure, its highly urbanized character, and its socially diverse cities, a Canadian study of the social determinants of urban economic performance will be of great interest to scholars in Canada and abroad, as well as to a wider lay audience. It also holds great promise to produce breakthrough insights into the processes underlying the geographical concentration of innovation and creativity, and to inform policy makers concerning the local, provincial and national initiatives that are most effective in shaping a city-region's economic potential. Once these processes are better understood, our work will provide the scholarly evidence to inform economic development policy around initiatives that enhance the circulation of knowledge both locally and non-locally, that define effective new governance mechanisms, and that shape urban quality of place in socially inclusive ways.

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