Cities and Communities that Work: Innovative Practices, Enabling Policies

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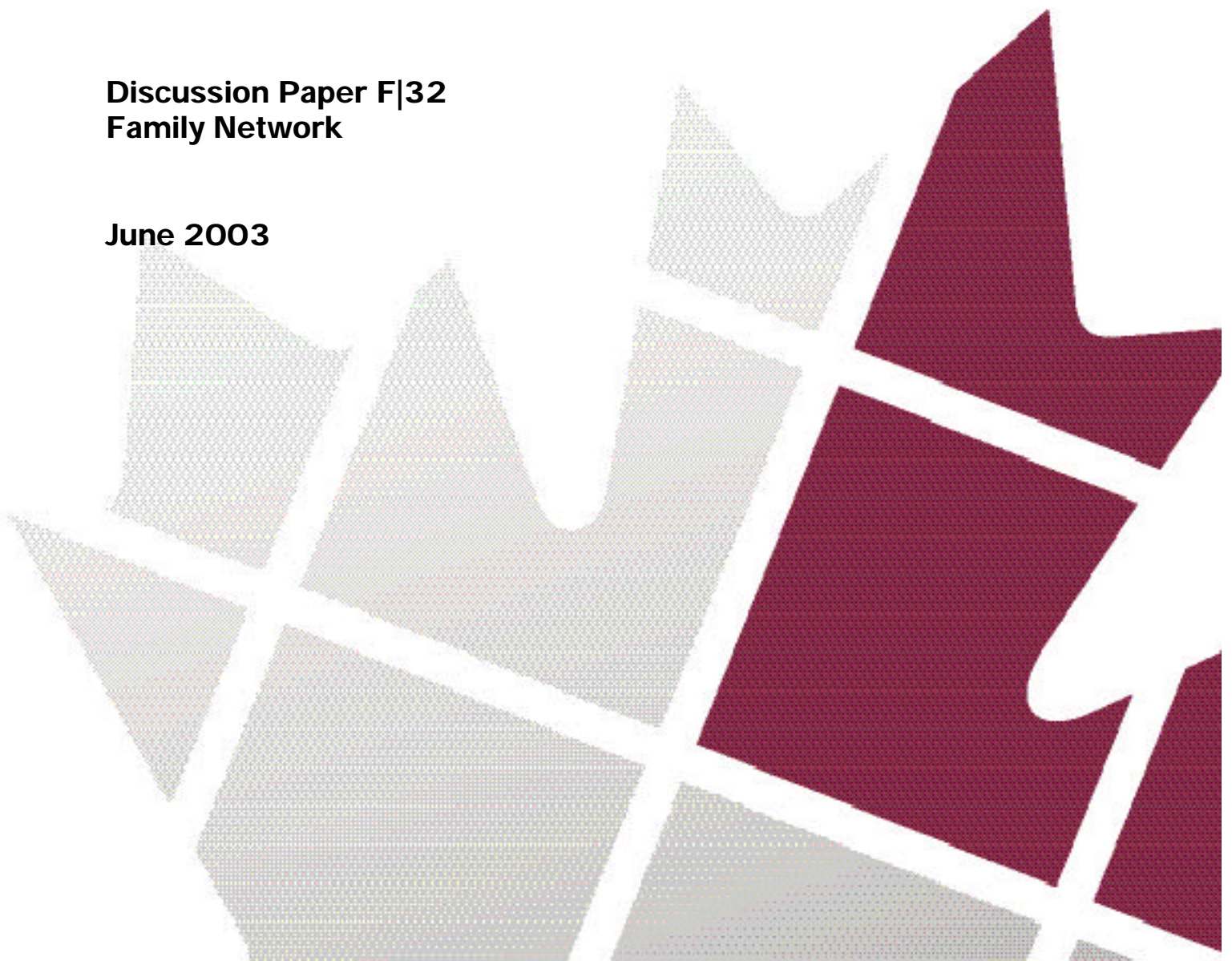
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By

Neil Bradford

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Foreword

Because the new political focus on urban policy in Canada has been primarily directed to the big city regions (Toronto, Montreal, Vancouver and Calgary-Edmonton), smaller communities sometimes fear they will be ignored. Yet they too are being challenged by the economic and social forces unleashed by new technologies and globalization. They too have no choice but to innovate in order to help local businesses, social agencies and governments begin to apply the best ideas to address emerging problems.

This paper tells the stories of 11 small and medium cities in Canada, the United States and Europe that have made dedicated and creative efforts to turn local assets into a community-wide strategy for economic renewal and a better quality of life. Each one, in its own way, is trying to overcome inadequate local problem-solving capacities to create what the author, Neil Bradford, calls learning communities.

Bradford tells us that learning communities do not just "pop up anywhere." They are carefully constructed by the political will of local champions and institutional intermediaries, people who can mobilize multiple actors locally and in senior governments.

Canada has much to learn from European and American case studies where local innovations have been systematically pursued for some time. Federal and provincial governments in Canada are still, by and large, "disjointed" in their response to urban issues. By adopting a more flexible, multi-level governance they could do much to help local initiatives gain real momentum. In doing so, they could also encourage more of Canada's small- and medium-size cities (as well as the biggest ones) to begin their own voyage of community-based innovation.

Judith Maxwell
June 2003

Executive Summary

Two decades of economic restructuring, the globalization of competition, and rapid technological change have combined to create a world of great uncertainty and complexity. Not surprisingly, governments and citizens now place a premium on generating new knowledge to tackle unfamiliar problems. The need to replace inefficient, unsustainable practices with intelligent, responsible ones crosses organizational boundaries. Simply put, innovation – applying the best ideas in a timely fashion to emergent problems – is an urgent priority in the private, public and voluntary sectors.

Most obviously, firms competing in the global marketplace seek ways to bring higher quality, lower cost products to the marketplace before the competition. But today, the importance of innovation extends well beyond the economy and the workplace. Many of society's greatest challenges – from achieving ecological balance to creating meaningful employment for all citizens – equally demand new thinking, organizational creativity, and institutional adaptation.

Nonetheless, the notion of innovation itself is contested. This Discussion Paper takes a broad view of what constitutes desirable innovation. It focuses on collaborative processes among diverse actors that produce integrative or holistic understandings of challenges and potential solutions. These processes can occur in fields other than the economic, and involve breakthroughs beyond the introduction of new products to the marketplace by firms. Indeed, progress resulting from such innovative practices may be monitored, over the longer term, along a variety of dimensions including: enhanced planning capacities in communities that balance the needs of the natural and built environments, greater participation in the knowledge-based economy for all citizens, and more robust democratic engagement through citizen involvement in electronic networks.

It comes as no surprise to find Canadian cities are "back on the policy agenda." A host of recent policy reports from academics, research institutes, political parties and even banks are making new connections between seemingly intractable national problems – for example, declining economic productivity, growing income inequality or environmental degradation – and the absence of robust problem-solving capacities in our cities and communities. Many governments are now searching for an "urban policy lens" whereby national and provincial frameworks are informed by local knowledge and implemented in partnership with community-based stakeholders.

At the same time, growing attention is being paid to the need for local actors themselves to develop their own strategies for success in the global era. Indeed, a growing body of Canadian and international policy research finds that those cities, large and small, that demonstrate an institutional capacity to engage diverse actors in collaborative planning processes are also the most adaptive and innovative. Such places are today's *learning communities,* so named because they provide the right context – institutional, organizational, and attitudinal – for upgrading their economy and for improving the quality of life and living standards of their residents.

Research also shows that learning communities do not just pop up anywhere. Geographic proximity and spatial clustering only set the stage for an innovation milieu. Progress follows in

those cities and communities that build on the latent advantages of urbanization. Acquiring better knowledge of how such communities position themselves for success is thus a pressing concern for policy makers at all levels of government, from the local to the supra-national.

To that end, this Discussion Paper surveys the burgeoning cross-national case study literature that now exists on *community-based innovation*. The goal is to take stock of these diverse experiences about how local actors, in partnership with others, enhance their capacity for working towards sustainable development, and to present the key findings about innovative cities and regions in a more systematic fashion than is presently available.

To achieve this goal, the paper is organized into three parts. The first part clarifies the meaning of community-based innovation and explores the larger historical and contemporary forces that are driving the "local turn" in governance and public policy. While studies of community-based innovation make clear that there exists no single model or cookie cutter approach to making change, it is also the case that certain key ingredients can be identified. The literature stresses seven building blocks in successful community-based innovation: (1) the emergence of local champions, (2) the formation of institutional intermediaries, (3) a commitment to equitable participation, (4) a civic culture of creativity, (5) the provision of financial and technical resources, (6) robust accountability mechanisms, and (7) development of indicators to benchmark progress.

Finding these seven building blocks in any city or community that is attempting revitalization is far from guaranteed, and the Discussion Paper argues that their presence reflects a dynamic local interplay of three forms of social learning: civic, administrative, and policy.

The second and largest part of the Discussion Paper carries these conceptual matters to a profiling of innovation dynamics in 11 cities in Canada, Europe and the United States. The focus is on mid-sized cities and smaller communities that have already gained some recognition and scholarly attention for their creative responses to today's challenges. Rather than rehearsing the by now rather familiar stories of the world's "high technology hot spots" or "global cities," our concern is to draw policy lessons from various "second tier" local places, less well-studied but representative nonetheless of much contemporary urban experience and community dynamics.

The cases are sorted into three general categories reflecting the type of challenges faced. In rural or remote communities (Kelowna, British Columbia; Meadville, Pennsylvania; North Jutland, Denmark; and Beauce, Quebec), innovation challenges focus on diversification of traditional economic bases, while also reversing negative demographic flows to sustain a critical mass of local knowledge workers and entrepreneurial talent. In the older industrial centers (Pittsburgh, Pennsylvania; Bilbao, Spain; Halifax, Nova Scotia; and Dublin, Ireland), innovative practices revitalize or even replace an ageing manufacturing base. Specific priorities include regenerating central business districts, making new use of vacant or derelict lands, and forging a shared vision across metropolitan spaces from inner cities to outer suburbs. In the geographically dispersed regions seeking to build knowledge-intensive clusters (Kitchener-Waterloo, Ontario; Saskatoon, Saskatchewan; and Portland, Oregon), innovation demands building institutional capacities for rapid and full deployment of new information and communications technologies. Specific priorities include networking between research institutes and small business, the coordination of municipal resources at the regional scale, and "smart growth" land use planning.

The third and final part of the paper draws together the conceptual discussion in Part 1 and what has been learned from the case studies in Part 2. We highlight both the basic commonalties or shared characteristics of all the innovating places, and salient points of difference among them.

The most basic point of convergence is the effort to "build from within." That is, in these places, local actors were searching for, and experimenting with, development models that aimed to grow local assets – ranging from global business clusters and leading edge workforce skills, to inclusive neighbourhoods with well-preserved built and natural environments. The general dynamics of innovation were the same, combining bottom-up strategies with top-down support from higher levels of government. Further, the mechanism or vehicle for planning and implementing change took a similar form: public-private partnerships that supplied an infrastructure for collaboration, learning, and investment. Such partnerships were typically anchored institutionally in dedicated agencies or bodies with the visibility and legitimacy to coordinate input from the public, private and voluntary sectors.

The cases also pointed to another positive dynamic of the community-based approach. The very process of convening multistakeholder networks at the local level, where different players have an opportunity to learn from one another, generated its own synergies and momentum. Simply put, there were a number of instances of positive spin-offs: success in solving one problem fed into progress on another. In some cases, the synergies were evident over time as effective mobilization in one era set the stage for progress in subsequent rounds. In other cases, the effects were more immediate, as the same actors made "real time" connections across projects, for example, between brownfields redevelopment and environmental renewal, or regional technology business networks and employment outreach to distressed neighbourhoods.

Of course, the specific achievements of the community-based processes varied in accordance with local priorities and conditions. Moreover, each of the national systems created its own context for local initiatives. Community-based innovation is enabled or constrained, and channeled down particular paths, in relation to policies and institutions at higher levels of government. Here the Canadian cases sit somewhere between the European and American "models." Federal and provincial governments have been more engaged than their American counterparts in all the cities and communities through a number of financial and regulatory instruments. At the same time, this policy support, in comparison to the European experience, lacks the focus and funding to really make a difference. The OECD's recent "territorial review" of Canadian policies and practices described a "disjointed approach" to community-based innovation. The Canadian cases reviewed in our Discussion Paper are consistent with this assessment. For the most part, federal and provincial governments have not fully appreciated the interdependence of economic and social investments in building strong communities.

There are lessons for policy actors at all levels of government. Here it is important to underscore that if the community-based paradigm is to generate sustainable innovations, the process must not involve the "hollowing out" or dismantling of national state capacity. Rather the goal is *multi-level governance* that allocates roles and responsibilities in relation to the comparative advantage of each government in contributing to community-based innovation. Municipalities are best able to convene the actors for partnerships, to undertake land use and development planning for inclusive urban and metropolitan spaces, and to work with other local authorities –

school boards, band councils, social service agencies, and so on – to secure upper level policy support and ensure its fit with local conditions.

For their part, provincial, federal and supranational governments are all variously equipped to supply resources to local actors for building the infrastructure and relationships of the learning community. They can also facilitate inter-local sharing of experiences by sponsoring the "scaling-up" of community demonstration projects and by transferring best practice lessons from one locale to another. And their financial and regulatory tools are indispensable for preventing territorial disparities in social services or "beggar thy neighbour" investment competition between localities. Linked directly to issues of local financing is accountability for monies transferred to community-based partnerships. A balance must be maintained between local responsiveness and autonomy, and sound reporting protocols for public funds transferred from above.

Community-based innovation remains everywhere a "work in progress." Fortunately, Canadian policy communities are now well positioned for just such work. There is much to be learned from European and American experiences, where local innovations have been pursued more systematically and for a longer period of time. These lessons, appropriately contextualized, can inform recently launched Canadian initiatives. The three levels of government and their community partners are currently collaborating in cities and regions across the country on various initiatives, ranging from urban development agreements to municipal green funds and strategies to combat homelessness. These are promising departures, worthy of careful study and further policy support.

Key Words: cities, communities, innovation, local economic development, public-private partnerships, urban governance, multi-level collaboration

Part 1. Community-Based Innovation in a Global Age[1]

The combination of economic, demographic, technological, and political change is cumulative, and will continue to impact the social order. No society encapsulates this transformation more than urban society. Cities are crucibles through which radical experiments become convention. They are concentrated environments in which people adapt and their resilience is tested. They are the world's incubators of innovation – made possible by critical mass, diversity, and rich interaction.

– Savitch and Kantor (2002: 3)

The range of recent urban innovations is impressive, including a massive expansion of education and research opportunities, a high concentration of "new economy" firms, economic development strategies to exploit historic and cultural assets, the regeneration of brownfields, long-term plans to improve urban infrastructures, "smart growth" policies to limit greenfield development, and integrative approaches to the problems of social distress.

– OECD (2002a: 20)

1.1 Introduction: Innovative Practices and Local Places

Two decades of economic restructuring, the globalization of competition, and rapid technological change have combined to create a world of great uncertainty and complexity. Not surprisingly, governments and citizens now place a premium on generating new knowledge to tackle unfamiliar problems. The need to replace inefficient, unsustainable practices with intelligent, responsible ones crosses organizational boundaries. Simply put, innovation – applying the best ideas in a timely fashion to emergent problems – is an urgent priority in the private, public and voluntary sectors.

Most obviously, firms competing in the global marketplace seek ways to bring higher quality, lower cost products to the marketplace before the competition. But today, the importance of innovation extends well beyond the economy and the workplace. Many of society's greatest challenges – from achieving ecological balance to creating meaningful employment for all citizens – equally demand new thinking, organizational creativity, and institutional adaptation.

Indeed, the concept of innovation itself remains contested (Bradford, 2002a; Torjman and Leviten-Reid, 2003a). Widespread agreement across policy communities on the general importance of change and adaptation is matched by the degree of controversy that emerges when it comes to specifics (see Box 1). Innovations lauded from an economic perspective for their contributions to growth are often rejected, or at least significantly qualified, by others who observe how the new production processes render certain skills obsolete, make working conditions more hazardous, or entail destruction of the physical environment.

It follows that today's challenge is to innovate in ways that promote simultaneous progress on economic, social, and environmental goals (Polèse and Stren, 2000). Innovating for sustainable urban development bridges social and economic divides while maintaining healthy physical environments. A recent study of the "urban renaissance" by the Organisation for Economic Co-operation and Development (OECD) states: "These are not separate and independent objectives, nor do they involve trade-offs, meaning that progress on one must be compromised in order to make progress on the other. Rather, they call attention to the interdependencies among the economic, social, and environmental aspects of cities" (OECD, 2002a: 17). As Canadian Industry Minister Allan Rock observed recently: "Innovation is about creating, but creativity cannot flourish in communities where we struggle to meet the basic needs of our citizens, like affordable housing, modern infrastructure, and clean air. Communities, he concluded, "are at the heart of the innovation agenda" (Rock, 2002: 3-4).

For these reasons, this Discussion Paper takes a broad view of what constitutes desirable innovation. It focuses on collaborative processes among diverse actors that produce integrative or holistic understandings of challenges and potential solutions. These processes can occur in fields other than the economic, and involve breakthroughs beyond the introduction of new products to the marketplace by firms. Indeed, progress resulting from such innovative practices may be monitored, over the longer term, along a variety of dimensions including: enhanced planning capacities in communities that balance the needs of the natural and built environments, greater participation in the knowledge-based economy for all citizens, and more robust democratic engagement through citizen involvement in electronic networks.

But what factors or processes make possible such integrated approaches to change? How are capacities built for innovating in sustainable ways? In response to these important questions, a growing body of Canadian and international policy research is now converging around four fundamental observations (Donald, 2001; Bradford, 2002b).

1. Sustainable forms of innovation depend on *collaboration* that taps the ideas of many people and engages the commitment of different organizations each with its own specialized expertise and responsibilities.

2. This type of collaboration requires *social learning processes* that continuously circulate ideas, share experiences, and transfer know-how. Through such networked relations all actors learn more and faster about the possibilities for constructive change.

3. These learning processes take their most dynamic form in *specific geographic settings*. Cities, with their population density, demographic diversity, organizational synergy and rich interaction, constitute the ideal setting for social learning, and thus for innovating in sustainable ways.

4. Innovative cities and regions are those places that organize themselves to make the most of their local assets. They demonstrate an *institutional capacity* to engage civic, business, social, and intellectual leaders in implementing strategies that enhance the quality of life for all members of the community.

This renewed attention to cities and local places is in some measure unexpected. Only a few years ago, conventional wisdom about globalization and the "new" economy predicted the death

of distance through the "locationless" effects of virtual communications and instantaneous transactions (O'Brien, 1992; Cairncross, 1997). However, even as the world becomes more integrated economically and culturally, scholars and analysts continue to track an increasing flow of people and commerce into cities and other communities that demonstrate some important urban characteristics (Gertler, 2001).

Underpinning this local revival is the strategic importance of social learning to all manner of innovation, from new technologies for business to new mechanisms for bridging cultural differences. More than virtual relations in cyberspace, such breakthroughs depend on repeated face-to-face contact as ongoing, in-person discussion builds trust and leads to a common understanding of viable solutions. In a globalized and wired world where formal, codified knowledge is readily available almost anywhere, it is the informal sharing of "tacit knowledge" that makes the difference in tackling multi-faceted problems (Holbrook and Wolfe, 2002; Storper, 1997). Personalized and repeated interactions among diverse knowledge holders, which are possible only in specific locales, can produce insights that add unique value to standardized processes or contractual relations (Sabel *et al.*, 2000).

Thus, ***learning communities*** are today's pivotal sites of innovation. They are the urban spaces, both large and small, that provide the right institutional base and cultural context for upgrading the economy *and* for improving quality of life and living standards for the population. Learning communities find ways to mobilize the collective wisdom of their local resources: businesses; educational and research institutes; trade unions; social movements; policy experts; government officials; and engaged citizens from all walks of life.

But learning communities do not just pop up anywhere. Geographic proximity can only set the stage for an innovation milieu. Progress follows in those cities and communities that build on the latent advantages of urbanization (Saxenian, 1994; Florida, 2002). Acquiring better knowledge of how such communities position themselves for success is thus a pressing concern for policy makers at all levels of government, from the local to the supra-national.

To that end, this Discussion Paper surveys the burgeoning cross-national case study literature that now exists on *community-based innovation*. The goal is to take stock of these diverse experiences about how local actors, in partnership with others, enhance their capacity for working towards broad-based sustainability, and to present the key findings about innovative cities and regions in a more systematic fashion than is presently available.

To achieve this goal, the paper is organized into three parts. The remainder of this section outlines the evolution of community-based innovation and explores the basic issues that are driving the "local turn" in governance and public policy. Seven fundamental building blocks for innovation are also identified. Finally, community-based innovation is explained in the context of social learning processes.

Box 1
Defining Innovation: Different Perspectives

The concept of innovation has been variously defined by public policy communities. For some analysts, innovation refers only to the technology activities of firms in developing new processes or bringing new products to market. For others, innovation is a broader concept, involving a diversity of actors experimenting with holistic approaches to change that integrate economic, social, and environmental challenges, and expressing a civic culture of creativity.

A sampling from leading analysts and organizations conveys the range of approaches to innovation, from the more narrowly technological to broader meanings:

The OECD and Eurostat (*Oslo Manual)*: *Technological product and process (TPP) innovations comprise implemented technologically new products and processes and significant technological improvements in products and processes. A TPP innovation has been implemented if it has been introduced on the market (product innovation) or used within a production process (process innovation). TPP innovations involve a series of scientific, technological, organisational, financial and commercial activities. The TPP innovating firm is one that has implemented technologically new or significantly improved products or processes during the period under review. The minimum entry is that the product or process should be new (or significantly improved) to the firm (it does not have to be new to the world) (OECD/Eurostat, 1997: 47).*

Canada's Innovation Strategy: *What does innovation mean? It means coming up with new ideas about how to do things better or faster. It is about making a product or offering a service that no one had thought of before. It is about putting new ideas to work in our businesses and industries and having a skilled work force that can use those new ideas. And it is about aggressively pursuing new markets for Canada's products and services. Innovation is not just the job of government or the private sector. Innovation is everybody's business (Government of Canada, 2002b: 3).*

The Canada25 Network: *[Canada needs] to think broadly about innovation across all sectors of society; social innovation to build a fair and equitable society; economic innovation to foster investment; policy innovation to solve the challenges of our demographic profile; and cultural innovation to strengthen our national pride.… If innovation is only conceived and communicated as science and technology policy, we will lose the interest and commitment of the many Canadians who undertake leading-edge work in other industries and sectors.… [Canada needs] "a culture of innovation": A culture where all Canadians feel empowered to constantly find new methods of addressing and improving upon the challenges they face in their particular sphere of life, whether that be scientific research, business, politics, community affairs of any other realm. It also means that Canadians must feel confident that their communities will respect, support and promote ingenuity in its many facets. In short we believe that Canada must strive to be a community of creative thinkers, one where new ideas and approaches are held in the highest regard (Canada25, 2003: 2-3).*

Collaborative Economics and US Economic Development Administration: *Technological innovation is a primary driver of economic development, regionally and nationally. However, success in business and in economic development requires innovation in areas beyond technology. This process represents the act of making purposeful, strategic changes that lead to greater value added and productivity, whether in business, education or government. Innovation includes (but is not limited to): technology, the creative application of new technologies developed elsewhere, more effective approaches to workforce development, new ways of relating within and across organizations, and thoughtful shaping of industrial infrastructure. It can lead to a series of incremental improvements that add up over time, and it can also result in rapid, radical change. It may involve the creation of a whole new way of doing things, or the creative adaptation of a model used elsewhere. Successful innovation brings together and integrates creative ideas from various realms of technology, workforce, and organizational development, from within and across organizations. Thus, a focus on technology alone is insufficient for competitiveness (Montana* et al.*, 2001: 7).*

Judith Maxwell, President, Canadian Policy Research Networks Inc.: *It is not a question of either the economic model or the social model of innovation. It is a question of both economic and social.… Innovation is, fundamentally, a social process that supports good science, strong productivity growth, and a more inclusive society (Maxwell, 2003: 16).*

Given this backdrop, the second and largest part of the paper carries these conceptual matters to a profiling of the innovation process in 11 cities in Canada, Europe and the United States. Our focus is on mid-sized cities and smaller communities that have gained some recognition or attention for their creative responses to today's challenges. Rather than rehearsing the by now rather familiar stories of the world's "high technology hot spots" or "global cities," our concern is to draw policy lessons from various "second tier" local places, less well studied but representative nonetheless of much contemporary urban experience and community dynamics. As the American-based Collaborative Economics research team explains:

> The capacity to innovate is not just for technology hot spots like Boston, Austin and Silicon Valley. It is relevant to any region that sees the importance of building the capacity for continuous reinvention, which is needed to keep pace in today's rapidly changing world. Since no community – rural or urban – is immune from the forces of the global economy, it is important to explore the different ways to build this capacity (Montana *et al.*, 2001: 9).

We have sorted the cases into three general categories reflecting the type of challenges they face – as rural or remote communities in need of revitalization, as industrial cities in need of renewal, or as geographically dispersed regions seeking to build a cohesive knowledge cluster.

The third and final part of the paper draws together the conceptual discussion in Part 1 and what has been learned from the case studies in Part 2. The analysis points to similarities and differences across space, and brings into focus the factors contributing to successful innovation in different types of places. The paper concludes by identifying the key policy lessons to help chart the way forward.

1.2 Community-Based Innovation: Towards a New Paradigm

All the attention now being paid to local places and learning communities reflects a growing recognition of the significant limits to "urban visions" embedded in the postwar era's dominant policy paradigms of first Keynesian welfarism and then neo-liberalism (Bradford, 2002b). As numerous studies have shown, governments adopting these paradigms in Canada, and more generally across the OECD, failed to appreciate fully either the potential for local actors to innovate, or their own policy role in facilitating such community-based action (Sabel, 2001; Jenson, 2001; Magnusson, 1996). Both Keynesianism and neo-liberalism, for all their other substantive differences, converged in a preference for centralized policy development and top-down policy implementation. Federal and provincial governments in Canada have generally combined rigid programming in departmental silos with reliance on unilateral policy shifts that more often than not left municipal officials scrambling to meet new mandates, or take up entirely new responsibilities (Lidstone, 2001; Seigel 2002).

Indeed, one close observer of relations between upper level governments and Canadian municipalities recently encapsulated decades of interaction in terms of the "shame" in "ignoring the cities" (Andrew, 2001: 100). For its part, the Federation of Canadian Municipalities continues to lament "the culture of non-recognition and neglect" city representatives encounter in their many dealings with federal and provincial officials (Federation of Canadian Municipalities,

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2001a). Charles Sabel and Rory O'Donnell usefully captured the essential dynamic prevailing across the Keynesian and neo-liberal eras in the OECD: "Viewed from the local problem-solving units, the central government seems indispensable as an ally in the consolidation of nascent innovations, but capriciously unreliable as an ally in its ignorance of local circumstance and its own potential to foster development" (Sabel and O'Donnell, 2001: 67)

Yet, there is now mounting evidence in Canada that these attitudes and practices are beginning to change. A host of policy actors, ranging from banks to research institutes and political parties, are drawing new connections between seemingly intractable national problems – for example, declining economic productivity or growing income inequality – and the absence of problem solving capacity in our cities (Prime Minister's Caucus Task Force on Urban Issues, 2002; TD Economics, 2002; Vander Ploeg, 2002).   As the TD Economics study *A Choice Between Investing in Canada's Cities or Disinvesting in Canada's Future* concluded: "it is becoming overwhelmingly apparent that the long-term performance of the Canadian economy and Canadian living standards will hinge on the fortunes of our cities … *however, Canada's cities face certain threats that, if left untended, could choke off economic expansion and gains in living standards down the road"* (TD Economics, 2002: 4, 9, emphasis in original).

The connecting of persistent macro-level problems to the absence of micro-level resources reflects, in turn, growing awareness of what the public policy literature describes as *wicked problems* (Paquet, 1999).   With their inherent complexity, these problems are resistant to traditional monosectoral interventions designed and delivered from above by insulated federal or even provincial bureaucracies. As Gilles Paquet and others emphasize, wicked problems are characterized by *critical information gaps* about what precisely is required to help, and *large coordination failures* in terms of channeling the appropriate resources to the right target (Sabel, 2001). As such, they demand "place sensitive" modes of policy intervention and programming: that is, strategies constructed with local knowledge informed by the particular circumstances on the ground, and delivered through multisectoral, horizontal networks crossing functional boundaries or program silos (Clutterbuck and Novick, 2002; Jenson and Mahon, 2002).

Significantly, more and more policy problems seem to be characterized by just such wicked features. For example, federal labour market training programs that fail to take into account the potential barriers to participation when communities cannot supply adequate child care or public transit are likely to produce sub-optimal results, as they exclude some of the most important potential users (Dreier, Mollenkopf, and Swanstrom, 2001: 60-61). By a similar logic, provincial policy for environmental protection can be undermined by municipal development plans that sprawl into farmlands and greenspace and increase the need for private automobile commuting (Slack, 2002).   And national immigration policy, cut off from full understanding of the settlement and adjustment challenges for newcomers in their local communities, is a recipe for trouble (Papillon, 2002).

In each of these matters, the overarching message is clear: it is often in cities that today's increasingly wicked problems are most visible and, further, it is only by engaging local actors themselves that durable and legitimate solutions can be found. Sustainable innovations flow from networked relations that include a broad cross-section of state and societal actors in learning what works in a particular place and how to make it happen. Moreover, creative policy

synergies in problem solving emerge locally: a more compact urban form not only facilitates the frequent face-to-face interactions that drive economic innovation, but it also helps reduce the "spatial mismatch" between people and training or jobs, while simultaneously helping to preserve greenspace and air quality.

These new understandings provide the foundations for an emerging policy paradigm of community-based innovation. In capturing problem interdependence and local policy intelligence, this paradigm transcends the key "urban blindspots" of Keynesian welfarism and neo-liberalism. A double shift is envisioned in relation to the established policy architecture: (1) a decentralization or devolution of policy capacity downward from the central state, and (2) an outward flow of authority at the local level from government to private and third sector actors (Cooke and Morgan, 1998: 23). New networks of "associative governance" are constructed where representatives learn the skills of social partnership and collaborative problem solving (Bradford, 1998). Planning theorist Patsy Healey outlines the case:

> Collaborative efforts in defining and developing policy agendas and strategic approaches to collective concerns about shared spaces among the members of political communities serve to build up *social, intellectual, and political capital* which becomes a new institutional resource. It generates a cultural community of its own, which enables future issues to be discussed more effectively, and provides channels through which all kinds of other issues such as recognition of the adverse social consequences of new economic tendencies, or knowledge about economic opportunities, or ways to reduce behaviours which are harming biospheric sustainability, may be more rapidly understood and acted upon. In this way, such a collaborative cultural community focused on the governance of local environments should also help to recreate a public realm (Healey, 1997: 311, emphasis in original).

It is critically important to underscore that if the community-based paradigm is to generate sustainable innovations, or to recreate the public realm as Healey envisions, the process *must not involve* the "hollowing out" or dismantling of national state capacity (Jessop, 1997; Swyngedouw, 1997). The community-based paradigm involves much more than a simple recycling of older forms of "municipal boosterism" that celebrated narrow business-government alliances in the single-minded pursuit of the fastest possible property development (Magnusson and Sancton, 1983). Equally, it is different from the popular form of public-private partnership known as "3Ps," that often amount to little more than the sale or transfer of public services and infrastructure to the private sector in the service of government downsizing or cost reduction (Bradford, 2003).

Unlike either of these decentralizing and localizing forms, the community-based innovation paradigm stresses that upper level governments remain active and engaged in joint problem solving, albeit in new ways that better balance their "nationwide aspatial policies" with interventions strategically targeted to local places (Séguin and Divay, 2002; Sancton, 2002). The process is one of vertical collaboration across levels of government. In the words of the OECD: "National policies are increasingly important, not only to provide better framework conditions for local initiatives, but also and especially to take better account of the many sectoral and macroeconomic policies and instruments which have a territorial impact" (OECD, 2002a: 21).

Such *multi-level governance* allocates roles and responsibilities in relation to the comparative advantage of each government in contributing to community-based innovation. Municipalities are best able to convene the actors for partnerships, to undertake land use and development planning for inclusive urban and metropolitan spaces, and to work with other local authorities – school boards, band councils, social service agencies, and so on – to secure upper level policy support and ensure its fit with local conditions (Torjman and Leviten-Reid, 2003b). In contrast, provincial, federal and supranational governments are all variously equipped to supply resources to local actors for building the infrastructure and relationships of the learning community (Jenson and Mahon, 2002). Their financial and regulatory tools are indispensable for preventing territorial disparities in social services or "beggar thy neighbour" investment competition between localities. They can also facilitate inter-local sharing of experiences by sponsoring the "scaling-up" of community demonstration projects and by transferring best practice lessons from one locale to another.

Of course, this community-based approach, with its emphasis on local capacity building and collaborative relations across governments, is still some distance from actual policy practice in Canada (Clutterbuck and Novick, 2002). Indeed, the same policy analysts who now routinely connect the persistence of macro-level problems to the absence of micro-level capacities also lament a decade of fiscal offloading, program downloading, and heavy-handed amalgamations. They recognize that these measures, whatever their other merits, have effectively stretched local resources to the breaking point, and left municipalities in no position to invest in the social learning processes that drive innovation.

Yet, the status quo is being questioned: a search is underway for a public policy framework beyond the established top-down monosectoral paradigms. As the federal government's Innovation Strategy declares:

> Communities and regions across Canada use their knowledge resources to create economic value, and it is in communities that the elements of the national innovation system come together.… Communities can become magnets for investment and growth by creating a critical mass of entrepreneurship and innovative capabilities. By coordinating efforts, federal, provincial/territorial and municipal governments can work with the private, academic and voluntary sectors to build local capacity and unleash the full potential of communities across the country (Government of Canada, 2002a).

Here, Canadian policy communities join an already vibrant international policy discussion and evolving set of practices. As a recent cross-national review summarized: "Overall local development is a very dynamic field and a very large stock of experience and knowledge has been built up at the local level in recent years" (OECD, 1999: 45). Based on this experience we can ask, what general lessons have been learned about moving forward with community-based innovation? The following section begins to answer this question by describing the fundamental building blocks that are needed for successful community-based innovation.

1.3 The Building Blocks of Community-Based Innovation

The overarching message from the literature on community-based innovation is that there exists no single model or cookie cutter approach to making change (Clarke and Gaile, 1998). While all local places are subject to the same broad global pressures, the precise mix of constraints and opportunities varies greatly (Savitch and Kantor, 2002; Sellars, 2002).

Economic structures, demographic patterns, the previous history of development efforts, the strength of community leadership, and the nature of intergovernmental relations all contribute to significant variation. Large cities, for example, face particular challenges of rapid population growth, geographic sprawl, and cultural integration. Conversely, many medium- and smaller-sized cities experience a net out migration of population. They must retain and attract talent to strengthen and diversify the local knowledge base. In remote communities, the opportunities are different still. Residents can develop ideas for diversifying traditional economies by taking full advantage of the associative bonds and trust relations that often characterize such isolated places.

Drawing from the work of a number of researchers, seven key building blocks seem to be central to the successful incubation of community-based innovation processes. These are: (1) local champions, (2) institutional intermediaries, (3) equitable participation, (4) a civic culture of creativity, (5) adequate financial and technical resources, (6) accountability, and (7) indicators to benchmark progress. Each of these is described in more detail below.

First, there is the recruitment of *local champions* who initiate the process and drive it forward. Such champions are characterized by their detailed familiarity with local conditions and their ability to cross different networks to forge links where none may previously have existed. In studies of local partnerships, these actors have been termed "strategic brokers" who work at the "borderlands" between organizations and sectors to find ways to construct new narratives to make sense of evolving conditions and possibilities for change (Larner and Craig, 2002: 21; Harrison and Weiss, 1998: 7).

Second, there is the formation of *institutional intermediaries* who help manage and sustain the local partnerships in two principal ways. On the one hand, they provide a base for internal integration, overseeing planning, resource allocation, technical guidance and evaluation of projects. On the other hand, they provide a channel for external representation of the local networks, by operating in extra-local networks that supply vital resources. Effective institutional intermediation draws down sufficient resources for local projects to succeed while ensuring that they do not become mere pipelines for priorities set elsewhere (Geddes, 2000).

Third, is the need for *equitable participation* within local partnerships and with associative governance. This issue cuts in two directions, asking about the scope of interests represented, and about the capacity of the various constituencies to make their voices heard. The legitimacy of the partnership projects can be directly affected by how such questions are handled. The literature points to a particular risk in the form of business dominance in local partnerships and a corresponding marginalization of community voices (Moss Kanter, 2000: 179). The result may be innovation processes revolving around an economic competitiveness agenda delinked from broader considerations of equity or ecology (Forrant *et al.*, 2001)

Fourth, a *civic culture of creativity* is a crucial backdrop for all manner of innovation. A culture of creativity not only stimulates new thinking, but facilitates sharing of ideas and experiences among people who work in different sectors, whether they be business, education, scientific research, social services, or ecology. Emphasis is placed on risk-taking and experimentation. A culture supportive of innovation treats failure as a learning opportunity not a lost endpoint. Local places nurturing such creative cultures welcome change and are not "trapped by their past" (Florida, 2002: 303). As Richard Florida has found, those communities that are most tolerant, that is, open to diversity of all kinds, are also today's growth poles of talent and technology.

Fifth, *adequate financial and technical resources* are required to support and sustain local partnerships. Beyond the obvious need to adequately fund the implementation (and evaluation) of projects, investments must be made in the partnership process itself; institutions and networks require some degree of professional administration and some partners will require capacity-building assistance if they are to fully participate. Notably, this assistance applies to civil servants as well, who may be in need of some form of training to operate effectively in an unfamiliar context (Paquet, 1999).

Sixth, there is the fundamental issue of *accountability* for public expenditures and policy outcomes in local partnerships. Certainly, the intricacies of power sharing between public and private sectors and across scales of government make accountability more challenging than conventional line department financial reporting inside watertight jurisdictions or even traditional parliamentary accountability through ministerial reporting to the legislature and the people. Depending on their particular structure and financing, local partnerships may be accountable to the constituencies of represented groups, to multiple project funders crossing public and private sectors, to different governments, and of course to citizens and taxpayers more generally. Traditional notions of the public interest and the government's ultimate responsibility need to be integrated fully into the new power sharing frameworks (Pal, 2001: 261-264).

Finally, there is the question of *assessing progress* in community-based innovation. The existing literature acknowledges the difficulty of generating quantifiable measures of success. A recent report on "innovative local economic development" cases prepared for the US Department of Commerce noted that the long time horizon of innovation processes and the relative absence of community-level data meant that "any attempt to 'tally' the final cases and to make numeric comparisons among different types of experiences would be highly misleading" (Youtie *et al.*, 1999: 7). As such, their goal was to "describe a variety of cutting-edge and innovative practices". Similarly, research reported by the Caledon Institute of Social Policy concluded that success could in part be "determined by whether the effort has been able to create networks and structures that can be sustained over time to tackle complex problems" (Torjman and Leviten-Reid, 2003a: 25). And the Canadian government's Innovation Strategy recommends that communities can "live up to their innovative potential" by engaging processes of "community network building, capacity building, and the provision of tools and resources for community-based strategic planning" (Government of Canada, 2002b). In these terms, benchmarking tools have been developed by a few communities for assessing their progress. For example, in British Columbia, the City of Nelson's "Economic and Social Progress Indicators" tracks progress in a holistic fashion, monitoring four key dimensions: economic indicators; social indicators; community strength indicators; and stress in the community indicators (City of Nelson, 2001). But more still needs to be done.

Finding these seven building blocks in any city or community that is attempting renewal or revitalization is far from guaranteed. Yet creating and maintaining local partnerships that employ multi-level governance is essential to the horizontal and vertical collaboration needed to support social learning, and upon which innovation depends. The next section of this paper describes three social learning dynamics that are most relevant to community-based innovation.

1.4 Community-Based Innovation as a Social Learning Process

With its mix of challenges and opportunities, community-based innovation can usefully be understood as an ambitious and extended social learning process. For purposes of this analysis, there are three discrete but interrelated learning dynamics to consider in community-based innovation: civic learning, administrative learning, and policy learning.

Civic Learning applies to the societal actors and their capacity for, and commitment to, collaborative processes. To what extent will organizations in civil society at the community level define common goals and discover the terms for mutually beneficial action? Civic learning is evident when organizations come to value equity, diversity and interdependence. As Frank Gaffikin and Mike Morrissey have elaborated: *equity* refers to the fair distribution of resources; *diversity* to the acceptance that "difference can contribute as much to social relationships as commonality"; and *interdependence* to the recognition that "although people are different, they still rely on one another to deal with common problems" and that, without such collaboration, all will be worse off (Gaffikin and Morrissey, 2000: 197).

Administrative Learning is equally important since the emphasis on a reinvigorated civil society and strategic local spaces does not entail less engaged government. Governments need to find the right incentives and supports to animate learning processes. Their contributions are vital: ensuring balanced representation of societal interests, addressing systemic differences in the capacity to participate, convening and organizing meetings, establishing protocols for monitoring progress, and maintaining the focus and commitment of social partners especially through the hard times when the temptation to exit the collaborative process is strongest. Like their civil society partners, administrators must learn new skills for building relationships, seeking consensus, assessing risk, and measuring performance. Hierarchical approaches that presume an in-house monopoly on policy expertise must be rethought. Command and control interventions, for the most part, must be set aside, or at least flanked by facilitative tools appropriate to a public sector now repositioned as a partner in a collective order of associative governance. "Street-level bureaucrats" must be empowered to work creatively with community-based partners.

Policy Learning is the culmination of successful civic and administrative learning. Feedback between planning and action in associative governance drives the policy agenda. New goals respond to diverse inputs, including the practical wisdom of engaged citizens, the experience of representative organizations, and the insights reported by street-level bureaucrats.

There are several important additional points to make about the social learning perspective on community-based innovation. First, as many governance scholars note, this approach conceptualizes power in a particular way (Stone, 1989; Pierre and Peters, 2000). Aware of the great imbalance in the resources commanded by different actors recognized as social partners (allowing the unilateral exercise of power by some over others), this approach still sees in relational networks the possibility for positive-sum outcomes. By bringing business, labour, educational, political, and community representatives to the same table, the social learning perspective conveys the idea of *the power to reach consensus through deliberation* (Piore, 1995). Mutual recognition is possible, and mutual respect across sectoral divides can grow, given a degree of trust and a commitment to ongoing dialogue. Conflict and dispute are endemic to the process but, from the social learning perspective, they are viewed as creative or developmental – turning points in relationships that trigger the search for more and better understanding of difference. Indeed, crises are part of social learning. Properly handled, they bring new parties to the table or, indeed, establish a table where none formerly existed.

The second summary point to be made about the social learning perspective is its attention to the role of Information and Communications Technologies (ICTs) in *enabling communities to innovate* (Horrigan, 2001). As we have seen, research now demonstrates that face-to-face interactions are the essential foundation for effective learning and innovative activity in the knowledge-intensive age. But the Internet and World Wide Web can complement or supplement these personalized relations in a variety of contexts by strengthening multi-stakeholder networks through better information sharing, more inclusive participation, and efficient project management (Gurstein, 2000: 14-18). Realizing the full potential of on-line services to enhance social learning in cities and regions, of course, requires the widest possible "connectivity." Appropriate investments in ICT hardware (bandwidth, public access centers, etc.) and software (training, mentoring, etc.) prevent "digital divides" that exclude some citizens or places (OECD, 2001b).

Third, the social learning perspective places great emphasis on *paying attention to what's happening elsewhere*. Monitoring external developments, both best practice pace-setters and more ambiguous experiments or even failures, are integral to the learning process in each of its civic, administrative, and policy dimensions (Policy Link, 2000). The process is twofold, beginning with an understanding of the essential dynamics of change in other places, and followed by careful assessment about which aspects could be transposed to the local setting, and with what manner of adaptation.

This Discussion Paper inventories a range of projects in cities from Canada, the United States and Europe. Certainly, the cases are not all models of international best practice or unqualified success stories. The profiles reveal a range of learning dynamics, all of them, in some measure, *driven from below* by civic actors and *enabled from above* by national, regional, and supranational public policy. Taken as a whole, they point to an emerging policy and governance paradigm in which central coordination and community action join together to support local experiments and to refine national economic, social, and environmental policies in light of local experiences.

Part 2. Case Studies of Community-Based Innovation

This part of the Discussion Paper presents 11 examples of innovation, which have been drawn from the experiences of cities in Canada, the United States, and Europe. The cases have been clustered according to the type of challenge these communities face: (1) as rural or remote communities in need of revitalization, (2) as industrial cities in need of renewal, or (3) as more geographically dispersed regions seeking to build a cohesive knowledge cluster (See Table 1). Within each of the three sections, individual cases are presented in the following way: background information is provided and the city's main achievements are introduced; next, the key actors are briefly profiled; and the innovation process is then described in detail, after which the role of government is highlighted. This second part of the Discussion Paper concludes with a summary table encapsulating the key dynamics of development and innovation in the different cities and regions.

Table 1. **Case Selection**		
Innovation Challenge	**City/Region**	**Major Initiative**
Revitalizing Rural and Remote Communities	Kelowna	Expanding fruit and wine cluster
	Meadville	Brownfields redevelopment and broadband access
	North Jutland	Telecommunications cluster adaptation
	Beauce	Linking traditional industries to proximate metropolitan cluster
Renewing Industrial Cities	Bilbao	Reinventing city through global cultural cluster
	Halifax	Integrated economic development planning for amalgamated municipalities
	Dublin	Local social partnerships to tackle spatially concentrated poverty
	Pittsburgh	Civic alliances to lead transformation from steel to software economy
Building Knowledge-Intensive Regions	Kitchener-Waterloo	Regional governance for high technology clusters and poverty reduction
	Saskatoon	Agri-science clusters and accessible housing and labour markets
	Portland	Sustainable urban and regional development

2.1 Revitalizing Rural and Remote Communities

This section profiles innovation processes in smaller cities and communities, often geographically distant from metropolitan centres and isolated from the economic mainstream. In such places, innovation challenges typically feature the need to diversify traditional economic bases, while also reversing negative demographic flows to sustain a critical mass of local knowledge workers and entrepreneurial talent. The cases examined are: Kelowna, British Columbia; Meadville, Pennsylvania; North Jutland, Demark; and the Beauce, Quebec.

Growing the Silicon Vineyard: Kelowna, British Columbia

Background and Main Achievements

Kelowna is located in the Okanagan Valley, a distinct economic sub-region of British Columbia about 400 km from Vancouver, with a population of 147,739. Kelowna is the largest city in the Okanagan Valley and its economic hub. It is also one of the fastest growing cities in Canada. The population has increased 50 percent over the last 10 years and the population is expected to increase by at least 30 percent over the next decade. The Okanagan Valley's main economic activities are agricultural (fruit and wine), wood products, and tourism. The last 20 years have brought rapid growth in tourism, high technology, and business services. Most businesses in the region are classified as small with nearly 90 percent having less than 20 employees and only 19 firms having more than 200 employees.

Actors and organizations in Kelowna in the last decade have mobilized around the goal of transforming a traditional, resource-based economy to a knowledge-based one featuring a cluster strategy focused on wineries and tourism, branded as the "Silicon Vineyard." Making innovative use of the region's rich natural resources and physical attractiveness, community-based networks, anchored in regional business associations and the education sector, have forged partnerships with government agencies beyond the locality, especially in regards to meeting the research and development and skills training needs of the firms participating in the cluster. Kelowna's success in making the most of the assets available to a smaller somewhat remote city has recently been recognized in two international surveys. In a KPMG study comparing business costs in North America, Europe and Japan, Kelowna ranked as the lowest-cost city in which to do business in North America. In terms of most affordable places to live, Kelowna was ranked fifth out of 302 North American cities by the American Chamber of Commerce.

Table 2.
Growing the Silicon Vineyard

Key Actors	Description
Okanagan University College (OUC) http://www.ouc.bc.ca	This institution is a degree-granting education institution with five campuses throughout the region and over 7,000 students. The OUC's Technology Access Center provides support for technology entrepreneurs and promotes the transfer to industry of the college's technological innovations. The OUC also partners with federal, provincial and municipal governments on various initiatives related to technology innovation and training, and research in the agriculture and life sciences.
National Research Council of Canada (NRC) http://www.nrc.cnrc.gc.ca	This agency maintains an active presence in the region via its Industrial Research Assistance Program (IRAP) focused on helping small- and medium-sized high technology companies, its research facilities, including the Dominion Radio Astrophysical Observatory (DRAO) and Pacific Agri-Food Research Centre (PARC), and most recently, its agreement with the OUC to establish the Okanagan Innovation Forum.
Economic Development Commission of the Central Okanagan http://www.edccord.com/	This local business association and network defines its mission as that of a catalyst and enabler of growth; it aims to strike a balance between business and community concerns, and between attracting outside investment and growing business from within. It also sees itself as a unifying voice for business across the region, performing a representational function in relations with all levels of government.
Okanagan High Technology Council http://www.edccord.com/economic/ sec_high.htm	The council is an offshoot of the Economic Development Commission. It is a regional forum wherein business and community leaders from industry, government, academia and other agencies focus on common strategies for promoting high technology in the region.
Silicon Vineyard http://www.silicon-vineyard.com	A virtual network that connects the region's estimated 307 high technology establishments, and a regional brand invented for global marketing of the rapidly growing wine cluster that now has 80 wineries producing 22 million litres of wine every year.
Science Council of BC-Okanagan http://www.ostec.ca	This provincial government agency was formed in 1993 to address economic development, employment, and science and technology concerns, and to improve the region's awareness of, and access to, provincial programs and services.
Okanagan Venture Capital Fund http://www.OkanaganCapitalFund.com	This $5 million provincial Venture Capital Corporation was established in 2002. It is the first venture capital fund targeted to high growth, export-oriented technology firms in the Okanagan region. The fund's governance structure includes local participation and community input through a Community Advisory Board.

The Innovation Process

There are two underlying factors frequently mentioned as key to the innovation process in Kelowna and the Okanagan region. Fundamental is a sense of isolation from the economic and political centres of the province and the country. Related to this isolation, has been the view generally held by the region's leadership that the traditional public policy measures of federal and provincial governments have not been particularly helpful, or relevant, to the region's development aspirations (Holbrook, Hughes, and Finch, 1999).

With perceptions of geographic isolation and ill-suited public policy looming large, local mobilizations have been the critical drivers of change. As one study put it: "Networks formed a significantly higher source of innovative ideas in the Okanagan, possibly reflecting the relative isolation of the region" (Holbrook, Hughes, and Finch, 1999: 9).

Here, the Economic Development Commission of the Central Okanagan has played a leadership role, coordinating initiatives and strategies. It has developed a Strategic Plan for the region, setting a five-year growth target of 20 percent (Economic Development Commission of the Central Okanagan, 2002). The plan seeks balanced economic development combining outside investment attraction and local business retention, evident, for example, when a major manufacturing enterprise left Kelowna and the commission worked closely with local supplier firms to assess core competencies and help them adjust.

In regard to outside investors, the commission's focus is on expanding the high technology cluster of the Silicon Vineyard, marketing the region's natural assets, quality of life amenities, growing research infrastructure for innovative firms, and its own menu of business services that offer ongoing support to resident firms. In implementing the plan, the commission also plays an important role through its data generation, information dissemination, and networking capacity. It supplies comprehensive region-wide information on economic sectors, the labour force, the labour market, and on population flows, as well as disaggregated profiles of the individual cities and towns. The commission has also been active in many of the region's development projects, including formation of the *Silicon Vineyard*, implementation of a broadband strategy, gaining full university status for Okanagan University College (OUC), and formalizing the research partnership between the OUC and the National Research Council. It also serves as an information clearinghouse for government programs and private investment funds.

A second key local catalyst for innovation in the Kelowna area in the last decade or so has been the Okanagan office of the Science Council of BC. It offers networking opportunities to connect firms and researchers in emerging regional sectors such as information technology, wine production, and grape growing (Science Council of BC-Okanagan, 1999). Through the council, a local winemaker received nearly $80,000 in funding for a two-year collaborative applied research project for increasing grape flavour, aroma and colour. The council assisted in the creation of a local research team based at the Pacific Agriculture and Agri-Food Research Centre. The findings from the project generated significant new data for producing high quality grapes, knowledge directly relevant to the cluster, but also judged to be of wider relevance to the global industry, thus enhancing the reputation of the Silicon Vineyard as a world-class wine-producing region.

Beyond the wine cluster, the council has been active in the high technology sector. It organized a "Software CEOs' Roundtable" composed of leaders from 22 companies. In 1999, the roundtable addressed emerging labour market needs, determining that the sector would need a 40 percent growth in their labour force. The roundtable became a mechanism for establishing priorities in relation to the skills shortage, and for joint recruitment and training. The Science Council was the catalyst for the Okanagan Venture Network Association, a regular forum for both new and established companies to share experiences and obtain information that can help them grow. This association provided a local base of expertise and contacts when the $5 million Okanagan Venture Capital Fund was launched in 2002 by the provincial government to meet the regional industry's financing needs in a more sustained and systematic fashion.

The Science Council also partnered with the Economic Development Commission of the Central Okanagan in two projects. First, they jointly sponsored a 1997 research report, "A Vision for Growth: High Technology Industries in the Central Okanagan." One outcome of the report was to approach the federal government for funding a full-time high technology coordinator, based at the Economic Development Commission, to oversee implementation. In 1998, this position was created. Second, they collaborated on production and electronic distribution of the *Okanagan High Tech News*, another vehicle for information sharing and networking.

One of the strengths of the local process in Kelowna and the Okanagan has been awareness among key actors of the need for coordination across the many new initiatives underway. As the high technology coordinator hired in 1998 at the Economic Development Commission put it: "When I saw what the Science Council of BC-Okanagan, NRC-IRAP and the Technology Access Centre at Okanagan University College were already doing in this regard, I realized that we had common goals and should work together. The other three agreed" (Science Council of BC-Okanagan, 1999). Playing an integrative role has been the Okanagan High Technology Council (OHTC), an industry association with external ties to the Vancouver-based BC Technology Industries Association. The OHTC has a number of "top level" working groups on large-scale, region-wide projects such as expanding computer science facilities and training, and, in partnership with the OUC's Technology Access Centre, surveying existing research and development and telecommunications facilities in the region to determine gaps and ways to fill them. The OHTC also has a working group responsible for representing the interests and needs of the industry to governments. Local actors described a constructive division of labour between the OHTC and the other bodies: the OHTC focused on external representation of local industry need and government advocacy, whereas the Economic Development Commission and the Science Council concentrated more on the role of catalysts and facilitators of specific innovation enhancing projects.

Most recently, these local actors have formally tapped into innovation enhancing resources at the national level and established a focal point for local, regional, and national initiatives (OUC Journal, 2001). The 2001 agreement between the Okanagan University College and the National Research Council of Canada established the Okanagan Innovation Forum, co-chaired by two prominent high technology leaders. The forum is mandated to follow up on the February 2001 Okanagan Innovation Roundtable in Kelowna that drew more than 200 people from industry, technology, education, and government throughout the region. Much of the activity will be centered on the Technology Action Centre at Okanagan University College. This centre already houses a network of knowledge generators that includes the College's Research Services and

Technology Transfer offices, the Science Council of BC-Okanagan, the National Research Council's Industrial Research Assistance Program (NRC-IRAP) and several companies involved with the college in collaborative and research-based projects.

The Okanagan Innovation Forum presents a good example of organizational learning across communities, facilitated by a national institution (Okanagan University College, 2001). In this case, the NRC is bringing to the Okanagan an approach to nurturing and sustaining local clusters that has proven successful in other areas such as Ottawa, Saskatoon and Montreal.

Role of Government

Research from the Centre for Policy Research on Science and Technology into innovation dynamics in Kelowna and the Okanagan have pointed to the generally unfavourable view of government and its policies. As the authors of a report surveying attitudes in the mid 1990s summarized: "The simple fact that government programs are much more negatively regarded in the hinterland suggests an immediate need to improve existing program delivery and a need to develop new programs specifically designed to benefit firms that do not have adequate access to the complete knowledge economy infrastructure available in metropolitan areas" (Holbrook, Hughes, and Finch, 1999: 13). However, it may be reasonable to conclude that the role of government is evolving along a more productive and responsive path in relation to the needs of this region. The initiatives catalogued above, for example the federal NRC agreement and the provincial Science Council's highly localized relationship building in the community, suggest governments are learning. They are pursuing more customized programming and locally embedded services that build on, and work with, community assets.

Broadband and Beyond: Meadville, Pennsylvania

Background and Main Achievements

Meadville is a small, rural city with a population of 13,685, located in Crawford County in northwestern Pennsylvania. Only 30 years ago the City of Meadville and surrounding region had a total labour force of 35,000 and several large scale employers. However, a downward economic spiral in the 1970s and 1980s, brought widespread plant closings and empty commercial and retail storefronts. Most traumatic for the community was the closure of Meadville's largest employer, Avtex Fibers, that at its peak employed 3,500 workers. By 1986, this giant acetate yarn manufacturing facility on the city's outskirts lay vacant and unusable due to contaminants.

Despite these travails, in the 1990s Meadville witnessed the mobilization of a wide cross-section of community actors and resources to turn around the declining economic base. Galvanized by crisis, local champions emerged to build a knowledge infrastructure for the city and region appropriate to the changing economic times. Central elements were an ICT strategy for community Internet access, as well as formation of a business park and training centre on the site of the abandoned Avtex Fibers factory. The city has gained statewide recognition as a pioneer in brownfield redevelopment. Meadville also demonstrates the synergies of community-based innovation as further partnerships were forged around the new business park with the local

university to incorporate ecological considerations into the economic restructuring. This initiative also earned outside recognition for its focus on holistic redevelopment.

Table 3. **Broadband and Beyond**	
Key Actors	**Description**
Joseph D. Furno http://www.gremlan.org/history/html	A Meadville lawyer and public official who emerged as a local champion, coalescing a variety of community players behind a strategic plan to supply broadband access to bring Meadville into the information age and knowledge economy.
Crawford County Development Corporation (CCDC) http://www.maic-redi.com/teamp.shtml	An agency owning or controlling much of the industrial land and commercial space in the Greater Meadville area, it became the anchor institution in a network of public agencies and non-profit corporations working to reverse the region's economic slide.
Crawford County Regional Alliance (CCRA) http://www2.sis.pitt.edu/~etia2/case_studies/profiles/school/crawford.html	An alliance spun-off from the CCDC to oversee further development of the region's telecommunications infrastructure. The alliance's Mission Statement emphasizes the fostering of public-private partnerships to determine community and business needs, and find the resources for implementation of projects that address the "digital divide." These projects involve upgrading the technology skills of workers and the aspirations of local business to use e-commerce to reach the global marketplace.
Local governments http://www.gremlan.org/townsquare/government/meadville/index.html	These bodies, principally the City of Meadville, two surrounding townships, and Crawford County, were instrumental in the implementation of the technology strategy.
Federal and state governments http://www.state.pa.us	Extra-local economic development programming provided financial, organizational, and technical resources for industrial conversion and technology infrastructure, and state recognition helped sustain local efforts.
Allegheny College http://ceed.alleg.edu/CEED/CEED Home.html	The college's Center for Economic and Environmental Development undertook community outreach with local authorities to include sustainability in the economic development and industrial reconversion plans.

The Innovation Process

Meadville's innovations emerged through the alliance of two initially unrelated local mobilizations in the 1990s (Thriving Hometown Network, 2002; Kavanaugh, 1995). Both responded to the problems facing the community in the wake of the closure of its long-standing major industry and employer, the Avtex fibre plant. Each project aimed to reposition the small city for opportunity in the knowledge-based economy. Local champion Joseph A. Furno, whose vision was to build an interactive local area network for Meadville, spearheaded the first initiative. Furno put together a coalition of supporters including three local governments (each of which contributed $10,000), the local cable and telephone companies (which assisted with financing and design issues), and a task force of volunteers overseeing implementation of a community electronic bulletin board. The bulletin board began by providing a single window on a host of locally-based institutions and services, including those from local government, the local

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health centre, the library, and other services available in the city and region. Local businesses also expressed interest in potential e-commerce applications. Operational in 1991, Meadville was one of the pacesetters in providing local dial-up Internet for residents in less populated locales.

At the same time that the broadband initiative was coming on stream, the Crawford County Development Corporation purchased the abandoned 100-acre Avtex site and announced a plan to regenerate it as the Crawford County Industrial Park (Regional Conference & Training Center, 2002). In partnership with the Redevelopment Authority of the City of Meadville and with funds from the state government, steps were taken to address contamination problems, renovate the buildings, and convert them for multi-tenant occupancy by small- and medium-sized businesses. As this site preparation work progressed, officials realized that the physical overhaul of the site was only one part of a larger innovation that could help secure the region's economic future. A critical ingredient was to ensure that the industrial park's infrastructure was at the cutting edge for meeting the needs of firms and their workers. At a minimum, the Park would have to be fully wired and networked, and it would also be desirable to have knowledge-intensive, high technology firms among its tenants. To this end, the CCDC decided to place a multi-media technology facility in a three-story building at the centre of the industrial park to serve as a hub for virtual and face-to-face interaction.

To realize this ambition, the CCDC, in 1997, launched a non-profit entity, the Crawford County Regional Alliance (CCRA), with a mandate to plan the development and implementation of the Industrial Park's technology capacity. As one of its first priorities, the CCRA arranged with Joseph Furno and the managers of the local area network to transfer the system to the Crawford County Industrial Park, where its speed, reliability, and security were substantially upgraded. With the network capacity in place, the CCRA developed a Regional Conference and Training Center to be the major tenant in the industrial park's multi-media technology facility (Crawford County Regional Alliance, 2002). The conference and training centre has focused its initial services on distance learning and video conferencing, priorities for small- and medium-sized enterprises in outlying areas such as Meadville. The centre has built partnerships with area accounting firms and universities to help design and deliver customized training to local businesses and workers. One of the strengths of the centre has been its outreach to the area's many traditional firms (mom and pop shops, agricultural producers) to gently introduce them to the world of e-commerce. A longer range priority for the centre is to look beyond the business sector to enable non-profit organizations to use the training facilities. This is, for example, presently occurring as the Meadville Medical Center uses the facility to provide hands-on computer training for people with disabilities. As of 2002, the Crawford County Industrial Park contained 24 small- and medium-sized businesses, and employed about 1,100 people.

Another aspect of the innovation process in Meadville is the linkage to environmental concerns (Nagy, 2001). The connection occurred in two contexts, both related to the conversion of the Avtex Fibers site to a state of the art industrial park. First, the local county and city authorities responsible for the land use, clean-up, and financing decisions have been recognized by the state government as the model to be followed in brownfield redevelopment and business incubation. The steps followed in the Meadville "turnaround" were incorporated into statewide legislation subsequently enacted to support further local community-based industrial site recycling. Second,

the innovative participation of the local Allegheny College and its "close working relationships with off-campus partners" distinguishes the Meadville brownfield conversion. The college's Center for Economic and Environmental Development worked with local development authorities and the industrial park's new tenants to make it an aesthetically pleasing and authentic place that celebrates environmentally sound industrial renewal.

Here again, the Meadville reconversion was recognized, with the Department of the Environmental Protection reporting that the industrial park's "Green Room" represented the first coming together of art, the environment, and industry among the state's 800 land recycling sites. The chair of the state's Council on Arts observed: "The accomplishments in Meadville should and can be replicated, in … singular ways, at all those inadvert disaster sites about our Commonwealth and our country" (Nagy, 2001). The Allegheny College community outreach extends to other matters, including the possible development of a bicycle path linking the industrial park with downtown Meadville, perceived as an environmental and social justice issue since third shift workers have no bus access to get to and from work. In 2002, another Allegheny project won a Governor's Award for Environmental Excellence in the Education and Outreach category for the "Partnership for Energy Performance" that develops a local measure for rating energy efficiency in the Meadville rental property market. With state backing, the local partnership supplied landlords with tools and incentives to improve their efficiency, and a pilot program is now underway to test the program's relevance to homeowners (Governor's Awards for Environmental Excellence, 2002).

Role of Government

Meadville is a good example of how local collaborations can merge different forms of community-based innovation, in this case, primarily economic, environmental, and to some degree, social. Confronted with significant restructuring challenges, the three municipal authorities cooperated in support of a local champion with an early vision of a wired community; and they also enabled their local redevelopment agencies to work strategically on a complex brownfield reconversion to an industrial technology park. At the same time, state-level programs were necessary, providing funding and expertise for the brownfield clean-up, and recognition programs that simultaneously motivated the local actors while lending substance to the "place marketing" campaigns that are inevitably part of local development processes in remote cities such as Meadville.

A Resilient Cluster: North Jutland, Denmark

Background and Main Achievements

The region of North Jutland has a total population of 494,833. Its largest and central city is Aalborg. The area has consistently endured some of the highest unemployment rates in Denmark. The economic structure has been long dominated by traditional industries such as fisheries, agriculture, textiles, shipbuilding and food processing. In the last three decades, the region has seen the emergence of a high technology cluster of electronics and telecommunications firms, branded as NorCOM, and spatially concentrated in a science park close to Aalborg University. The cluster contains about 35 firms employing nearly 4,000 knowledge workers. This constitutes

more than 40 percent of high technology employment in the entire region, although only about 1.6 percent of total employment.

North Jutland has received international attention from policy analysts and researchers seeking to better understand the capacity of smaller places in remote regions to develop, and especially sustain, world class technology clusters. Most striking in the North Jutland case has been the resilience of the cluster in the face of profound disruptions in the core technologies and related shifts in industrial organization favouring large scale transnational corporations that threaten the viability of medium-sized firms in the local cluster. Thus, North Jutland is an example of a community-based innovation system that has built a capacity to minimize the risks of becoming locked into outdated ideas and practices. This achievement rests on local leadership in enabling knowledge flows between the university and firms, on technology and research support from the national government and the European Union, and in the case of the latter, additional resources to manage broader restructuring challenges following the shutdown of the region's shipbuilding industry. With these resources from above, the community has made progress in managing complex transitions in the electronics industry while also seeking ways to extend opportunity for citizens outside the knowledge-intensive cluster which, for all its dynamism, remains a very small part of the region's overall economic and employment structure.

Table 4.
A Resilient Cluster

Key Actors	Description
Aalborg University http://www.auc.dk/english	This university, established in 1974, has played an integral role in the development of the electronics cluster, contributing basic research, supplying engineering talent, and participating in knowledge transfer partnerships.
NOVI http://www.novi.dk/	NOVI, a science park created in 1980, is the product of collaboration among the university, regional county council, a local bank and other institutional investors. The park is home to the electronics cluster, joining 35 domestic and foreign companies engaged in various research and development projects. NOVI was recently designated as an Innovation Environment by the Danish government, allocating funds for feasibility studies for innovation research.
Center for Personal Communications http://cpk.auc.dk/	This centre, based at Aalborg University, was created in 1992 through a grant from the Danish Technical Council. It has a strong research capacity in radiocommunications, wireless technologies, and speech recognition.
SP Radio, Dancall, Cetelco	These are three domestic "anchor firms" in the electronics cluster, playing leading roles in knowledge generation at critical points in the cluster's history.
European Union http://www.cordis.lu/cohesion/src/275-en-3.htm	The European Union provided significant support to the North Jutland region, responding with different programs targeted to the technology development challenges of the electronics cluster and to broader labour market and social needs of a depressed, remote economic region.

The Innovation Process

The roots of economic innovation in North Jutland reside in the 1940s when a local entrepreneur, Simon Peterson, founded the consumer electronics firm, SP Radio (Dalum, 1995). Motivated to find new applications relevant to the large local commercial fishing fleet, SP Radio achieved world leadership by the 1960s in professional marine communications equipment for small ships and yachts. Supporting this shifting focus and technology was a decision by the Danish government to build a university in North Jutland. In the 1970s, Aalborg University emerged as a pivotal player in the evolution of the electronics cluster.

Indeed, close observers of the North Jutland cluster have emphasized the university's contribution along a number of dimensions (Dalum *et al.*, 1999). Most obviously, it developed a strong basic research capacity in the relevant discipline, electronic engineering. Further, its graduates supplied local firms with a steady stream of knowledge workers. As these engineers moved into the local labour market taking up research and development positions in firms, their relationships from student days facilitated the sharing of insights and experience, and testing new ideas – that is, the tacit knowledge that is widely understood as a driver of science-based technological innovation. Danish researchers investigating the dynamics of the North Jutland cluster have emphasized the informal circulation of ideas among electronic engineers, and even assembly workers, who regularly meet socially and often change firms in the small, concentrated labour market (Dahl and Pedersen, 2002).

Further, the university embraced a project-based style of learning that approximated the co-op model where close consultation with industry embedded real-world problem solving and product development challenges in the curriculum. As well, the university administration did not look askance at entrepreneurial behaviour in its researchers, instead encouraging researchers to find commercial application for their discoveries with the assistance of an in-house technology licensing office where researchers could interact with industry, venture capital firms, and patenting experts. While this approach undoubtedly raises some hard questions about balancing pure and applied research, the engineering faculty's close and multi-faceted links with local industry supplied the cluster with knowledge and talent, and also acted as a magnet for attracting outside electronics firms to a remote region on the European periphery (Lorenzen and Mahnke, 2002).

It was in the 1980s that the strength of the university-industry relationship became especially visible, as the local cluster faced "disruptive" technological breakthroughs in the global industry leading to a new generation of processes and products (Dalum *et al.*, 2002). In the first round, mobile communications emerged and firms spun-off from SP Radio sought to establish position in the new field. To create a milieu for this creative process, a science park, NOVI, was established in close proximity to the university, and the cluster maintained its competitive edge in shifting from radio and marine communications to mobile communications.

By the end of the decade, however, a new generation of wireless electronics technology posed a major challenge to the North Jutland cluster, based as it was in small- and medium-sized enterprises. In this case, collaboration to develop the basic technology for the industry's new applications took place at the NOVI facilities. The partners were Aalborg University and two

Danish firms spun-off from SP Radio – Dancall and Cetelco. The joint venture was known as DC Development and it exemplified the balance between firm cooperation and competition distinguishing dynamic clusters. The two firms pooled resources for pre-competitive basic research but planned to go their separate ways to compete on the best applications and design features, closing the joint venture when the research mission was accomplished. However, the outcome was different than planned or hoped for: mobilizing the knowledge resources of the two firms and the university, the collaboration proved a technological success, but the scale of the project financially drained both companies. They were taken over by foreign companies in 1992 (Dalum *et al.*, 1999: 12-15).

The outcome of the DC Development joint venture has set the stage for the critical debate about the future prospects of the North Jutland electronics cluster. Given the cluster's limited capacity to generate major breakthroughs in the latest wireless technology, the so-called "UTMS and 3G" generation, how can it renew or sustain itself? If increasing transnational investment by world-scale industry giants like Nokia, Siemens, and Ericsson is pretty much inevitable due to the vast resources required for bringing new ideas to market, does this inevitably weaken the cluster as decision-making control shifts beyond its boundaries? Foreign capital might lead either to branch plant shut down or, less dramatically, the gradual loss of local networking capacity as the transnationals centralize research and development in their home base and resist sharing knowledge among branch plants (Lorenzen and Mahnke, 2002). Alternatively, cluster actors might invent new ways to work with the transnational investors to augment the local knowledge base and fill gaps in the financing of high-risk research. A new and different niche emerges for the cluster in the global innovation chain. Such a niche would reposition local assets as a "development hub" for the large transnationals still attracted by North Jutland's combination of engineering talent, applied university research, and the NOVI infrastructure (NorCom IKE Group, 2000).

Thus far, evidence suggests some movement along the second track, as companies such as Nokia and Ericsson recently moved into North Jutland. Moreover, NOVI has undertaken a future-oriented strategic planning process that will seek input and commitment from the cluster's transnational members.

Role of Government

The North Jutland case speaks to the ongoing challenges facing a small, remote region seeking to maintain a long standing global presence in a knowledge-based industry subject to "disruptive technologies." In the electronics industry, the North Jutland cluster has sustained itself across three generations of communications technology (radio, marine and mobile), and now grapples with new wireless systems requiring research and development resources on an even larger scale. At each of these critical junctures, local actors and the national government have mobilized their resources and worked in partnership to strengthen the cluster's adaptive capacity. According to close observers of the process:

> The North Jutland mobile communications case shows that publicly financed local knowledge institutions as well as public risk capital for major development projects – on a pay return basis if commercially successful – have been decisive for the development process towards a technology district during the 1980s. That could not

have been reached by pure market forces alone. Although the cluster of industries as such is not the result of a deliberate planning process, the establishment of the knowledge institutions that form a central part of the decisive assets of the system is the result of very deliberate efforts in the local community (Dalum, 1995: 22).

The Danish government has made significant investments in the cluster, dating back to the founding of the university, continuing with support for NOVI, and by further dedicating funding for research centres in electronics and communications technology. In 1999, North Jutland was designated by the government as one of two Information Technology Lighthouses. This program combines the resources of national and local governments and the private firms to support field experiments related to the newest wireless communications technology. By 2002, nearly 90 such projects were underway. Additionally, Danish officials are investigating the possibilities for diversification through a health technology cluster in North Jutland, trying to learn from the mobile communications experience (Dalum *et al.*, 1999). As one official put it, "having noted that a preemptive strike in Aalborg region bore fruit in the wireless telephony area previously, we have high hopes for the same achievement in the medical device area."

Some of the elements for such a strike are already in place. The university has a Department of Health Science and Technology, and already encourages strong interdisciplinary collaboration – this time between hospitals and electronic engineers. It is also the first university in Scandinavia to offer an engineering master's degree in Health Technology. NOVI has committed seed funding to house the emerging networks, and there has been support from the local government and business council. But one missing ingredient is the anchor firm that could drive the process and generate the spin-offs, as SP Radio did for the electronics and communications cluster. As such, any medical device cluster will depend on foreign capital and public investments for its growth (Dalum *et al.*, 1999: 19).

In closing, it needs to be stated that North Jutland faces equally important and daunting challenges with respect to social and economic conditions beyond its knowledge-intensive sectors. Indeed, the cluster may be an island of innovation in a sea of decline. As one analyst put it, in North Jutland "high technology sectors are isolated clusters" (Naes Gjerding, 2001). The wider economic profile of the region remains dominated by older, declining industries, with productivity and education levels far below the national average. Issues of long-term unemployment and social exclusion are urgent. Here, the European Union has made its presence felt in the region, with programs targeted at responding to the crisis of the shipyards through worker retraining and developing the tourism sector (Commission to the European Parliament, 1998).

From Localized Production to a Technoregion: The Beauce, Quebec

Background and Main Achievements

Situated in the southeast of Quebec, between Quebec City and Maine, the Beauce encompasses three regional municipalities – La Nouvelle-Beauce, Robert-Cliché, and Beauce-Sartigan. The region has been described as "one of the most remote areas in Quebec," and it includes a number of smaller urban centers and towns, with a total population of 88,475 (Doloreux, 2002: 11). The Beauce is the manufacturing core of the surrounding Chaudière-Appalaches administrative region. Its industrial structure features mostly small- and medium-sized enterprises in traditional industries, with more than 75 percent of the manufacturing industries concentrated in low technology and medium technology sectors, reflecting the dominance of wood, textiles, clothing, and metal fabrication.

Over time, this region has used various internal and external community-based strategies to maintain its economic base. For many decades, the Beauce's prosperity relied on an internal, highly localized system of production that drew on the trust relations among local firms and workers rooted in a shared experience of isolation (Doloreux, 2002: 11). The production profile itself was stable, yet confined to traditional activities and demonstrating little evidence of innovation in processes or products. More recently, researchers have tracked an external reorientation in the Beauce production system emphasizing external linkages and relationships in the wider innovation system of metropolitan Quebec City. At this regional scale, a small number of firms in the Beauce are participating in knowledge-based networks that help supply key inputs in technology, skills, and know-how. This partial rescaling of the Beauce system of production has been facilitated by a range of policy interventions as both federal and provincial governments are increasingly preoccupied with supporting innovative activity in less favoured regions. There are indicators of success: the number of small- and medium-sized businesses is growing, the unemployment rate has recently been the lowest in the province, and there is strong demand for skilled workers.

The Innovation Process

The Beauce region in Quebec has inspired considerable research interest as an example of a *localized industrial system* helping rural and remote communities achieve reasonably strong economic performance over time (Landry, 2001). Much of this research has looked historically at the Beauce case trying to identify the persistent factors enabling success. In these terms, a number of analysts have drawn parallels between the Beauce *social production structure* and some of the well-known geographically localized industrial districts in Europe, particularly Italy (Klein *et al.*, 1998). At issue is the way in which strong yet informal ties among firms, workers, and community institutions can supply a powerful cultural framework for co-ordinating productive actors, thereby enhancing the local economy (Guillaume, 2001).

Table 5.
From Localized Production to a Technoregion

Key Actors	Description
Conseil économique de Beauce http://cebeauce.qc.ca/accueil.html	An umbrella organization for local business, with a membership of about 200 enterprises; it plays an important role in business development, coordinating implementation of a broad range of advisory services for small business networking, start-up assistance, and business plan development.
Pépinière d'entreprises innovantes de Beauce and Action PME Beauce Inc. http://www.beauce.info/peica/ http://www.actionpme.qc.ca/	These two organizations focus on support, such as business incubators and entrepreneurial mentoring, for small- and medium-sized innovative firms. They are part of a "Building the Technoregion" strategy that supports business innovation on a regional scale extending to Quebec City.
Technocentre http://www.ville.sq-bce.qc/francais/ technocentre/frset.htm	A centre providing low-rent, fully serviced rental space to new businesses and an incubator for high technology start-up firms.
Groupe d'action pour l'avancement technologique et industriel (GATIQ) http://www.gatiq.gc.ca/	A private sector based network for building the research base and innovative capacity of firms.
Fonds régional de solidarité Chaudière-Appalaches and Société Innovatech Québec et Chaudière-Appalaches http://www.cnw.ca/cgi-bin/inquiry.cgi? OKEY=99442	These are two locally-based venture capital firms with links to Le Fonds de Solidarité des Travailleurs du Quebec.
Centre intégré de mécanique industrielle de la Chaudière http://www.ic.gc.ca/cmb/innovation.nsf/ RegionalProfiles/ChaudiereAppalaches	This centre supports firms with technical support in developing and commercializing new technology.
Federal and provincial governments http://www.dec-ced.gc.ca/asp/ ProgrammesServices/ProgrammesSer vices_intro.asp?LANG=EN&HEADER= PROG_SERV&SEL_MENU=CHOIX_ REGION	Both upper level Canadian governments are active in economic development in the Beauce region. The Canadian Economic Development Corporation (CEDC) has a number of innovation programs in place, funding business organizations such as the Conseil and networking activities through the Regional Strategic Initiative and Community Futures Development Corporation. The Quebec government has also established organizations with a specific mandate to assist in the economic and community development of the Beauce region. There are also instances of federal-provincial collaboration. The Canada-Quebec Infrastructure Works Program provided joint funding to the Moisson Beauce, a community kitchen and food service, enabling it to expand and improve its service to the region's less advantaged citizens.

In the case of the Beauce, the different elements of this framework have been specified, and while not all represent models of desirable community-based innovation, they constitute a rich local system of trust relations contributing to the economic success of a remote region. To begin, the region's firms historically have benefited from low wage rates paid to local workers, in part resting on the fact that their workers are less likely to be unionized than in other parts of Quebec. At the same time, the close knit local community facilitates trust-based relations of mutual respect between workers and managers. This has allowed for much upward mobility by workers within enterprises. In addition, local firms cooperate in mutually supportive ways, avoiding, for example, competing over, or poaching, one another's workers. Firms also have participated in various forms of mutual aid and assistance to companies in difficulty or near bankruptcy (Klein *et al.*, 1998). This tradition of collaboration was institutionalized in the 1970s with the formation of the Conseil économique de Beauce, which cultivates a territorial identity or local economic culture based on combining growth opportunity with collective responsibility.

Some research examining the local production system region has concentrated on relationships, networks and strong ties *internal* to the region. Other analysts have begun to look equally at the extra-local dynamics conditioning the Beauce's development, and specifically its future prospects. Here studies have tracked two key periods of external relationship building. In the 1960s and 1970s, many of the region's firms benefited from the decentralization of industry from the Montreal area, with subcontracting arrangements established in the textile and clothing sector. Most recently, for the 1990s, David Doloreux (2002) has mapped a second wave of networking that connects firms in the Beauce to a larger economic community. In this case, the focus is on small- and medium-sized enterprises in more knowledge-based activities than the traditional industrial profile of Beauce firms.

Such firms, it seems, are not able to meet the full array of innovation needs within the older localized production system. Indeed, the region ranks well down the list among Quebec's regions in per capita spending on research and development. Doloreux describes a certain institutional thinness in relation to high technology and knowledge flows, suggesting that the region risks becoming locked into a production system and culture well-suited to an earlier economic era but not to emerging challenges (Doloreux, 2002: 13). In particular, the region needs to develop advanced business and information technology services, and to find strategies to attract highly skilled employees. Faced with these challenges, the most innovative firms are combining the benefits of the local system with resources, contacts, and knowledge available only at larger spatial scales, principally at the regional level of metropolitan Quebec City. Doloreux's recent survey of small- and medium-sized Beauce firms reported a number of advantages in networking at the larger geographic scale, including the quality of telecommunications infrastructure, the availability of skilled labour, and the opportunity to interact with and learn from different economic actors. In the Beauce today, Doloreux concludes that the critical learning dynamic crosses scales and networks:

> The regional patterns of co-operative relationships confirm the importance of the geographical and technological proximity of the metropolitan area of Quebec. The cohesiveness of the system of innovation in the Beauce appears to evolve and rely upon a Quebec CMA [census metropolitan area] 'home base' as hub supporting firms' needs in terms of networks and knowledge provision. Furthermore, interaction with the national and global system of innovation is of importance, since different forms of

knowledge are acquired by firms in pursuit of innovation. Essentially, only basic support and supply services are procured within the Beauce (Doloreux, 2002: 28-29).

Role of Government

The Beauce's historic social structure of production, rooted in localized relations and networks, is undergoing a geographic re-scaling to enable the region's most innovative firms to access specialized inputs and contacts. In managing this transition, various public and private sector institutions are making contributions. First, the federal government's Canada Economic Development for Quebec Regions has initiated a Regional Strategic Initiative, a five-year project ending in 2004. Its purpose is to support economic diversification in the Beauce. Resources have been allocated to upgrade the innovation infrastructure, such as the Conseil économique de Beauce. More ambitious has been the support for funding innovative enterprises in a designated Technoregion spanning the Beauce and Quebec City's metropolitan area.

The Quebec government has also been active in assisting with regional transformation. A provincial regionally-organized council for economic development has formulated a strategic plan to coordinate policy interventions and programming for the area. Key priorities include more customized labour market training and investment in human capital to respond to the evolving skill requirements of firms and workers. Educational services are also a focal point for provincial action, given concerns about the outward flow of young people from the region. Emphasis is now placed on improving the links between schooling and the local labour market.

Clearly, governments are seeking to assist the Beauce in upgrading its economic base, principally through measures that would update its historically successful local social structure of production. Here two challenges are evident. The first is the need for coordination among the levels of government, especially federal and provincial, in designing a coherent framework for local and regional innovation. Second, these governments need to tailor their interventions to local conditions, and adapt them in response to evolving circumstances and feedback from communities. One promising example of this kind of administrative learning occurred with the federal Canadian Economic Development agency (Simard and Fortin, 2002). Responding to recommendations from an economic summit organized by the Quebec City Chamber of Commerce in 1995, the agency supported development of the Québec-Chaudière-Appalaches Technorégion by creating a $10 million fund for start-up firms using advanced technologies, and for cross-fertilization between research centres and such firms.

At its inception the Technoregion fund filled a virtually unoccupied niche in the region's business infrastructure and many funding requests came forward in the initial years of operation. However, the level of interest soon slowed and, by the time the fund was due for renewal, much of its budget was unspent. Fund managers at the community level, in collaboration with the federal agency, assessed the situation, finding a host of new entities had subsequently moved into the start-up financing niche such as venture capital corporations, union funds, Investissement Québec and the Bureau de la Capitale nationale. At the same time, the assessment uncovered a related gap in meeting the financing needs of young technology entrepreneurs in a timely fashion. In response, the remaining budget was refocused to target a relevant client group and renewed for a three-year period. In all, the fund contributed $5.2 million for projects requiring a

total investment of $33 million and, between 1996 and 2001, an estimated 100 new jobs resulted from the fund (Simard and Fortin, 2002).

2.2 Renewing Industrial Cities

This section profiles innovation processes in older industrial centers. In these places, innovation challenges typically focus on the need to revitalize or even replace an aging manufacturing base. Specific priorities can include regenerating central business districts, making new use of vacant or derelict lands, and forging a shared vision across metropolitan spaces from inner cities to outer suburbs. The cases examined are: Pittsburgh, Pennsylvania; Bilbao, Spain; Halifax, Nova Scotia; and Dublin, Ireland.

Civic Alliances: Pittsburgh, Pennsylvania

Background and Main Achievements

Pittsburgh is a medium-sized city (population 334,563) that since the end of the Second World War has faced a series of economic restructuring and urban regeneration challenges. The broad trajectory has been one of transforming an aging industrial structure dominated by steel and metal fabrication toward restructuring centered on engineering, medicine, education, and software services. The transformation involved a loss of an estimated 150,000 manufacturing jobs in the Pittsburgh region and very high unemployment in the 1980s, especially in the steel factory communities on the city's outer edges.

Researchers analyzing Pittsburgh's decades long restructuring processes frequently identify the city as an exemplar of public-private partnerships directing development in the context of a highly-fragmented local political administration with weak capacity for strategic planning. The Pittsburgh experience is especially notable in three aspects.

1. The sustained commitment of the civic alliance over time and its responsiveness to the evolving challenges facing the city.

2. The relatively inclusive nature of the partnerships which have sought to bridge business, labour and neighbourhood concerns in innovation projects.

3. Civic alliances have mobilized at the regional scale, encompassing the city and its surrounding suburbs and towns.

Despite Pittsburgh's widely recognized achievements in civic governance, some observers have challenged the representativeness of the urban regime, particularly in relation to racial minorities and the poor. Others point out that even with the local governance innovations, the city continues to struggle just to maintain its population and employment base.

Table 6.
Civic Alliances

Key Actors	Description
Allegheny Conference on Community Development (ACCD) http://www.accdpel.org/01_01.asp	A civic organization comprised of local business elites and non-profit institutions, created in 1944 by the city's prominent Mellon family; it has a small professional staff for partnership management and project implementation. The ACCD has been at the centre of the three major thrusts in post-war Pittsburgh's regeneration efforts: (1) 1940s revitalization of the central business district; (2) 1960s renewal of distressed neighbourhoods; and (3) 1990s region-wide economic restructuring.
Pittsburgh Partnership for Neighborhood Development (PPND) http://www.ppnd.org	An umbrella association for the city's community development corporations, governed by a multi-stakeholder board composed of representatives from the ACCD, academia, the city planning department, and national foundations. It serves an internal integration function for community developers assisting in planning, staffing, and implementation, and an external representational function connecting local projects to funding networks and public policy debates.
Philanthropic foundations http://www.fordfound.org/ http://www.heinz.com/jsp/foundation.jsp	National organizations such as the Ford Foundation and the locally-based Heinz Endowment have supplied a variety of resources for the implementation of public-private partnership projects.
Federal and state governments http://www.state.pa.us	Upper level American governments have contributed to the local partnership processes through funding and regulations. In particular, the federal government's various community empowerment initiatives, dating back to the 1960s, have helped neighbourhood groups find a place at the partnership table consistently "set" by the ACCD.
Steel Valley Authority (SVA) http://www.heartlandnetwork.org	An organization that emerged in the 1980s to respond to the deep economic and social distress experienced by outlying steel industry communities. SVA brought a clear regional focus to Pittsburgh's restructuring and mobilized a coalition of labour and social activists to press for radical innovations such as community or worker ownership of factories.
Pittsburgh Urban Redevelopment Authority http://www.ura.org/	A government-based catalyst and coordinator for economic and land use development in the downtown core and inner city neighbourhoods, providing professional services in site selection and preparation.

The Innovation Process

Analysts of collaborative approaches to local economic development in the United States have frequently been drawn to the Pittsburgh story. In her comparative analysis of urban "growth machines," Barbara Ferman describes Pittsburgh as "the unparalleled model of public-private partnerships" (Ferman, 1996: ix). Louise Jezierski traces the transformation over five decades of Pittsburgh from the "Steel City" to the "Software City," concluding that the "political economic history of Pittsburgh illustrates that 'economies are actively constructed, not passively evolved'" (Jezierski, 1996: 177). These two scholars, and others, have demonstrated that Pittsburgh's course has been mapped and organized by a civic alliance dominated by corporate leaders but also including representatives from other sectors, community non-profit, educational, and labour interests (Weir, 1999). Local, state, and federal governments have been involved in various projects, although rarely in leadership roles. Indeed, the high degree of institutional fragmentation, what some have termed "balkanization" of government in the Pittsburgh city region has motivated private and third sector actors to assert strategic leadership in the absence of coordinated political direction and planning.

A striking feature of Pittsburgh's civic alliance has been its ability to adapt over time: to reconceive the city's challenges, to build organizational capacity, and to mobilize resources (Jezierski, 1996: 177). Three fairly distinct eras have been identified (Jacobs, 2000: 77). First, after 1945 the focus was on revitalizing the central business district, which was struggling with a declining steel industry and environmental problems of smog and flooding. Second, in the 1960s, a new agenda sought to incorporate social and neighbourhood concerns, priorities inspired by the federal government's urban and community development programming through the War on Poverty. In the 1990s, Pittsburgh's civic alliance moved in two new directions. It elaborated a region-wide strategy that, in its geographic scale, went beyond both of the earlier projects, with their respective targets in the central business district or inner city neighbourhoods. It also sought economic restructuring through high technology clusters.

Institutionally, the base of the civic alliance is an organization known as the Allegheny Conference on Community Development (ACCD), established in 1944. The ACCD's leadership historically has been rooted in Pittsburgh's largest corporations, but its partnership orientation is clearly illustrated in one of its key spin-off organizations, the Pittsburgh Partnership for Neighbourhood Development (PPND). Created with active support from the ACCD in Pittsburgh's third era of regional economic restructuring, the PPND combines the roles of strategic brokerage and institutional intermediation for the city region's less advantaged constituencies (Harrison and Weiss, 1998: 114). That is, it assists the leading community development corporations (CDCs) in design, implementation and management of specific projects, for example, affordable housing, small business development, child care, and job training and placement. At the same time, the PPND represents the needs of community organizations to a range of external funders, navigating for them the uncertainties resulting from government spending cutbacks and the opportunities presented by forging relationships with national foundations. As Ferman documents, the PPND has been successful in aggregating public, private and foundation monies for community and neighbourhood development. When the Ford Foundation in 1983 "sought to initiate a program that would provide operating funds for CDCs, it found Pittsburgh's nonprofit sector very receptive and well organized" (Ferman, 1996: 100).

Indeed, Pittsburgh's civic alliance, through the ACCD and the PPND partnership, has consistently looked to merge economic and social innovations in urban and regional redevelopment. When the 1980s recession hit the Pittsburgh region hard, the ACCD took the initiative with a strategy targeting economic renewal based on high technology and advanced business services. In 1984, the ACCD produced a report *A Strategy for Growth: An Economic Development Program for the Pittsburgh Region* that emphasized rebuilding from within rather than chasing external investment (Jezierski, 1996: 172). A key component of the growth strategy was to develop further the city's knowledge assets and for the first time, fully engage universities, hospitals, and research centres in the ACCD partnership process (Economic Development Administration, United States Department of Commerce, 1997: 24-27). Two new entities were created, the High Technology Council and the Southwestern Pennsylvania Industrial Resource Center, both acting as a focal point for business, university, and research collaboration. Two new networks also emerged: the Advanced Manufacturing Alliance and the Environmental Business Network. The University of Pittsburgh (by the 1980s the city's largest employer) supplied the partnership with detailed economic analysis of the region, and the Software Engineering Institute was created at Carnegie Mellon University. Thus, by the 1990s, the ACCD had consolidated a regional cluster strategy with a series of infrastructure projects underway in key technology sectors such as biotechnology and biomedicine, tissue engineering, and robotics.

However, this cluster agenda did not go uncontested (Ferman, 1996: 124-134). Community activists from Pittsburgh's inner city neighbourhoods and outlying steel mill towns challenged the business-centered, high-skills focus that largely ignored displaced workers and declining areas. Critiquing the ACCD for an insufficiently representative partnership, a grassroots coalition of trade unions, social movements, anti-poverty activists, and housing advocates brought forward an alternative regeneration agenda that emphasized worker retraining, neighbourhood revitalization, and worker ownership for abandoned factories.

In keeping with the Pittsburgh tradition of encompassing civic alliances, the ACCD responded in the early 1990s to the counter-mobilization with a more inclusive community and economic planning process, the Regional Economic Revitalization Initiative (Jacobs, 2000: 78-84). Following broad public consultation, the ACCD released, in 1994, a new vision and strategy document, *The Greater Pittsburgh Region: Working Together to Compete Globally,* outlining a more integrated vision. Pittsburgh declared it could not "be a world class region of two economies, one of opportunity and quality jobs and one without." As one study of the new plan put it: "This meant that women, minorities, and dislocated workers should have a stake in economic development, and they should have access to business advice, startup funds, and training" (Jacobs, 2000: 82).

The renewed search for ways to link economic and social dimensions of urban regeneration was given concrete expression in the mid 1990s with the Pittsburgh Manufacturing and Community Development Network (PMCDN) (Jacobs, 2000: 99-101; Harrison and Weiss, 1998). Here the ACCD partnered with the PPND in an innovative "industry-community outreach," targeting some of the city's most distressed neighbourhoods. The aim was to apply the local labour market knowledge and networking capacity of community development corporations to challenges facing businesses that had chosen to stay in these areas. On the one hand, the CDCs would assist employers in developing their own inter-firm relations and help broker timely

access to relevant neighbourhood-based business networks. The assistance of university business schools was engaged. On the other hand, the CDCs would draw on their multiple contacts in specific neighbourhoods to connect workers with employers or with appropriate upgrading opportunities. In short, community-organizing strategies would be used to forge links among firms, thereby enhancing the prospects of their retention in the neighbourhood, and improve job prospects for typically isolated residents, bereft of meaningful contact with employers or even the labour market more generally.

Early assessments of the PMCDM have been mixed. Some key employers, such as Nabisco Foods and the Pittsburgh Wool Company, enlisted and the CDCs have been able to expand their operations into economic development networks. But it has been noted that the network's firms do not yet view the CDCs as reliable sources of employment referrals, and that the CDCs are experiencing their own "growing pains" in staffing and managing the network (Harrison and Weiss, 1998: 124).

Role of Government

Pittsburgh's experience is a rich example of urban and regional governance dynamics in the American setting where the combination of local fragmentation and limited federal or state involvement shifts the focus to civic alliances and public-private partnerships. This does not imply that upper level governments have been absent. In Pittsburgh, federal interventions, for example, have influenced local partnership processes. In the 1960s, the War on Poverty program empowered community associations and, in the 1990s, federal regulations in community reinvestment obliged banks to lend money in disadvantaged neighbourhoods, often leading to their direct participation in community development organizations like the PPND. By the same token, the retrenchment of government funding to cities since the 1980s pushed local actors into new funding arrangements, principally through private foundations. And the municipal fragmentation characterizing local government in the Pittsburgh region hampered efforts to develop the political consensus required to participate in the federal empowerment zone and enterprise communities that became available in the 1990s.

As such, the Pittsburgh story revolves around third sector institutions like the ACCD and PPND. The interplay of these private and community organizations, with their respective economic and social priorities, has shaped the city's development. Indeed, their capacity to coalesce around new visions at critical junctures – for the central city, the neighbourhood, or the region – suggests a capacity for civic and policy learning. At the same time, observers have catalogued weaknesses and gaps in this model stemming from insufficient government activism. Public-private partnerships at the local level, while inclusive of some community voices, have not adequately reached out to African-Americans who represent about one quarter of the population and continue to suffer high levels of poverty and marginalization. At the national scale, Pittsburgh, a place that according to the most recent census continues to lose jobs and population, has not fared very well in the inter-city investment competition that is part and parcel of the decentralized American approach (Florida, 2002: 216-217). Louise Jezierski aptly summarizes the Pittsburgh innovation story:

Struggles over the development agenda have emerged concerning who may participate and the kinds of jobs that should be generated and maintained. These struggles ultimately concern the legitimacy of third-sector, nonprofit governance. The postindustrial transformation in Pittsburgh has not been constructed from mere market mechanisms or some "rational" public choice. Rather, the process has been one of conflict, experimentation, sacrifice and loss, a furious level of organization building, and mobilization of consent (Jezierski, 1996: 179).

Cultural Clustering: Bilbao, Spain

<u>Background and Main Achievements</u>

Bilbao is one of the main industrial centres of Spain and the largest city in the Basque country, with a total population of more than 370,000. The city enjoyed dynamic economic growth as a commercial port in the 19th century and, in the first half of the 20th century, flourished as an industrial leader in labour-intensive sectors such as steel, shipbuilding, and chemicals. By the 1970s, these industries were in structural decline and the city faced a downward spiral of unemployment, environmental decay, and urban blight from derelict lands concentrated in inner city and waterfront sites that previously housed heavy industry. Against this backdrop, Bilbao is renowned for its concerted effort in the 1990s to transform an inward looking city with a traditional economic base into a vibrant post-industrial city with a profile on the global cultural stage. Drawing on resources from a variety of governments, ranging from the municipality to the European Union, local actors devised strategic plans and created new partnership structures for implementation.

Table 7.
Cultural Clustering

Key Actors	Description
Bilbao Metropoli-30 (BM-30) http://www.bm30.es/welcome_uk.html	A public-private partnership established in 1987 to direct implementation of the Strategic Plan for the Revitalization of the Bilbao Metropolitan Region.
Bilbao Ria 2000 http://www.bilbaoria2000.com/01.html	An urban development corporation created in 1992 through a collaboration of the central government and the Basque administration to finance and promote regeneration of metropolitan Bilbao through attracting private investors.
Governments http://parlamento.euskadi.net/	Three levels of government are involved in the city's regeneration: the central government, the Basque government, and the metropolitan Bilbao government
European Union (EU) http://europa.eu.int/comm/regional_policy/urban/upp/src/phase106.htm	The EU has contributed funding for community-based, grassroots projects to improve distressed areas in the inner city. These monies have come through an EU "Urban Pilot Projects" program that counts among its priorities neighbourhood renewal of contaminated brownfields.

The main thrust of the strategy was regeneration of inner-city industrial and port areas through a cultural and tourism strategy anchored in attracting the American-based Guggenheim Museum to build a world-class complex. With concerted and sustained effort by local champions, enabled by upper level government expertise and financing, the strategy was implemented. While the economic returns on the museum investment have been impressive, it remains controversial as some groups argue that Bilbao's particular form of cultural renewal is not sufficiently informed by social and ecological considerations, nor adequately embedded in the local community itself. Here, programming from the European Union has played an effective flanking role for the city's global cultural strategy, providing support for more grassroots regeneration projects.

The Innovation Process

Bilbao's innovation process began in the late 1980s. The cumulative impact of a series of economic restructurings had by then left the city with a drastically reduced industrial base, high unemployment, and environmental and land use problems across the city region but particularly concentrated in inner city and waterfront areas. In response, city officials organized meetings and conferences to take stock of local assets and canvas relevant foreign urban regeneration experiences in Europe and North America (Gonzalez, 1993). The aim was to learn from strategies followed in other older, declining cities that had managed to reverse their fortunes. One case that gained some profile in the discussions was that of Glasgow, Scotland (Gomez, 1998). To Bilbao officials it offered promising lessons in focusing on culture as a lead sector in restarting a local economy and in reinventing the image and identity of the city, what the officials saw as a "psychological reorientation" in perceptions of the place among residents and outsiders (International Symposium, 2002).

This episode of civic introspection culminated in the 1987 presentation by the Bilbao Council of a new urban planning framework, the *Strategic Revitalization Plan for the Bilbao Metropolitan Region*. The plan elaborated three essential thrusts for urban regeneration (Rodriguez *et al.*, 2001). First, it confirmed the interest in shifting the economic base from industry and manufacturing to one stressing the cultural sector and advanced business services in banking, insurance, and e-commerce. Bilbao already had achieved some success in the 1980s as a centre for international trade fairs and exhibitions, making the cultural strategy more compelling. Second, the plan sought to link economic redevelopment with territorial regeneration of some of the abandoned parts of the city. The riverfront Abandoibarra – once the heart of the city's port functions, shipyards, and steel, iron and chemical industries, but presently derelict – was rezoned for leisure, retail and office development, with an eye to cultural activities. Third, implementation would be on the basis of various forms of public-private partnership. Two organizations, Bilbao Metropoli-30 and Bilbao Ria 2000, were proposed as vehicles. In particular, Bilbao Ria 2000 became a dynamic implementing agent for the vision, rapidly putting together financial consortia to carry out the property regeneration and land use conversion in the priority area (Rodriguez, 1995: 82-84).

Through the 1990s, the three elements of the urban regeneration strategy have been largely put in place. As such, Bilbao is recognized for its focused, persistent commitment to an ambitious restructuring plan in a challenging economic context. Yet, realization of the vision has involved significant debate and controversy over the terms and nature of urban regeneration (Rodriguez *et*

al., 2001; McNeill, 2000). To begin, the particular content assigned to the cultural strategy was contested. At issue was the fundamental decision, taken by the Basque government apparently with little or no public consultation, to concentrate on a globally-oriented, tourist-driven cultural strategy. The centerpiece was the landing of a world-scale art museum through negotiations with the New York-based Guggenheim corporation to place its second European branch in Bilbao. Plans were then made to construct the museum in the abandoned waterfront and docklands area in the city centre, thus making it also the flagship for territorial revitalization.

Officials celebrated the museum both as a boon to tourism-related business and as a compelling focal point in projecting a new post-industrial image of Bilbao to the outside world. Moreover, its construction necessitated a major clean-up of the derelict industrial lands, preparing the ground for further development of a global cultural cluster including a museum of science and technology and concert hall. Bilbao Ria 2000 and Bilbao Metropoli-30 demonstrated strong leadership in brownfield conversion, piloting a benchmarking tool to monitor progress that became a model for similar projects in European cities (OECD, 2000: 72-74). And certainly this strategy has delivered the results for its sponsors: a KPMG PeatMarwick evaluation found that visitor and tourist traffic in the district's first year were three times the original projections (Plaza, 2000; McNeill, 2000: 486). The transnational Guggenheim partnership could be seen as a creative strategic alliance entered into by a declining city on the European periphery to consolidate a cultural niche on the global stage paying economic dividend at home.

However, other voices were heard in the debate about regenerating and reinventing Bilbao. These local voices supported the cultural focus in general, but took issue with its implementation in what came to be viewed negatively as a prestige project narrowly tied to place marketing. In her study of Bilbao's cultural strategy, Julia M. Gonzalez describes this orientation:

> In the second, alternative scenario citizens felt that Bilbao should look for a model of development based upon indigenous strengths more aimed at meeting the needs of local residents. The main policy objective in this case would be the decentralisation of services so that all citizens share the benefits flowing from the implementation of cultural policies and participate in city development. In particular, there should be greater concern for the deprived areas of the city. Cultural facilities should be small, manageable and well distributed throughout the city's *barrios.* … cultural policy in this scenario should be related to real needs of inhabitants and concerned primarily with social and community development (Gonzalez, 1993: 85).

Given its high profile, it is not surprising that the Guggenheim Museum became the flashpoint for this clash of visions. According to Donald McNeill, critics derided the process as "McGuggenisation," questioning the project's global franchising strategy, the commodification of art, and the American cultural dominance (McNeill, 2000: 481-483). Critics were equally dismayed by the public resources consumed by the project, totaling some $170 million for the building, the museum collection, and the franchise fee paid by the Basque government to the Guggenheim. The point was that some, or even most of this total could have assisted local artists and indigenous cultural movements. Put differently, as an economic strategy, the Guggenheim model was too much about immediate consumption and not enough about nurturing local production. Lastly, the linkage effects of the cultural cluster were rejected on equity grounds: housing pricing shot upward due to land speculation in neighbourhoods beside the revitalized

district (Rodriguez *et al.*, 2001: 173). The leadership of Bilbao Ria 2000 was challenged for making commercial viability and profit the overriding criteria for urban regeneration, limiting the prospects for derelict areas outside the cultural cluster.

Here, the Bilbao regeneration process has benefited from the European Union's Urban Pilot Projects, which ran for four years in parallel with the city's main cluster strategy (EUROPA, 2002). In effect, the EU intervention has filled in some of the gaps associated with that approach. The EU program targeted disadvantaged neighbourhoods, adopting a more integrated approach to regeneration combining employment and training measures with building restoration and environmental improvement programs. In implementation, the project adopted a principle of "self-rehabilitation," with training provided to equip local actors – residents' associations, public authorities, and local businesses – to manage together their community renewal. One of the most compelling features of the EU program as it relates the larger city strategy was its emphasis on grassroots cultural projects, for example, development of local music and craft centres nurturing and showcasing local talent.

Role of Government

Clearly, the 1990s was a decade of extraordinary activism in Bilbao, with different levels of government acting as catalysts for local partnerships. The Basque regional government led the negotiations for the showcase Guggenheim Museum, while metropolitan officials empowered Bilbao Ria 2000 and Bilbao Metropoli-30 to coordinate full implementation of the cultural cluster strategy. However, as various scholars have described, the governments were vulnerable to charges that their regeneration model was not sufficiently holistic in the sense that the emphasis on high culture, global presence, and property revitalization cast aside social concerns, and popular input into the implementation of the new urban plans. As Julia M. Gonzalez concluded: "the intentions of the early stages of the Bilbao plan suggest that there has been an almost complete lack of communication on these issues so that economic regeneration and social regeneration appear as irreconcilable objectives" (Gonzalez, 1993: 85). While the EU played an important flanking role, it would seem that a more integrated metropolitan policy framework should now be a priority.

Economic Development Partnerships: Halifax, Nova Scotia

Background and Main Achievements

In 1996, in an effort to improve government efficiencies and end inter-municipal administrative conflict and economic competition, the province of Nova Scotia created a new regional government amalgamating four existing structures – Halifax, Bedford, Dartmouth and Halifax County. The consolidated Halifax Regional Municipality (HRM) has a population of 359,183, comprising 37.5 percent of the provincial total and covering 10.6 percent of the land mass. In the wake of this ambitious and controversial reorganization of local government, Halifax has garnered attention for its innovative approach to fostering regional economic development.

Much of the progress has been the result of two new partnership agencies, the Greater Halifax Partnership (GHP) and the Halifax Regional Development Agency (HRDA). They have demonstrated leadership in building a region-wide unity of economic purpose in the sprawling new city. Specifically, they have each contributed to a more coordinated and sustainable regional development strategy, replacing an earlier destructive pattern of inter-municipal

investment competition that undervalued industrial land and encouraged subsidy wars for "big box" retailers. Instead, the new institutions present an integrated and complementary approach to development: the GHP primarily serves a business constituency rooted in the central business district and seeking to build internationally competitive clusters in key sectors. The HRDA serves a social community constituency with a mandate to devise inclusive strategies that reach vulnerable residents in the inner city and outlying suburban and rural areas. With these two agencies in place, local actors in Halifax are building the institutional capacity to simultaneously address the particular social and economic challenges faced by citizens and firms making the transition to the new economy.

Table 8. Economic Development Partnerships	
Key Actors	**Description**
Greater Halifax Partnership (GHP) http://www.greaterhalifax.com/	The GHP was created in the mid-1990s as a partnership of the Halifax Chamber of Commerce and the Halifax Regional Municipality, with support from the provincial and federal governments. It is governed by a board of directors, with broad representation from the private, public, and educational sectors. Its core goals focus on business development, investment attraction, city marketing, and networking to meet technology and training needs.
Halifax Regional Development Agency (HRDA) http://www.hrda.ns.ca/	The provincial government established the HRDA in 1998, replacing the Industrial Commissions from the 1960s and refocusing the development mandate from investment attraction to nurturing local entrepreneurship, building community capacity, and circulating "best practice" lessons. Funding for the HRDA comes from all three levels of government, and governance comes from a board of directors composed of community, private sector and municipal interests.
Halifax Regional Municipality (HRM) http://www.region.halifax.ns.ca	The amalgamated regional government has launched extensive public consultations as part of its planning efforts to consolidate the new city.
Federal and provincial governments http://www.gov.ns.ca/	Upper level governments have supported the local partnerships, using a range of tools from direct funding to participation in governance bodies.

The Innovation Process

In Halifax, innovation in the areas of economic and community development has occurred in the context of a growing appreciation of the limits of the existing provincial legislative framework. Policy learning is amply evident. In Nova Scotia from the 1960s to the 1980s, Industrial Commissions enabled and encouraged municipalities to build industrial parks, offering serviced land and physical infrastructure to incoming manufacturers (Millward and Dickey, 1994). Created in a period of relative economic prosperity in the 1960s, the Industrial Commission framework functioned initially without great controversy, as manufacturing generally expanded across the region. The prevailing economic development philosophy was rather passive, or at least not terribly creative. As one analyst said about the industrial park, the approach was "build it and they will come" (Dann, 2000: 20). By the early 1970s, four Industrial Commissions in the Halifax-Dartmouth area had built eight industrial parks.

However, the economic downturn of the late 1970s and early 1980s changed the equation. A consequence of the Industrial Commissions framework in the Halifax-Dartmouth city region was an intensive form of inter-municipal competition to attract investment (Sancton, 2000: 97). The game was played by packaging generous incentives and concessions to firms expressing an interest in a park location. Municipal development strategy amounted to little more than a competition among industrial park managers to supply the lowest cost place for production in the region. As the economic slowdown deepened into recession, a number of intertwined, negative dynamics surfaced. Industrial restructuring left a dwindling manufacturing base in the region and recruiters for industrial parks shifted their attention to the retail sector.

By the 1990s, this sector was undergoing its own restructuring, expressed in the ascendancy of so-called big box retailers preferring to locate at the outskirts of cities. In a well-publicized case of Store Wars in 1992, two or three industrial parks engaged in what the Atlantic Provinces Economic Council described as destructive competitive and "beggar thy neighbour" tactics to land an outlet of the Montreal-based Price Club. In the end, the winning Halifax Industrial Commission enticed the firm to its Bayers Lake industrial park by selling the land below market value and committing road extensions (Dann, 2000: 21). The problems were evident: foregone public revenues and costly infrastructure expenditures; a suburbanization of retail activity threatening the vitality of the downtown core's economic base; and large opportunity costs resulting from the public subsidies, given that the Price Club had already agreed to locate in the region and was thus able to play off specific municipalities.

It is against this backdrop that the last decade's policy learning has occurred, engaging a number of actors and organizations. A consensus of sorts emerged in the mid-1990s that the existing approach to economic development was unsustainable and irresponsible. This sentiment was expressed early in the amalgamation process by the municipal reform commissioner who called for a more coherent structure and approach (Dann, 2000: 12). The Halifax Board of Trade and Metropolitan Chamber of Commerce, the four municipalities, and the provincial government reached the same conclusion. The result was considerable institutional innovation to carry forward new ideas about local economic development. These ideas stressed *endogenous development* (OECD, 2001a: 27). Emphasis was on the nurturing of local assets over external business attraction, more attention to social and community dimensions of economic change, and greater cooperation at the regional scale among local actors to better coordinate development efforts.

The first institutional innovation came in 1996 with the formation of the Greater Halifax Partnership (GHP). The newly amalgamated HRM government passed direct control for economic development to the new body which, in its region-wide coverage, public-private financing, and private sector leadership, represented a novel approach in Canada. The GHP's mission is to "leverage the region's intellectual and technological assets to generate new employment and increase Greater Halifax's international profile" (Greater Halifax Partnership, 2002). Jointly funded by the public and private sector, around 60 percent of the GHP's annual budget comes from local businesses participating in its "investor network." Its governance structure features a broad cross-section of business, university leaders, and representatives from all three levels of government. GHP services and networking targets four sectors: energy, biotechnology, information technology and transportation. Referencing research to the effect

that 80 percent of expected job growth in the region will be created by businesses already in the region, the GHP "focuses the majority of its resources on supporting and growing local businesses, not on attracting new businesses" (Greater Halifax Partnership, 2002: 4).

Numerous GHP initiatives have been implemented since 1996 to advance the mission. In 1998, it created the Halifax Equity Group to help fund small- and medium-sized businesses and supply venture capital for start-ups in the four priority sectors. Global business-to-business GHP networking arrangements now include Mexico, Sweden, and the Caribbean. Another aspect of this outreach is the recent step taken with counterpart organizations in Moncton to create a cross-provincial growth corridor (El Baroudi, 2003). Most ambitiously, the GHP has partnered with the federal government to provide funding for an offshore energy strategy that would position Halifax as the site for an oil and gas industry cluster. In 2002, the GHP worked successfully to have Halifax included in a global partnership of World Energy Cities. Comprised of 11 cities, the partnership is a forum to exchange industry knowledge and provide shared access to worldwide support services and resources. From the GHP's perspective, the world network presents "an opportunity to learn and benefit from the experience of other member cities – some of which have been involved in the oil and gas industry for decades" (Dempsey, 2002).

The second significant institutional innovation in the 1990s, moving economic development in Halifax beyond the Industrial Commissions framework, was the formation of the Halifax Regional Development Agency (HRDA). The Nova Scotia government created the HRDA to replace the Industrial Commissions, with a mandate to support community economic development, build volunteer capacity, and forge inter-sector partnerships. The provincial, federal, and municipal governments jointly fund the HRDA. The HRDA was explicit about the holistic model informing its approach to development:

> Community economic development is a comprehensive approach which recognizes the interdependence of the economic, social, and cultural aspects of community life and seeks to find solutions to related problems. For example, the "social" problem of crime is often linked to high levels of poverty and unemployment – an "economic" problem. The solutions to these are inseparable and demand common action at a variety of levels including the work of businesses, church groups, community service associations, neighbourhood organizations, educational institutions, and government agencies (Halifax County Regional Development Agency, 2002).

This inclusive approach to problem definition also informs the governance and organizational structure of the HRDA. The board of directors is composed of community, private sector and municipal representatives. Consistent with principles of bottom-up or grassroots community action, the HRDA is evolving its own decentralized form of organization to allow maximum participation across the large geographical space of the amalgamated city region. Under the HRDA umbrella, two further networks have been proposed: Local Development Associations to co-ordinate services at the sub-regional level, and Community Development Groups to lead strategic planning and project implementation in specific neighbourhoods. In turn, the HRDA board will include representatives from the lower tier bodies. Like the GHP, the HRDA has numerous projects underway, many of them combining small business formation with eco-tourism and heritage preservation in the HRM's outlying areas. A key priority is community

capacity building, with the HRDA develop training guides, tool kits, and workshops to help volunteers and community groups manage their projects.

In sum, since the municipal amalgamation, local actors in Halifax have introduced significant innovations taking the region's economic development practices well beyond an entrenched and highly problematic framework. Destructive inter-municipal competition and land "giveaways" by Industrial Commissions have been replaced by a region-wide partnership process that focuses on local assets and building from within. Two new organizations, the GHP and the HRDA are carrying forward the new approach, complementing each other's efforts. The GHP's key constituency is larger businesses, many with global aspirations and mostly located in and around the urban core. The HRDA's key constituency is community-scale business, with primarily local horizons, and mostly located in the outer suburban and rural parts of the region.

In this sense, Halifax is a city region with two quite robust institutional intermediaries serving the needs of different constituencies. One challenge for the future will be to address in a systematic way the synergies, or at least points of intersection, between these partnership bodies so as to avoid institutionalizing a divide between the social and economic dimensions of innovation.

Role of Government

Government has played a central role in Halifax's innovations. Provincial legislative change in 1994 replaced an outdated economic development framework with the HRDA. Additionally, the federal government has contributed financial support to initiatives launched by both the HRDA and the GHP.

For its part, in 1999 the newly enlarged municipal government launched a year-long, extensive community consultation to develop a common vision and strategic directions to guide development of the region (Halifax Regional Municipality, 2002). Of course, the democratic and administrative merits of the provincial government's decision to amalgamate the four municipalities continue to be debated (Sancton, 2000). But there is virtually no debate about the fact that the regionalization of the economic development function was a welcome departure contributing to the city's overall well-being and future prosperity. Further proof of this is an innovation at the Burnside Industrial Park. Once widely known as a major player in regional Store Wars, the Burnside Park has now been recognized for its efforts to become an "industrial ecosystem" (Tomalty, 1999-2000). The merger of economic and environmental goals has come through collaboration among the park's businesses, the three levels of government, Nova Scotia Power, and Dalhousie University. The project is creating "tools and strategies to promote materials and energy exchanges among firms in the park, along with waste reduction and improved environmental performance within firms" (Tomalty, 1999-2000). It is hoped that the project will become a catalyst for industrial ecosystems in other business parks across the country.

Institutionalizing Social Partnerships: Dublin, Ireland

Background and Main Achievements

In the 1980s, Ireland's poor economic performance produced widespread dissatisfaction with the traditional macroeconomic approaches and tools. To explore alternatives, a national forum was convened among various economic and social groups resulting in the institutionalization of a social partnership strategy to improve national economic performance. The success of this national-scale initiative led local actors in Ireland to consider its application to cities and towns, where problems of spatially concentrated poverty and high unemployment remained, in spite of improved macroeconomic performance. Recognizing the weaknesses in existing local governments to tackle these problems on their own, Irish decision makers focused on building public-private partnerships in communities.

Table 9. Institutionalizing Social Partnerships	
Key Actors	**Description**
Social Partners	Business associations and trade unions supplied the initial impetus for the local partnerships through their example of productive collaboration.
Area Development Management Ltd. (ADM) http://www.adm.ie/	An independent national institution that assists local partnerships with a host of organizational and management functions. ADM is a strong institutional intermediary between the national government and the local partnerships. It works with government to determine financial allocations to partnerships, tailor national policy to local conditions, and coordinate partnership evaluations. It also assists local partnerships with technical support, information exchange, and lesson drawing.
Planet http://www.planet.ie/	This is a network with a small secretariat created by the local partnerships themselves to coordinate their work, develop a common voice, and represent the views of the partnerships to ADM and national policy makers.
County and City Development Boards (CDBs) http://www.cdb.ie/	These boards were established in 2000 to better link the area-based partnerships to local governments, and improve coordination of the activities of elected councils and partnership bodies. The CDBs have a governance structure comprised of local government, local partnership bodies, social partners, and state agencies.
National government http://www.taoiseach.gov.ie/ index.asp	The Irish government has made local partnerships a priority in its National Development Plans, and working with the ADM has modified centralized public administration to incorporate local input and facilitate bottom-up development.
European Union http://www.esf.ie/	The European Union has been a key player in the Irish process, given the EU's emphasis on social cohesion, subsidiarity and partnership in policy implementation, and Ireland's priority status for funding as a less favoured part of the Union. The EU has supported different components related to anti-poverty, long-term unemployment, urban regeneration, rural development, and integrated economic and social priorities.

Today, Irish partnerships are widely viewed in Europe as the model for collaborative local governance. Area-based projects have achieved positive outcomes along a number of lines: the formation of a "thick" institutional infrastructure for managing and steering public-private partnerships; the mainstreaming of local pilot projects into national policy; and extension of the initial focus on poverty and social exclusion to strategies for innovative business development, for example, in Dublin's emerging multi-media digital hub.

The Innovation Process

Dublin (population 1,122,600) has been a geographical focal point in Ireland's local partnerships. The Irish approach has a number of distinctive features that have brought it recognition. A recent OECD survey of local partnerships stated that the Irish partnership model "enjoys a reputation for innovation in local governance and energetic action on unemployment and poverty that is unmatched in Europe" (Turok, 2001: 132). Similarly, Jim Walsh, Sarah Craig, and Des McCaffery, in their detailed case study examination of Irish social partnerships, make the point that Ireland's progress with "local initiatives on unemployment and local developments has reversed the traditional pupil-teacher relationship between Ireland and the EU" (Walsh *et al.*, 1998: 63). Today, they note that the EU and other bodies are "looking to Ireland for answers." Even analysts, critical of public-private partnerships for not fully representing social and popular interests, acknowledge that the Irish approach has managed to involve a broader range of actors than is the norm, including trade unions and anti-poverty associations (Geddes, 2000: 788).

The basic dynamic of the Irish model has been successful transfer of the national-level social partnerships, geared to finding consensus on macroeconomic policy, down to the local scale of area-based collaboration (Sabel, 1996; Turok, 2001). Recognizing that existing local governments in Ireland were ill equipped to lead the process, Irish policy officials focused on building a strong public-private institutional framework both to coordinate the policy interventions of the national government and to bring together representatives of community interests. The Irish approach has been unusually systematic in its effort to engage *strategic brokers* at the local scale for community-based partnerships and to support them through *institutional intermediaries* connected to upper level governments.

The effort has been driven from above through a combination of EU funding and national government policy. Crucial here were two major thrusts from 1994 to 1999: the Irish government's National Development Plan, which formalized the state's commitment to local adaptation of economic and social policies, and the EU's Community Support Framework targeted at disadvantaged communities displaying a collective will to maximize their development potential. Social inclusion was the integrating thrust with priority given to services for at risk and marginalized people such as the long-term unemployed and young people leaving school early (Walsh *et al.*, 1998).

On this policy and financial foundation, area-based partnerships rapidly expanded throughout Ireland. In the late 1990s, 38 local partnerships were created, 20 of them in urban centers, with a focus on deprived areas within Dublin, and 18 in rural communities (Turok, 2001: 137-138). Each partnership employed a small professional staff to assist boards of directors comprised of

representatives from the social partners (business, trade unions, and farmers where relevant), community associations, national government departments and local officials. Decision-making proceeded by consensus and the local boards identified priorities, created specialized working groups, and selected projects for funding. In turn, their strategic plans and budgets were presented for approval to another institution, the Area Development Management Ltd. (ADM), which had been set up by the state to co-ordinate the local partnerships and allocate and monitor their funding. Ivan Turok describes the ADM's pivotal role as an institutional intermediary in the local partnership process:

> ADM has an important mediating role between the local partnerships and government. Ireland is unusual among countries with local partnerships in having an intermediary organization such as ADM. It facilitates dialogue and negotiation on policy and procedural matters, and can protect the partnerships from *ad hoc* and unhelpful intrusion. For example, the government and ministers have, by and large, allowed ADM to determine financial allocations to the partnerships without interference. ADM works with government policy but it is a private company and independent of government. It seeks to extend and enhance local experiences with technical support, to identify and promote good practice, and to inform national policy development (Turok, 2001: 140).

Thus, the ADM connects the local actors to national resources, disseminates best practice experiences, and promotes cross-local coordination. At the local scale, the 38 partnerships have also established their own umbrella organization, known as Planet, to represent their collective interests to the ADM and in wider public policy arenas. And most recently, a further institutional layer has been added, the County Development Boards, with a mandate to ensure appropriate participation of formal local government authorities with the intent of improving service delivery in child care, education and other statutory programs critical to the success of social inclusion projects brought forward by the social partners.

With this multi-layered institutional framework in place, the Irish area-based partnership model has achieved success on a number of policy fronts. Assessments by Charles Sabel, Ivan Turok, and other close observers, agree that the process has effectively tapped local ideas for the initial design of national policies and mobilized community networks for their implementation. The result has certainly been more legitimate national policy and, most likely over the long run, better outcomes on some of society's most intractable problems such as spatially concentrated poverty and social exclusion. Here there are examples of important feedback and policy learning across the levels of the partnerships. In employment policy, new strategies to reach the long-term unemployed were implemented on a pilot basis through local partnerships and positive results have led to extension of the program nationally. Similarly, a back to work allowance to assist people moving off welfare and starting businesses was seeded in local partnerships and subsequently became national policy. Along the same lines, a national labour market program to grow the social economy worked with the local partnerships to fine-tune program design and implementation. Indeed, because of this sensitivity to local ideas and lessons, the program was effectively customized, becoming "more a series of separate local measures funded centrally, rather than a standard national programme" (Turok, 2001: 161).

Another aspect of the Irish learning dynamics has been the transfer of local partnership approaches from the social inclusion field to address the challenges of economic development (Hayward, n.d.). Indeed, one of the observed gaps in the initial local partnership approach was its limited reach into business, finance and high technology networks. A broader strategy may now be emerging, within the context of general concern about the longer-term viability of Ireland's historic economic development strategy which relies on attracting transnational capital largely on the basis of a low-cost business environment.

What is in question, however, is the degree to which global actors become embedded in local economies and participate in partnerships for technology transfer, collaborative research, and so forth. This form of social learning for economic innovation has become a priority of Ireland's National Economic and Social Council. The same logic of institutional transfer from the macro to the local scale that originally drove the social inclusion agenda informs the council's thinking:

> This approach which is referred to as 'learning-by-exploring' requires a network model of enterprise support linking the 'innovation architecture' and the firms. … To make such a network function, it must be recognised that consensus of the kind so usefully put together in the social partnership arrangements at the macro-level, needs to be forged amongst players in the innovation and enterprise support field (Hayward, n.d.: 15).

One example of progress along these lines appeared in 2002, in Dublin, where a joint venture between the Irish and city governments resulted in "Dublin's Digital Hub" (Department of Enterprise, Trade and Employment, 2002). Located in a traditional industrial area in the city's most historic districts, the hub is to service a cluster of 20 firms, many of them Irish, in new media research, training, and production. The nine-acre project will be managed by a multi-stakeholder board and feature broadband connectivity, space for early stage companies, and facilities to foster networking. It is viewed positively by local actors as urban regeneration that links physical renewal with economic opportunity in a knowledge-based growth sector.

Role of Government

The Irish government and the EU have played the leading role in the Irish area-based partnerships. They have supplied the crucial infrastructure and there is evidence that local experiments have been mainstreamed to inform and improve public policy. At the same time, the governments have evolved a quite complex institutional framework for partnership governance (i.e., ADM, Planet, and County Development Boards). This raises two challenges – accountability and coordination. For accountability, reporting relationships flow in numerous directions: partners are simultaneously accountable to their individual memberships, to project funders, to one another, and to various levels of government through the ADM. For coordination, the different bodies need to avoid duplication of effort and ensure coherence. The national government has an important responsibility to ensure that a robust, multi-scaled institutional network for innovation strategically channels rather than diffuses scarce policy resources and community energies.

2.3 Building Knowledge-Intensive Regions

This section profiles innovation processes in geographically dispersed regions seeking to build a cohesive knowledge cluster. In such places, innovation challenges often focus on building institutional capacities for rapid and full deployment of new information and communications technologies. Specific priorities include networking between research institutes and small business, the coordination of local resources at the regional scale, and "smart growth" planning that integrates economic, environmental, and equity priorities. The three places profiled are: Kitchener-Waterloo, Ontario; Saskatoon, Saskatchewan; and Portland, Oregon.

Making Regional Connections: Kitchener-Waterloo, Ontario

Background and Main Achievements

Kitchener and Waterloo are two medium-sized cities (Kitchener CMA population, 414,284) at the heart of an Ontario region that have attempted to reframe a collective economic identity as Canada's Technology Triangle (CTT). The CTT includes two other cities, Cambridge and Guelph, and each of the four has its own particular sectoral strengths in a region-wide economic profile featuring heavy manufacturing, auto parts, electronics, and financial and educational services. The economic recession of the late 1980s and early 1990s took a heavy toll on the region, with the loss of more than 4,500 full-time manufacturing jobs, and unemployment levels that peaked at around 15 percent in 1991. While the recovery of the late 1990s returned growth to the region, concerns remain about many displaced workers and their families who are struggling to make the transition to the new economy. In light of these restructuring challenges, the Kitchener-Waterloo experience exemplifies three key issues relevant to an understanding of the community-based innovation process:

(1) Since the 1980s, a variety of private and public sector actors and organizations have joined together to try to consolidate the technology triangle identity through a region-wide economic governance structure transcending the formal boundaries of the separate municipalities.

(2) The process of constructing this regional governance capacity has been difficult and uncertain in its progress, but local actors have responded creatively to the constraints and opportunities, suggesting a community able to adapt to changing conditions and learn through institutional experimentation.

(3) The region has recently seen the formation of a dynamic multi-stakeholder collaboration focused on eliminating poverty by combining strategies such as asset-based development and community economic development. This collaboration is innovative in a number of respects, including the unique partnering of a national action research organization, philanthropic foundations, local businesses, and municipal and regional governments.

Table 10.
Making Regional Connections

Key Actors	Description
Canada's Technology Triangle (CTT) http://www.techtriangle.com/	This is an informal economic development network and regional economic identity launched in 1987, encompassing four municipalities: Cambridge, Kitchener, Waterloo and Guelph.
Communitech http://www.communitech.org/contact us.cfm	This is a business association formed in 1997 and focused on the specific needs of high technology firms in the CTT. A key priority has been to forge stronger links between technology firms and the local universities.
Canada's Technology Triangle Accelerator Network (CTTAN) http://www.cttan.org/	The network was established in 1996 through federal government's Community Investment Program and local corporate sponsorship. CTTAN focuses on venture capital provision for start-up firms.
Opportunities2000 http://www.op2000.org	This organization emerged in 1998 through the Lutherwood Community Opportunities Development Association in the Waterloo Region. Adopting a multi-stakeholder strategy, it set targets to help 2,000 households move out of poverty by 2000, and to build the community's capacity to combat poverty over the long term. The Caledon Institute has participated through action research.
Governments http://www.region.waterloo.on.ca/	The four local governments, particularly their economic development departments, have been attempting to cooperate to realize the CTT vision for the region. Upper level governments have contributed to specific innovation projects such as the CTTAN and, more generally, to the area's knowledge base in the universities and Centres of Excellence. In social innovation, federal and provincial policy support for the goals of Opportunities2000 has been uneven.
Post-secondary educational institutions http://www.uwaterloo.ca/ http://www.wlu.ca/ http://www.conestogac.on.ca/	Three local area universities and a community college have supplied labour market skills and, in some instances, worked more formally with agencies such as Communitech and CTTAN for knowledge transfer and technological innovation.

The Innovation Process

The Kitchener-Waterloo innovation story begins with a concerted effort to build a regional economic governance capacity that transcended municipal administrative and political boundaries. The challenge was to establish institutions and networks at a scale suited to emerging competitive challenges in the North American and global economy, overcoming various forms of resistance and inertia. The first initiative was launched in 1987, when the economic development officers of the four municipalities joined together to form Canada's Technology Triangle. Recognizing the costs of inter-municipal investment competition and the need for greater cooperation in the face of an intensive economic restructuring of the region's traditional manufacturing base, the CTT began as a joint marketing initiative for the municipalities. From this modest start, it was hoped that an

institutional foundation might evolve for public-private collaboration throughout the region. In developmental terms, the policy progression would be from external investment campaigns to internal innovation fully mobilizing the region's assets in technology, post-secondary education, and financial services (Roy, 1998).

In its first decade of existence, the CTT made some progress. It consolidated a regional database of economic and statistical indicators, it marketed the region effectively in Canada and globally, and it generated awareness of the area's potential high technology clusters. However, when it came to strengthening the institutional fabric of the region, the CTT has been judged to be more of a failure (Leibovitz, 2001). Linkages were not built between firms and the region's knowledge centers in the universities and community colleges. More broadly, no governance mechanism emerged from the CTT for public-private partnership or joint planning. Such institution building was frustrated by a combination of municipal resistance, a lack of trust among firms and the inability of private-sector umbrella associations such as chambers of commerce to bridge their differences and coalesce support behind the CTT. Indeed, the CTT itself even came in for criticism from member municipalities, particularly Kitchener, for its failure to produce a coordinated regional development plan. As such, the CTT was not functioning as a strong institutional intermediary for partnership processes. Jeffrey Roy summarized the situation:

> In fact, with the disconnectedness between the private sector and the CTT initiative the sectoral separation of state and market has resulted in an under-utilisation of region capacities.… The implications for the performance of the region is an underdevelopment of integrative synergies between industries, governments and communities in each of the municipalities despite the growing, and largely undisputed evidence pointing to their economic interdependence (Roy, 1998: 251).

At this juncture in the region's history, two new organizations emerged to advance the vision animating the CTT. The first organization was Communitech, an industry association founded by the president of a leading software firm. Its specific focus was on high technology firms, building the infrastructure for clustering. Unlike existing representative bodies such as municipally focused chambers of commerce, Communitech organized itself on the regional scale of the CTT. As such, its networks were confined to one sector (high technology), but in their geographic reach crossed the four municipalities. Started with 45 founding members, its membership grew rapidly to about 300 members, encompassing business services to assist technology cluster formation (Gertler and Wolfe, 2002: 30).

Communitech's activities included developing collaborative training, research and development, and brokering access to export markets. A key priority was forging linkages between business and education sectors, taking advantage of the strong and diversified research base in the region's three universities: engineering and computer science at the University of Waterloo, finance and business administration at Wilfrid Laurier University, and biotechnology and agricultural science at the University of Guelph. In seeking these knowledge-transfer relationships, Communitech also undertook to represent the needs of its member firms in provincial and national science and technology policy circles.

This public policy orientation was evident in the second key organization emerging to fill in the CTT's institutional space. Created in 1996, Canada's Technology Triangle Accelerator Network (CTTAN) has been described as "an important landmark in regional institutional development because for the first time since CTT's establishment private sector actors and government officials became directly involved in the process of partnership formation" (Leibovitz, 2001: 193).

In fact, CTTAN's emergence underlines the significance of the federal role in local innovation. The Canada Community Investment Program was the catalyst, making available initial funding for community-based organizations to assist with small business start-ups. In this case, the program was available only to those communities that established a partnership structure and secured commitment from the private sector to provide matching funds and ongoing leadership in fund management. Local actors from across the CTT took advantage of the opportunity to organize themselves to secure the federal money, using it to institutionalize a venture capital network in the form of the CTTAN, linking fledgling firms with equity investors.

Thus, Communitech and CTTAN have gone some distance toward building an economic governance capacity at the regional level in Canada's Technology Triangle. They have done so by concentrating their focus on the needs of high technology sectors and business start-ups, and by drawing down resources from upper level governments. As such, these organizations have been viewed as a "critical mass which can encourage others, such as the educational institutions to network the CTT identity intensively across the region" (Roy, 1998: 252). In a comparative study of local economic collaborations in Ontario, Meric S. Gertler and David A. Wolfe conclude that the CTT's "forms of associative governance" have strengthened strategic alliances in the area while attracting "expatriate entrepreneurs and innovators to return to the local economy and even attracting the attention of foreign venture capitalists to invest in the regional economy" (Gertler and Wolfe, 2002: 35).

The third component of Kitchener-Waterloo's community-based innovations has unfolded on the other side of the new economy. The combination of economic recession, free trade restructuring, deficit fighting governments, and technological change left thousands of individuals and families in distress throughout the region. In response, two community organizations came together to form Opportunities2000 (Hodgson, 1998). Its innovations were many, beginning with a philosophical commitment to a "comprehensive community initiative" approach to poverty reduction, stressing the need for multiple actors and cross-sectoral interventions.

Opportunities2000's partnership was broad, mobilizing over 40 non-profit organizations, business, four levels of government, and low-income residents themselves (Leviten-Reid, 2001). The partners were grouped in sectoral action teams to help extend and expand the network. In its first phase of operation, 49 specific poverty reduction projects were initiated or sustained, involving 1,600 low-income participants. The projects were arranged in four streams of action: meeting basic needs, removing barriers, developing skills, and promoting local enterprises. An evaluation framework sought to measure progress in ending poverty at three distinct scales: individual, organizational, and community-wide. Initial surveys found that nearly half the individuals had seen an increase in personal and household incomes, and that virtually all of the partners had seen their organizational capacities to fight poverty enhanced. The core organizing

team also presented the project to the region's local governments, challenging them to develop their own anti-poverty strategies (City of Kitchener, 2000).

Opportunity2000's core organizing team was an effective institutional intermediary for the partnerships, animating the local networks while also securing a range of external resources, from funding to technical assistance and research expertise. A notable feature of the Opportunities2000 design was the action research role played by the national social policy institute, the Caledon Institute. It assisted with basic research functions such as data collection, project design and outcomes evaluation, and also connected the local project to a national network of community-based anti-poverty initiatives (Caledon Institute, 2001).

With completion of its first phase, Opportunities2000 has launched a new plan to prevent youth from entering the cycle of poverty and to address the needs of the working poor. This phase runs from 2002 to 2005, engaging a new roster of partners from the private, public and third sectors (*Turning Point*, 2001).

Role of Government

Economic development officers in the four municipalities conceived Canada's Technology Triangle as a strategy to improve regional economic coordination and planning. However, historic tensions and rivalries most evident at the political level stalled its development across the municipalities.

In these circumstances, further progress depended more on private sector leadership, which eventually arrived in the form of two region-wide high technology organizations. Also critical was the role of the federal government's grant program that became a catalyst for such regional business networking. Upper level governments were also important in shaping the course of Opportunities2000, the CTT's major social policy innovation. In this case, some local actors involved in anti-poverty work reported that federal and provincial deficit reduction strategies, and "a series of counterproductive government policies" made progress more difficult (Leviten-Reid, 2001: 60). Here more feedback and better learning between the community and government policy makers, specifically input from representatives of the region's growing disadvantaged population, could have made a difference.

Indeed, one overarching pattern in the Kitchener-Waterloo case is the relative absence of integration between economic and social innovations achieved, respectively, by the CTT and Opportunities2002. The institutional architecture of the CTT, based in technology organizations like Communitech and CTTAN, offered no representation to trade union interests, environmental groups, or social planning bodies (Leibovitz, 2001). In short, there was little evidence of synergies between the two quite robust partnership networks working on the economic and social sides of the new economy.

Towards Inclusive Clusters: Saskatoon, Saskatchewan

Background and Main Achievements

Saskatoon is a medium-sized regional centre with a population of 225,927. Its boundaries include 23 rural municipalities and one First Nations Reserve. In 2001, Saskatoon's economy represented nearly 22 percent of Saskatchewan's total provincial GDP. The economy is a major service and supply centre for Saskatchewan's agricultural sector and it also has strengths in mining, forest products, financial, and insurance services. Recently, a number of knowledge-based, high technology companies closely linked to the University of Saskatchewan have established a strong presence in the region.

Saskatoon has made progress on a number of economic and social fronts through local partnerships, enabled by provincial and federal policies. Three areas of achievement stand out. First, Saskatoon has taken maximum advantage of its natural assets in relation to agricultural production. It has developed a canola-based biotechnology cluster that occupies an innovative niche in a larger global production system. Relatedly, local actors in Saskatoon have formed a Saskatchewan Nutraceutical Network that has been ranked as one of four top global functional food networks servicing the needs of the sector. Nutraceuticals are products isolated or purified from foods and sold in medicinal forms not usually associated with food.

In social and cultural areas of innovation, Saskatoon also merits attention. On the one hand, it has supported a nationally recognized community development housing corporation deploying a range of strategies to empower low-income residents. On the other hand, the city's main business association has joined with First Nations organizations to build cross-cultural understandings among employers and the region's growing Aboriginal labour force, and to implement specific joint programs to train and employ Aboriginal youth. This latter initiative is especially noteworthy given that Aboriginal residents, in 1996, accounted for a larger of portion of Saskatoon's population than any other city in Canada, and nearly 50 percent of the Aboriginal population was under 20.

The Innovation Process

The Saskatoon Regional Economic Development Authority (SREDA) has been at the centre of much of the city's recent innovative activity (Federation of Canadian Municipalities, 2002). This economic development organization has participated in three major projects: (1) the strengthening of Saskatoon's world scale cluster in the canola-based biotechnology industry; (2) the rapid rise of the local nutraceutical industry; and (3) the unique arrangement with Aboriginal leaders for education, training and employment. With each of these initiatives, SREDA has acted as a catalyst and partner, finding creative ways to realize its mission of growing a diversified local economy.

Table 11.
Towards Inclusive Clusters

Key Actors	Description
Saskatoon Regional Economic Development Authority (SREDA) http://www.sreda.com/	This agency was incorporated in 1993 and now has a membership of 240 private and public sector companies. An elected board of governors oversees SREDA along with public sector representatives from the City of Saskatoon and the rural municipalities.
Federation of Saskatchewan Indian Nations' (FSIN) Corporate Circle http://www.corporatecircle.ca/corporate circle.htm	The Corporate Circle was established in partnership with the SREDA to increase employment opportunities for First Nations people in Saskatoon. It facilitates networking among business leaders and FSIN chiefs to plan projects, and now includes about 40 of the city's and the province's major public and private sector employers.
Quint Development Corporation and Quint Housing Cooperative (QHC) http://www.ir.gov.sk.ca/Default.aspx? DN=2791,2970,2936,Documents	This agency is a non-profit community economic development organization formed in 1995 to provide housing and other supports to families in five low-income neighbourhoods. The corporation works with eight co-operatives representing approximately 90 families.
Saskatoon Nutraceutical Network (SNN) http://www.nutranet.org/	This network is the first of its kind in Canada and a recognized world leader in organizing services for nutraceuticals. The network was formed in 1997 in partnership with SREDA and, in 1998, received a $1 million grant from the federal government's Agri-Food Innovation Fund.
Innovation Place http://www.innovationplace.com	This university-based research park opened in 1977, and is home to Saskatoon's agri-science and biotechnology cluster. Approximately 120 organizations are based in the park, including federal and provincial research agencies such as the National Research Council's Plant Biotechnology Institute and the Saskatchewan Research Council. Activities in Innovation Place contribute an estimated $250 million per year to the Saskatoon economy.

The key engine for the Saskatoon economy is the globally competitive canola oilseeds complex at the Innovation Place research park. The origins of the cluster are found in the 1940s, with public research programs undertaken by Agriculture Canada and the NRC (Phillips, 2002). On this foundation, knowledge-intensive firms in Saskatoon have secured a dynamic niche in the global industry. The structure of Saskatoon's canola cluster has been closely analyzed by Peter W.B. Phillips. He tracks the historical evolution of the cluster into its present day form as an "innovation entrepot." In this model, the Saskatoon cluster imports much of the basic research and patentable technologies for the industry, but then adds value at later stages in the production process.

Phillips terms these later stages as the "know-how and know-who" components of innovation, where the kind of intensive face-to-face relations among researchers and firms in laboratories and greenhouses enabled by Saskatoon's Innovation Place are critical (Phillips, 2002: 38-39). Such networks drive further development and commercialization of research breakthroughs occurring elsewhere. The "non-competitive environment" of Saskatoon's public research

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centres, principally the facilities of the NRC and Agriculture and Agri-Food Canada, provide the setting for the informal learning that leads to new plant varieties and their marketing. Phillips explains the Saskatoon innovation milieux:

> The generation and transmission of the non-codified knowledge in the regional system is the key factor holding things together. People develop skills and working relationships that, together, convert bits of information into operable knowledge. This tacit type of knowledge is learned almost exclusively through experience. Researchers learn how to do things and whom to work with through trial and error. … Hence, although Monsanto and AgrEvo (now Aventis), for instance, both have giant research "universities" and labs at their headquarters, both have collaborated extensively in Saskatoon with both the AAFC and the NRC (Phillips, 2002: 44-45).

The Saskatoon region offers further downstream advantages for the canola cluster. The Canadian prairies feature well-developed farmer producer networks and grower associations, ranging from co-operatives to the Canola Council of Canada, that facilitate wholesaling of new plant varieties and application of new production technologies. In addition, cluster leaders have used global work exchanges and guest researcher arrangements to nurture a knowledge-intensive "thick" local labour market, featuring one of the world's largest geographic concentrations of research scientists in agricultural biotechnology.

Another related sectoral innovation where SREDA has been active is nutraceuticals. A partnership between SREDA and the Saskatoon Nutraceutical Network (SNN) is positioning the city to become a world leader in nutraceutical and functional foods production. SREDA has established a nutraceutical Industry Advisory Council to bring together various industry suppliers and related companies to better understand the sector and its local potential (Prairie Partnerschaft, 2002). The industry has been advanced by research support from federal and provincial governments in the form of the Agri-Food Innovation Fund and NRC's official recognition of Saskatoon as Canada's leading nutraceutical centre.

The NRC allocated technology cluster funding to the Saskatoon Plant Biotechnology Institute for research into crops for enhancing human health. For its part, the SNN represents and services the needs of companies, growers, trade associations, research facilities and government organizations. Given the relatively new nature of the industry, the SNN plays an important role in raising awareness of growth potential among venture capitalists, distributing and marketing companies, and among governments in respect of regulations affecting product development. SNN has been recognized as the world leader among nutraceutical industry networks, "forging exciting new agendas and 'models' for functional foods/nutraceutical centers" and providing "direction and momentum and an international perspective for things which were previously happening as ad hoc one-on-one university/company co-operations" (Heasman and Mellentin, 2001).

SREDA's other key initiative relates to its partnership with local Aboriginal leaders – the only one of its kind in Canada (Saskatoon Regional Economic Development Authority, Inc., 2002). With the continued rapid growth of Saskatoon's Aboriginal youth population, the initiative launched in 2001 was obviously timely. It offered employment, training, and business opportunities to a historically disadvantaged community in the labour market while also

networking local employers into a large potential talent pool and customer base. To realize its objectives, the cross-cultural partnership identified a number of priorities:

- Deliver training in cultural understanding for business owners and managers;

- Deliver best practice Aboriginal recruitment information;

- Facilitate recruitment of graduates from First Nations training institutions;

- Promote an Aboriginal Youth Career Symposium;

- Ensure First Nations groups are involved in trade missions; and

- Involve Treaty Land Entitlement fund managers in investment networks.

In 2002, the Employer Circles Program graduated its first 14 employers, created 100 new jobs for Aboriginal people in Saskatoon, and visited high school and post-secondary education institutions across the region. Plans are now underway to expand the program throughout the province. In sum, this partnership bridges two key communities in Saskatoon who have long been distant from one another. Chief George Lafond of the Saskatoon Tribal Council summarized: "As a local grassroots organization, we have access to individuals who need these important employment opportunities. We now also have the critical linkages of SREDA, a group that can bring employers to the table" (Saskatoon Regional Economic Development Authority, Inc., 2002).

The final notable local innovation in Saskatoon involves affordable housing and community economic development (Usiskin, Szejvolt, and Keeling, 2001). Following the dramatic reduction in federal and provincial support for social housing in the mid-1990s, local actors in Saskatoon mobilized creatively. To begin, they reframed the housing question as a broader issue of community development emphasizing social networks and neighbourhood capacity building that can widen access to home ownership. A catalyst was the Quint Housing Co-operative, which pulled together diverse actors in the sector – credit unions, contractors, real estate developers, lawyers, insurance companies, and governments – behind a new housing strategy for low-income neighbourhoods. Each partner was asked to contribute technical support to the project or offer their services at preferred rates to potential homeowners. The target group was families with children and youth, earning less than $30,000 in total income, and ineligible for traditional mortgages. The QHC focused initially on helping with the downpayment, the major barrier facing low-income families. It then assisted with development of "homeowner skills" and management of housing co-operatives, lending guidance on often complex questions of financing and membership responsibilities.

The QHC also linked the housing strategy to community economic development (Usiskin, Szejvolt, and Keeling, 2001: 6). Securing grants from the federal and provincial governments, it created a number of spin-offs: the Bent Nail Tool Cooperative offered training in housing renovations for unemployed co-op residents; the Pleasant Hill Place combined school, health and social service resources to offer housing for teenage single mothers trying to complete their education; and the Support for Small Business Program that assisted low-income people in starting their own co-operative businesses.

Initial assessments of the QHC indicate some important achievements. Surveys revealed that the participants themselves had made progress, with the vast majority of co-op members moving off social assistance into paid employment. In addition, other residents in the neighbourhood have supported the co-op houses, suggesting the potential for further mixed-income communities. Mortgage lenders acknowledge, to their surprise, that the program has been extremely reliable. Lastly, there have been positive "neighbourhood effects" as the co-op process generates its own form of community social capital. The related renovation programs contribute to the physical rehabilitation of the housing stock, giving everyone a greater stake in the place and a commitment to staying over time (Sampson, 1999).

On the basis of these developments, the QHC has attracted considerable national interest and recognition from housing advocates, researchers, and policy makers (Canada Mortgage and Housing Corporation, 2002). In 1998, the Saskatchewan government created a province-wide neighbourhood home ownership program modeled on the QHC holistic approach (Mawby, 2001).

Role of Government

The innovation process in Saskatoon points to a fairly constructive pattern of relations between local actors and governments at different levels. Locally, the SREDA and QHC have been champions pushing forward economic and social development, and coalescing community-based partnerships. National and provincial governments have contributed crucial funding and infrastructure investment to support the growth and development of the canola-based biotechnology cluster. As Phillips' research demonstrates, the federal and provincial research presence in Innovation Place is the indispensable foundation for the cluster's niche as an innovation entrepot in a dynamic global industry. In addition, the federal government's Western Economic Diversification organization has partnered with private financial institutions to fill a significant venture capital gap in Saskatoon.

Of course, in the housing matters central to the QHC agenda, upper level governments in the 1990s were less constructive as their cutbacks raised the bar considerably for all community-based social actors. Here, the City of Saskatoon took the initiative in creating a community plan for homelessness and housing that adhered to the holistic model of causes and solutions to the housing crisis, and also created a new office of the Housing Facilitator to lead implementation (Mawby, 2001).

Regional Planning and Community-Building: Portland, Oregon

Background and Main Achievements

Portland's economy began with a port for moving lumber and agricultural cargo. Over the 20th century, the city developed strengths in manufacturing (especially in semiconductors) metalworking, wood products, high technology, and creative services. In the 1970s and 1980s, the region further diversified its industrial mix through high technology, especially semiconductor manufacturing. In the 1990s, the region experienced strong growth rates well above the national average.

Portland (population 529,121) is widely viewed as one of the most innovative cities in the United States on a number of fronts. First and foremost, the city has developed an ambitious and comprehensive approach to land use planning designed to contain pressures for suburbanization, retain a vibrant downtown core, and preserve farm and forest land. Regional plans give priority to environmental concerns, specifically limits on urban sprawl, and mobilize the citizenry in design and implementation processes. This planning model combines state-level regulation with a directly elected regional government, a combination unusual in the American context.   In addition to its land use planning achievements, Portland has been recognized in two other areas: its creative strategy in applying the Internet to community-building challenges in less advantaged neighbourhoods, and its building of a dynamic economic cluster – the "Silicon Forest" – in the absence of a world class university engaged in high technology scientific research.

Table 12. Regional Planning and Community-Building	
Key Actors	**Description**
Government http://www.metro-region.org/	The key local government is an elected metropolitan body that crosses the boundaries of 24 municipalities and three counties, and seeks to build regional consensus on growth management, land use and transportation planning. State and federal governments have established, through their regulations, the context and terms for metro-wide planning, directing local attention to the links among economic, environmental and social development.
Civic organizations http://www.cityrepair.org	Portland has a diffuse network of community organizations and informal neighbourhood associations. These groups have mobilized grassroots perspectives on issues such as regional planning and public access to the Internet.
Tektronix and Intel http://www.tek.com/ http://www.intel.com/jobs/usa/sites/ Hillsboro	These are two large technology firms that have served, over time, as anchors for the regional cluster known as the Silicon Forest.
Institute for Portland Metropolitan Studies http://www.upa.pdx.edu.IMS/home/ homeindex.html	This public policy institute based at Portland State University has contributed action research to the community, generating profiles of the economy, tracking environmental and social trends, and supplying a neutral space for different actors to come together in search of common visions and strategic plans.

The Innovation Process

In the United States, Portland is often mentioned as a leader in urban and regional development. The conclusion of a recent study examining Internet usage in American cities is representative:

> Portland emerges as the leader because its strengths cut across many dimensions. Its combination of technological sophistication, economic vitality, commitment to regional planning, and community engagement, and its existing infrastructure of

community nonprofits, make it the city most likely to effectively exploit the Internet for economic and social purposes (Horrigan, 2001: 5).

The foundation for this broadly-based innovation capacity is widely understood to reside in the city's governance structure, which has managed to combine a strong regional planning capacity with local community and neighbourhood input. A metro-wide elected body plays the key role, nurturing consensus among numerous local municipalities and three counties on issues ranging from containing urban sprawl to inter-modal transportation and mixed-income housing development (Weir, 2000; Nelson, 1996).

In the 1990s, as physical development closed in on the state-mandated urban growth boundary, the metro government undertook a comprehensive planning process to map development for the next four decades. As Peter Calthorpe and William Fulton have documented, a highly participatory process was launched, using survey research and community workshops (Calthorpe and Fulton, 2001). The goal was to build a high degree of public understanding, first, of the trade-offs between, for example public investment in highways or public transit, and second, of the potential for denser development to combine economic, social, and environmental goals. Metro staff designed alternative development scenarios for a sustainable regional city, and tested their relative merits in six neighbourhood sites with more than 500 people participating in the sessions. The result was a locally embedded regional vision of development respecting the existing growth boundary.

Implementing the plan, of course, required cooperation between the metro authority and the municipal governments. Here again Portland followed an innovative approach. The upper tier government set out different options for implementation, allowing local officials and neighbourhood residents communities to find their own path to meet the region-wide objectives. The new plan, known as Region 2040, has been in place since 1996, and initial evaluations from outside observers track some notable achievements in the American urban context: the region is growing inward without placing exorbitant pressure on housing prices; public transit ridership continues to grow; and construction activity is greater in the city's geographic core than in the surrounding metropolitan areas (Calthorpe and Fulton, 2001: 124-125).

Alongside its well-known innovations in regional planning, Portland has also received recent national recognition for its multi-faceted commitment to maximizing the Internet's potential for building both the community and the economy (Horrigan, 2001). A broad cross-section of local actors has been engaged. John B. Horrigan has described how neighbourhood associations have developed community list-servs for diverse purposes: organizing to pressure the Metro government to stop an environmentally negative project; connecting affordable housing providers to low-income residents; and cultivating community leadership in neighbourhoods with substantial numbers of female-headed households and a high incidence of domestic violence. For their part, Metro government officials waged a high profile battle through the courts to try to preserve open access to the Internet for all community users and ensure that telecommunications providers would build broadband capacity throughout the city and not just in high-income areas. In addition, Portland businesses have forged a virtual network to address a gap in venture capital by linking technology entrepreneurs with older, more established companies and financiers.

Another notable aspect of Portland's development has been its emergence as a home for high technology firms. The Silicon Forest cluster contains about 2,000 firms, employing 70,000 workers who produce semiconductors and electronics, and work in related supporting industries. In the 1990s, the cluster grew much faster than its counterparts in other parts of the United States, and its performance in patenting also exceeded national growth rates (Cortright and Mayer, 2000). The striking feature of the Silicon Forest is its growth in the absence of a major technology research institution in the university or public sector to partner with firms in knowledge generation activities. Analysts of cluster development explain Portland's "exceptionalism" through the historic presence of two strong anchor firms: Tektronix and Intel (Cortright and Mayer, 2000: 2).

In their research intensity, these two firms have acted as surrogate universities, training and attracting specialized engineering talent, many of whom moved on to establish their own enterprises in the Silicon Forest. Indeed, when Tektronix underwent a massive downsizing in the 1980s, private and public actors in Portland moved to diversify the technology base. As part of its obligations under the urban growth boundary infill development plan, the metro government has sponsored a Creative Services Initiative in downtown Portland. The cornerstone is a $6 million renovation of empty warehouses into open concept wired offices. The buildings are adjacent to a thriving local arts community, and film and recording companies. The aim is to build synergies in a concentrated and "funky" downtown district that combine multi-media entrepreneurs with local creators of cultural content (Horrigan, 2001: 14-15).

Interestingly, in late 2002, Portland's metro government appointed a Metropolitan Economic Policy Task Force, reflecting a growing concern that the region's planning process was not sufficiently informed by a vision of the economic future (Cortright, 2002). The task force is based at Portland State University's Institute for Portland Metropolitan Studies. While the Portland city region is without a strong university research capacity in high technology science, the Institute for Portland Metropolitan Studies contributes other forms of social knowledge for the community. It produces a continuous stream of policy-relevant research on the region's economic, social, and environmental development, and it has frequently been called upon by city officials to convene a "neutral space" for multi-stakeholder dialogue and inter-sectoral learning. Indeed, the Metropolitan Economic Policy Task Force began its work by noting that Portland lacks the kind of institutionalized public-private partnership mechanisms that exist in cities like Pittsburgh for monitoring the regional economy and providing the organizational basis for developing strategy. As such, the task force is expected to provide advice on the formation of such a body and, equally, to provide a policy framework linking economic development objectives to the region's institutionalized commitment to growth management and integration of transportation and environmental goals in land use planning.

Role of Government

In Portland, governance has proceeded through consensus building at the metropolitan scale framed by regulations emanating from both state and federal governments. For example, federal legislation in transportation planning was a catalyst for the long-term visioning and planning process launched by the metro government in the 1990s. It was state legislation that enacted the

urban growth boundary in the first place, setting in motion the city region's ongoing search for balanced and compact development.

This same state regulatory influence has been evident in moving local governments to incorporate social and community priorities in their planning (Provo, 2002). Beginning in the 1980s, the state of Oregon authorized regional development boards to dispense lottery funds for local development projects. In the late 1990s, the boards were mandated to end their near total preoccupation with high technology related development projects to support, as well, disadvantaged groups such as racial minorities or nonprofit organizations involved in education, job training and community-capacity building. As one observer concluded, the new emphasis was on the connection between "people, places, and clusters"(Provo, 2002: 64). As such, it seems that Portland's widely heralded local innovations continue to be the result of a dynamic interplay among governance levels, from the neighbourhood to the regional and beyond.

2.4 Conclusion

This part of the Discussion Paper has ranged widely across 11 different local experiments in innovation. It probed a series of common issues across all the cases. The following tables draw together the individual analyses, highlighting key similarities and differences in processes and outcomes among the cities and regions. This summary discussion of cross-cutting themes continues in the final section of the paper.

Table 13.
Revitalizing Rural and Remote Communities

City/Region	Key Project	Key Players	Success Indicators	Success Factors/ Innovative Practices	Barriers to Success/ Future Challenges
Kelowna	Growing the Silicon Vineyard	Regional Economic Development Corporation, government research councils	Growth of high technology firms and business services in fruit and wine cluster	Strong local champions, overall quality of life, developing high technology/ knowledge infrastructure	Sustaining presence in globally competitive wine and fruit clusters, building local science and technology capacity, venture capital supply
Meadville	Regenerating abandoned brownfields and "wiring" community	County Development Corporation and state government	Investments in revitalized industrial park, environmental clean-up recognition	Strong local champions, inclusive community development coalition, state-wide recognition	Overcoming local resistance to new technologies among small businesses and agricultural producers, finding anchor firms for regenerated industrial park
North Jutland	Adapting historical telecommuni-cations cluster	Local university, transnational business, national and European officials	Embedded foreign capital in local cluster, viable niche for local cluster in transformed global industry	Strong local entrepreneurial tradition, strategically focused technical university, strategic infrastructure investments by national government and European Union	Making the transition to a new generation of telecommunications technology, extending opportunity to workers and firms in traditional or declining sectors beyond the knowledge-intensive cluster
Beauce	Participating in emergent Technoregion encompassing large urban centre outside the locale	Local economic development council, federal and provincial economic development agencies	Small- and medium-sized local businesses active in regional learning networks	Long-standing local production system, recent federal and provincial supports for linking to Technoregion	Developing and retaining knowledge workers, strategic coordination of many upper level government economic development interventions in the locale

Table 14.
Renewing Industrial Cities

City/Region	Key Project	Key Players	Success Indicators	Success Factors/ Innovative Practices	Barriers to Success/ Future Challenges
Bilbao	Building cultural cluster	Local public-private urban development corporations, transnational cultural industries, European Union	Recognition on global cultural stage, attraction of tourists and trade shows, redevelopment of derelict inner city and waterfront lands	Bold vision of an alternative economic future, landing "world class" museum franchise, focused regeneration leadership by urban development corporation	Developing a more integrated approach to urban development that recognizes and values local and indigenous cultural expressions, managing the regeneration of inner city lands to include local neighbourhood interests alongside global cultural industries
Halifax	Economic development strategy for amalgamated municipalities	City region partnership bodies, provincial and federal economic development agencies	Region wide unity of purpose in economic development, integration of downtown business cluster growth with community development needs across region	Consensus following municipal amalgamation on the need to act more strategically as an economic region, emergence of a dynamic partnership body to lead business development across the region and on a global scale	Overcoming destructive legacy of zero-sum inter-municipal investment competition, further integration of economic and social/ community development agendas presently housed in separate development agencies
Dublin	Renewing distressed neighbourhoods	Social partners, national and European Union officials	Reduction of spatially concentrated poverty, development of indigenous high technology business capabilities	Effective transfer of national-level partnership success to local communities, national government and European Union support for local partnership, robust mechanisms for inter-local learning and policy transfer	Stronger representation or participation of business in local social partnerships, further efforts to embed foreign capital in local economic development and technology networks, effective coordination of complex partnership infrastructure to avoid duplication or confusion
Pittsburgh	Diversifying steel economy	Local civic alliances, national philanthropic foundations	Transformation of steel economy to software economy	Forward looking local business elites, robust neighbourhood associations, research universities	Combating spatially concentrated poverty in the city and surrounding region, including minority interests more fully in civic alliances, more coherent local government presence and upper level public policy

Table 15.
Building Knowledge-Intensive Regions

City/Region	Key Project	Key Players	Success Indicators	Success Factors/ Innovative Practices	Barriers to Success/ Future Challenges
Kitchener-Waterloo	Inter-municipal cooperation for high technology investment and anti-poverty mobilization	Regional technology and business associations, universities, voluntary organizations	Investments in high technology clusters, strong university-business interaction, inter-municipal cooperation, inclusive local labour markets	Forward looking municipal economic development officers seeking collaboration, incremental development of public-private economic governance capacity, local university engineering and computing strengths	Cooperation among municipal politicians in technology investments and economic governance, greater knowledge transfer between universities and small businesses, enhanced networking across the region's social and economic networks
Saskatoon	Agri-science clusters and socially inclusive housing and labour markets	Government research councils, science park, local business association, community cooperatives	Robust clusters in agri-science and biotechnology, inclusive labour and housing markets	Long-standing strategic commitment to maximize economic and technological benefits of local agricultural base, dynamic local business association networking with diverse social constituencies on civic projects	Maintaining world-class cluster facilities in science park, supporting new agri-food industries such as nutraceuticals, tapping the full potential of the city's Aboriginal youth population
Portland	Socially sustainable urban development	Metropolitan government, community organizations, anchor firms	Compact urban growth, downtown revitalization, business cluster diversification	Bold state legislation for urban growth boundaries, "smart growth" regional planning, world scale anchor firms for technology cluster	Potential over-reliance on two firms for regional technological base, relative absence of robust public-private partnership bodies, more attention to economic development in regional planning

Part 3. Community-Based Innovation: Lessons and Implications

This Discussion Paper has surveyed processes of community-based innovation in 11 cities in Canada, Europe, and the United States. Our departure point was that contemporary processes of globalization have made local places more, not less, important to innovation – in the broad sense used here and set out in Part 1. Many of today's most pressing challenges and opportunities are concentrated in urban spaces. Not surprisingly, Canadian cities are "back on the policy agenda" (Andrew, Graham, Phillips, 2003). Equally evident, however, is the need for communities, whether large or small, to organize themselves to take maximum advantage of the new global dynamics. The case studies in the Discussion Paper highlight the diversity of such local innovations and, indeed, the different ways to build community capacity to make positive change.

By way of conclusion, we can now step back from the details of individual cases to catalogue some overarching themes and policy-relevant lessons, which are organized below into four categories. First, we draw attention to the basic commonalties or shared characteristics among all of the innovating places. Second, within the common pattern we identify certain points of difference across the cases, highlighting variation both in local dynamics and the national frameworks structuring community-based innovation. Third, in relation to the general achievements flowing from the local partnerships, we summarize the building blocks that have been put in place to enable success. Finally, we draw together learnings for policy actors at all levels of government who are interested in developing or participating in community-based strategies for sustainable innovation.

3.1 Common Patterns

Perhaps the most basic point of convergence among the communities examined is the effort to "build from within." That is, in each of these places, local actors are searching for, and experimenting with, holistic development models that aim to grow local assets – ranging from business clusters and workforce skills, to inclusive neighbourhoods with well-preserved built and natural environments. In all cases, the broad dynamic of innovation was the same, combining bottom-up strategies with top-down support from higher levels of government. Further, the mechanism or vehicle for planning and implementing change took a similar form – that is, public-private partnerships that supplied an infrastructure for collaboration, learning, and investment. In turn, such partnerships were, more often than not, anchored institutionally in dedicated agencies or bodies with the visibility and legitimacy to coordinate input from the public, private and voluntary sectors.

In these terms, it can be said that all of the case studies revealed "development coalitions" trying to reposition their communities to meet the complex challenges of the global age (Keating, 2002). Rather than simply attempting to lure external private investors or government subsidies, local actors were creative and resourceful. Their mobilizations introduced new voices and input into the policy process and, in so doing, helped ensure a better fit between upper level interventions and local circumstances. At the same time, these local mobilizations frequently piloted strategies that were transferable to other localized areas by higher levels of government. In this sense, the community-based processes enabled upper level governments to tackle what

were described in Part 1 of the Discussion Paper as today's increasingly "wicked" policy problems such as social exclusion, productivity decline, and environmental degradation.

Of course, the specific achievements of the community-based processes varied in accordance with local priorities and conditions. Yet, taken as a whole, it is fair to conclude that progress was observed on a number of fronts: restructuring traditional industrial or agricultural economies by leveraging access to new knowledge networks, helping historically vibrant business clusters avoid becoming locked into outdated practices or ideas, linking environmental concerns to brownfield conversions and industrial regeneration, and mobilizing region-wide public and private resources to tackle problems of poverty and social exclusion in disadvantaged neighbourhoods. In each of these fields, policy design was more integrated in the sense of breaking through departmental silos, and policy delivery more tied to the needs of users in the places where they lived.

The cases also pointed to another positive dynamic of the community-based approach. The very process of convening multi-sectoral networks at the local level, where different players have an opportunity to learn from one another, generated its own synergies and momentum. Simply put, there were a number of instances of positive spin-offs: success in solving one problem fed into progress on another. In some cases, like Pittsburgh or North Jutland, the synergies were evident over time as effective mobilization in one era set the stage for progress in subsequent rounds. In other cases, the synergies were more immediate, as the same actors made "real time" connections across projects, for example, in Meadville between broadband, brownfields, and the environment; or in Saskatoon between high technology business networks and Aboriginal training and employment. As the recent OECD study of Glasgow's urban renaissance concluded: "The criteria of success are increasingly reflected in the multi-sectoral and dynamic strategies based on a vision of the kind of territory that people want for the future, a vision which is focused on realising sustainable development and encouraging local endogenous development" (OECD, 2002a: 22).

3.2 Variations on the Theme

Alongside these common features and general achievements, the 11 cases also displayed some notable variation. Most significant are differences across the national or continental settings.

In the European cases, the active presence of the European Union had an impact on the processes in four significant ways. First and most obviously, EU funding was instrumental in many cases for both the launch of the local collaboration and its subsequent operation, even expansion. Second, the EU conditioned the design of the community initiatives as its programs typically required broadly-based multi-sectoral representation of local interests. Third, the EU was influential at the levels of policy ideas in that it emphasized the interdependence of economic competitiveness and social inclusion, a thrust evident, for example, in efforts to better embed the North Jutland cluster in the larger regional economy. A similar logic was evident in Bilbao where EU projects drew attention to the linkages among business clusters, labour force development, and land use planning in distressed parts of cities. Fourth, provision of EU support for local initiatives encouraged national governments to participate as full partners in the area-based innovation strategies, often producing quite formal and robust institutional structures linking the various scales of action, as in Dublin.

Obviously, this supra-national dynamic is absent in North America. In the United States, the collaborations and partnerships were more locally defined and circumscribed. With the partial exception of the Portland experience, where an unusually active American state government structured local dynamics, the pattern in Pittsburgh and, to a large extent, in Meadville was one of civic alliances carrying the process in the absence of coherent or sustained engagement from government, either local or extra-local. In Meadville, state officials were more active in recognizing local successes after the fact, than in participating or initiating.

The Canadian cases sit somewhere between the European and American "models." Federal and provincial governments have been more engaged than their American counterparts in all the cities and communities through a number of financial and regulatory instruments. Indeed, in places like Kitchener-Waterloo, Saskatoon, and Halifax, upper level interventions have been judged critical to local success. At the same time, this policy support in comparison to the European experience lacks the focus and funding to really make a difference. As one recent comparative study concluded, Canada continues to operate with a "disjointed approach" to community-based innovation (OECD, 2002a: 159). The Canadian cases reviewed in this discussion are consistent with this assessment. For the most part, federal and provincial governments, unlike European Union officials, have not fully appreciated the interdependence of economic and social investments in building strong communities.

3.3 Putting in Place the Building Blocks

Clearly, each of the national systems creates its own context for local initiatives. Community-based innovation is enabled or constrained, and channeled down particular paths, in relation to policies and institutions at higher levels of government.

Despite the cross-national variation in structures and processes, it is also apparent that all the case studies reveal communities achieving some degree of success in what has been called sustainable innovation. Each of the cities and regions, in its own way and at its own pace, was exhibiting qualities of learning communities. That is, they all have been putting in place various combinations of the seven key building blocks we identified in Part 1 of the Discussion Paper as the foundation for successful community-based innovation.

To begin, leadership was important everywhere. Variously termed local champions, civic entrepreneurs, or strategic brokers, these individuals or alliances forged networks in cities and regions. Such leaders possessed the "community intelligence" to be able to recruit the "right people" to projects, and further to recognize those critical issues and pivotal moments when significant progress could be made in coalescing the stakeholders. In the European context, these champions tended to emerge through the public sector, in the United States they came mostly from the private sector, especially business but also voluntary and philanthropic organizations, and in Canada there was more of an inter-sectoral mix. Regardless of their particular lineage, local champions developed visions of the future that reframed problems so that formerly disparate interests found sufficient common ground to collaborate. The visions were grounded in existing local conditions, such that proposed departures were credible to a host

of stakeholders. Action plans thus reflected a realistic assessment of community strengths and weaknesses based on high quality data.

In turn, the local vision, leaders, and relationships were supported from above through effective institutional intermediaries which connected the different levels of activity, and helped local champions access extra-local contexts where decisions about vital resources were taken. Upper level policy makers then made their contributions through various combinations of direct participation, wherein departmental representatives joined local collaborations, and indirect facilitation where federal, provincial, or state policy enabled local project implementation. These processes helped the community partnerships secure the necessary financial and technical support to actually implement projects. However, they also raised important, and largely unresolved, questions among our cases about how best to ensure accountability for monies spent through community partnerships and how best to maintain the legitimacy of process in terms of the diversity of interests represented. Dublin, with its multi-layered and inclusive structure, was perhaps furthest along in addressing these issues.

Indeed, matters of partnership accountability and legitimacy are key concerns requiring more thought as the new paradigm of community-based innovation gathers momentum. The next section closes the analysis with some reflections on future challenges.

3.4 Lessons for Moving Ahead

This Discussion Paper has surveyed innovative processes in a number of cities and communities. Jumping-off from the widely held view that the quality of local places is increasingly important to citizen well-being and national prosperity, even in a wireless, global age, our basic purpose was twofold. We aimed to report, in systematic fashion, existing research on how different types of local places are forging partnerships and constructing institutions through which to innovate. As well, we wanted to draw policy-relevant lessons from this survey to inform, and perhaps inspire, subsequent efforts to support community-based innovation processes.

What policy lessons emerge from the case studies? Clearly, there are many issues on the table that influence the course of community-based innovation. To focus policy thinking and action, it is possible to reduce the complexity by summarizing three broad categories of policy-relevant lessons.

First, *local capacity building* remains a fundamental policy priority. Helping communities, inevitably comprised of diverse interests and identities, equip themselves for innovation entails commitment along a number of lines. Investments of money and time must be made in what Rosabeth Moss Kanter terms the "infrastructure for collaboration": civic leadership in relationship building, and professionalism in network management (Moss Kanter,1995: 363). Indeed, all the emphasis on the importance of face-to-face interaction and personalized networks in the social learning model reminds us that partnerships actually "happen" at meetings in buildings at specific times. The seemingly mundane cannot be overlooked. Space must be arranged, members recruited, accounts managed, teams built and strategic brokers trained. Further, special attention needs to be paid to the representational needs of less well-resourced groups in the community if

innovation processes are to retain their legitimacy and, indeed, if their projects are to make the required connections across the economic, social, and environmental aspects of problems.

Additionally, there are two overarching issues of *territorial equity* that must be addressed in local capacity building. Within metropolitan spaces, account must be taken of the fact that some districts or neighbourhoods are much better equipped than others to grow robust partnerships. At the same time, the same systemic differences in local resources and collaborative skills that exist between cities must be addressed. In both instances, the pivotal role of upper level governments in local capacity building is underscored.

Second, *financing and accountability* are key intertwined policy priorities. There remains the fundamental imbalance in the resources and responsibilities assigned to municipalities, key actors in convening and organizing partnership processes. Any benefits from the community-based approach to innovation are unlikely to materialize when cities find themselves struggling just to meet their traditional responsibilities in areas of infrastructure and property servicing. In these conditions, it is unreasonable to expect local officials to lead, or even participate fully, in innovation projects.

Comparative research shows that this problem is more pronounced in Canada than in Europe or the United States, where municipalities either receive stronger fiscal transfers or have access to more flexible revenue sources (Federation of Canadian Municipalities, 2001b). From this perspective, local capacity building for innovation needs to include appropriate resourcing of municipal governments.

Linked directly to issues of local financing is *accountability* for monies transferred to community-based partnerships. On the one hand, the balance must be maintained between local responsiveness and autonomy, and sound reporting protocols for public funds transferred from above. On the other hand, representative partners working in collaborative programs and projects must maintain relationships with their own constituencies in the community. There are no "off the shelf" solutions to resolve or even manage these tensions. For now, the priority remains careful tracking of resources, rigorous evaluation of policy outcomes, and the widest possible sharing of knowledge about what works best. A number of the communities reviewed in our sample, for example Bilbao's brownfield conversions and Kitchener-Waterloo's anti-poverty project, developed their own strong benchmarking frameworks as part of the social learning process.

Third, challenges of *coordination and cooperation* must be tackled. Introducing devolved, networked governance requires appropriate mechanisms for handling interactions among levels of government, and between governments and other partners within the local area. For upper level authorities a central issue remains finding ways to practice "joined up government," crossing departmental and jurisdictional boundaries. Such holistic approaches not only reduce the possibility of wasteful duplication of effort and diffusion of scarce resources, but they increase the likelihood that interventions will be effective over the long-term in solving problems. But these desirable horizontal and vertical policy orientations frame complex challenges to traditional bureaucratic incentive systems and reporting relationships. The difficulty of the adaptations cannot be glossed over. They must be worked through.

It is at the local level, of course, that cooperation must be secured among different interests and sectors. This involves sophisticated forms of strategic brokerage that facilitates repeated, face-to-face interaction and nurtures a civic culture of creativity distinguished by its openness to new ideas and, indeed, to newcomers. When successful, formerly disparate interests learn from one another about where and how collaboration can be mutually beneficial. As was demonstrated in the Dublin and Pittsburgh cases, the prospects for constructive cooperation are improved considerably when robust institutional intermediaries exist to bring the disparate parties together and keep them engaged. In Meadville, Kelowna, and Portland, creative application of information and communications technologies further enabled the community building process and enhanced networking capacities. Yet, as was evident in places like Halifax and Kitchener-Waterloo, it remains a challenge to find ways to join the typically separate networks working on economic challenges (for example, high technology clusters) or social challenges (for example, anti-poverty inclusion).

The final critical dimension of coordination and cooperation for community-based innovation concerns *vertical trust relations*. Mutual respect and understanding is equally important up and down the governance levels. In many ways, this relationship is most fundamental since local capacities and effective accountability depend ultimately on productive interaction between governments with different, but equally vital, resources to leverage community-based innovation.

3.5 Conclusion

In closing, this Discussion Paper has shown that the structures and processes that drive community-based innovation remain works in progress. It has catalogued some successes, highlighted opportunities for further progress, and identified key public policy lessons. Substantive challenges and tensions remain: balancing local autonomy with national standards; integrating the economic, social, and ecological dimensions of sustainable development; and recognizing that meaningful collaborations are risky and take time. They call for a kind of patience and persistence that is not always available in policy communities, much less in the political universe.

It is also clear that the tensions will not be resolved in the abstract, or even through talk, however inclusive the conversation. Rather, they require action: experimentation, monitoring, and learning. Fortunately, Canadian policy communities are now well positioned for just such action. On the one hand, there is much to be learned from European and American experiences, where local innovations have been pursued more systematically and for a longer period of time. On the other hand, these lessons, appropriately contextualized, can inform recently launched Canadian collaborations. The three levels of government and their social partners are currently collaborating in cities and regions across the country on various initiatives, ranging from urban development agreements to municipal green funds and social housing strategies (OECD, 2002b). These are promising breakthroughs, worthy of careful study and further policy support.

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