

PART II

UIL-Related Policies of Subnational Governments

CHAPTER 7

The Role of Higher Education and New Forms of Governance in Economic Development

The Ontario Case

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Whereas most analyses of university-industry links focus primarily on the processes of creating and transferring knowledge from universities to industry, the university, in fact, plays a much broader role as a key institutional support for the development of local innovation systems and cluster development. A key role for government lies in strengthening the governance capacity at local and community levels so as to deploy its enabling powers more effectively to promote a process of social learning among firms and local institutions. Universities constitute one of the key institutional supports for this process. Recent experience confirms that this role is being recognized more often.

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In the past 15 years of rapid technological change and concerns about global competition and production, the debate on economic development has shifted. The greater emphasis on innovation reflects a better understanding of its critical role as a driver of economic growth. Region and locality have become important parts of the lexicon, in recognition of how key elements of innovative sectors, namely knowledge creation and learning, are locally influenced and rooted. More recent still is the emphasis on governance, as opposed to government. This emphasis reflects a shift in understanding toward a more flexible, multilateral process of negotiated economic development. This shift has sparked a growing interest, at both the regional and local levels, in how local communities organize to attract dynamic and innovative firms to invest in their communities, as well as in how to seed clusters. Increasingly, postsecondary research institutions are seen as critical assets to be mobilized as part of these strategies.

As a consequence, approaches to economic development policy changed dramatically in the late 1990s and early 2000s, as the locus of attention shifted from the national to the regional and local levels. In the Canadian context, the overwhelming preoccupation with things federal has led to a tendency to overlook the considerable degree of experimentation at both the provincial and the local level during this period or to view the growing interest in multilevel governance through the conventional lens of federal-provincial relations. However, this myopia at the national level is not shared at the local and regional levels. The gradual diffusion of new insights into the economic development process is reflected in the gradual emergence of a new policy paradigm that is regionally and locally focused and depends on the cooperation of all levels of government, as well as other public and private sector organizations, including research-intensive universities.

This chapter explores this new policy paradigm, summarizing the various theoretical insights on which it is based. It discusses how policy design and delivery is affected in the emerging knowledge-based economy, using the experience of Canada's largest province, Ontario, and emphasizing more associative and participative forms of governance. It also discusses the emerging role of postsecondary institutions as key partners in these new types of economic development strategies. It then looks at what this approach means in practice for the evolving role of research universities; it is not just their formal role in terms of research and education that matters but also their more intangible role as key community actors and partners.

Policy Frameworks for the New Paradigm: Policy Delivery through New Forms of Governance

The emphasis on learning through networks of social relations among firms and institutions is clearly reflected in the relation between innovation systems at the national and regional levels and clusters at the local level. The innovation systems approach reinforces the observation that successful competition in knowledge-intensive industries draws on a complex set of relationships between groups of interrelated firms and supportive institutions, rather than archetypal autonomous firms (Lundvall 2005). And it provides a conceptual foundation for the answer to a key question facing policy makers, that of how best to create the conditions to stimulate innovation and competitiveness. Governance mechanisms are central to this approach. Indeed, the ability to foster durable and interactive links among a range of actors has become not only a policy goal in itself but also an important component of state power. The government's ability to cooperate and collaborate with a wide range of stakeholders has become essential to the effective exercise of economic power in innovation-based economies (Cooke and Morgan 1998).

Yet recognizing the importance of cooperation is only part of the policy challenge. As with any other economic activity, successful collaboration and cooperation are underpinned by social institutions. Trust, social norms, and loyalty—all aspects of the more general notion of social capital—lie at the core of mutually beneficial and successful cooperation. Economic development policy that seeks to strengthen the density of these associational links must include elements directed at not only inter-firm links but also the underlying culture of the region or locality.

New patterns of industrial organization have emerged among growth industries in the knowledge economy, necessitating not only new policy frameworks but also new modes of governance to facilitate policy delivery. In knowledge-intensive economies, the leading growth firms are often smaller, networked, and less hierarchical, producing a variety of products developed from a supply of specialized knowledge that is based increasingly on science. Firms compete not only on price but also on their ability to learn, transforming new knowledge into products to meet new demand in yet-to-be-established markets. The central governance issues concern the mobilization of knowledge resources: accessing university research, developing an educated workforce, fostering local learning networks, and promoting collaboration. Although the term *government* is associated with the hierarchical approach to industrial policies of the

past, the term *governance* implies a more flexible, multilateral process of negotiated economic development whereby political authorities at the regional and local levels partner with a range of public institutions and private sector organizations to deliver policies.

This new type of policy structure has been captured in the literature by two related concepts: *associative governance* and *joined-up governance*. Though each term gives a slightly different emphasis to this emerging structure, their fundamental principles are similar. *Associative governance* signifies the growing shift from hierarchical forms of organization in both public and private institutions to more heterarchical ones in which network relations are based on conditions of trust, reciprocity, reputation, openness to learning, and an inclusive and empowering disposition. According to a number of authors, this shift requires moving from reliance on public authorities associated with the state to regulate economic affairs to a greater degree of self-regulation by autonomous groups in the economy and society. This move, in turn, involves the transfer of authority and responsibility for some critical aspects of economic policy to a range of local organizations capable of providing the required services or programs (such as vocational training or technology transfer). It also necessarily involves a more decentralized, open, and consultative form of governing. It is closely associated with the process of institutional learning and adaptation within the region (Cooke 1997).

A key challenge for the state operating in this mode is to establish the conditions under which key actors in the innovation systems—firms, associations, and public agencies—can engage in a self-organized process of interactive learning. The ability to operate in this mode depends on two major institutional departures from the way in which the Weberian concept of the bureaucratic state traditionally functions. First, it implies the devolution of power in the state system from remote bureaucratic ministries at the national level to local and regional levels of government, which are better positioned to build lasting, interactive relations with local and regional firms and business associations. Second, it may involve the delegation of certain tasks such as enterprise support services by formal government agencies to accredited business associations. Such associations can possess relevant assets, such as knowledge of and credibility with their members, that the state needs to enlist to ensure the effectiveness of its support policies. Devolving power to lower levels of government creates the opportunity for more meaningful dialogue to take place at the regional level. This point is important because dialogue is central to the process by which parties reinterpret themselves and their

relationship to other relevant actors in the local economy (Morgan and Nauwelaers 1999).

The associative model of governance affords several valuable insights into the process of governance, especially in dynamic local and regional economies. The associative model substitutes for the exclusive role of the public bureaucracy a mix of public and private roles, and it emphasizes the context of institutional structures and learning. It involves the devolution of greater degrees of autonomy and responsibility for policy outcomes to those organizations that will enjoy the fruits of the policy success or live with the consequences of its failure. According to Amin (1996), the adoption of an associative model does not imply an abandonment of a central role for the state but rather a rethinking of its role. In an associative model, the relevant level of the state has to become one of the institutions of the collective order, working with other organizations, rather than operating in its traditional command and control fashion. The state in this model continues to establish the basic rules governing the operation of the economy, but it places much greater emphasis on the devolution of responsibility to a wide range of associative partners through the mechanisms of voice and consultation (Amin 1996).

Equally relevant is the related concept of *joined-up governance*. The conventional bureaucratic structure, especially in a Westminster type of legislative system operating on the principle of individual ministerial responsibility, makes it necessary to develop and implement policy in bureaucratic hierarchies with clearly delineated lines of accountability. This structure has given rise to the dilemma of so-called policy silos, in which relevant components of economic development policy are often formulated and implemented within discrete bureaucracies across separate ministries or even separate divisions within the same ministry. Although this policy approach places a high premium on maintaining appropriate lines of accountability, it often fails to deliver policy in an integrated and coordinated fashion on the ground in specific localities. This traditional, hierarchical approach to policy delivery is increasingly viewed as out of touch with, and even inimical to, the more integrated geographic perspective afforded by the innovation systems approach.

A valuable alternative to the traditional hierarchical approach is a more horizontal policy process that local-level involvement can help foster, leading to what Gaffikin and Morrissey (2000) call joined-up governance. By helping break down policy silos that persist in less interconnected governance systems, such joined-up, horizontal governance allows policy to be developed and administered in a more holistic manner. In

joined-up governance, key exogenous community-level issues, such as transportation, which are typically marginalized in economic development strategies despite their integral importance to successful policy outcomes, are included; they thus become endogenous to the policy process. Only through joined-up governance is it possible to ensure that the appropriate policy actors and policy instruments, regardless of their particular bureaucratic home, are brought to bear on the critical economic development challenges facing particular regions or communities.

A final theme in the literature on new forms of civic governance is the role that extrafirm institutional supports play in strengthening and sustaining interfirm dynamics within local and regional economies. There is a strong interdependence between the economic structure and the social institutions, both formal and informal, that constitute the innovation system. Many of the key factors that drive innovation and competitiveness lie outside the firms themselves. The presence or absence of these key institutional elements in a local or regional economy may affect both its innovative capacity and its potential to function as a node for cluster development.

Some universities provide engaged and dynamic community leadership in building collaborative networks and institutions at the local level (Wolfe 2005). Current research goes beyond the traditional role of universities in research and education to view them as important community actors that contribute to virtuous cycles of economic growth and development:

[U]niversities have become significant agents of economic development. They are no longer concerned only with transferring technology to the commercial sector; they feel compelled to foster conditions for generating regional wealth (Geiger 2004, 181).

Much of this multifaceted institutional behavior that is closely engaged with the local economic community is captured in the concept of the entrepreneurial research university. The Innovation U. project in the United States provides a useful conceptual framework for characterizing these types of universities. It groups their activities into three broad functions: (a) providing mechanisms to facilitate industry-research partnerships; (b) acting as institutional enablers of entrepreneurial culture; and (c) providing boundary-spanning structures with other local institutions and firms (Tornatzky, Waugaman, and Gray 2002).

In sum, associational and joined-up governance are two dimensions of a framework for creating a form of governance that can respond effectively to the demands of the knowledge-based economy. They promote a collective process of interactive learning—not just within the state but also among firms, associations, and public agencies—that is essential to innovation in this economy. Such processes of institutional learning must extend across, and include, key actors in both the public and private sectors at all three levels of governance. In his 2003 study on successful cities and communities, Neil Bradford identifies three learning dynamics that occur when these approaches are successfully applied.

The first is a *civic learning* process that results in recognition among local organizations, in the private or the public sector, of the importance of equity, diversity, and interdependence and the need to accommodate these characteristics in their collaborations. Rather than merely accepting the need for a fair distribution of resources (equity), diversity in social relationships, or dependence on others to coordinate objectives, communities in which civic learning is successful recognize these characteristics as assets.

Equally important is the second dynamic of *administrative learning*, whereby administrators learn new skills for building relationships, seeking consensus, assessing risk, and measuring performance. Using such skills helps foster a government that is effectively engaged in its essential roles of ensuring balanced representation of social 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.

Finally, the culmination of successful civic and administrative learning leads to the third dynamic, that of *policy learning*. Here, feedback from the various actors within the joined-up governance process refocuses the policy agenda through street-level insights and experiences as well as new goals.

Best Practice: Learning Regions, Innovating Economies

The transition to a knowledge-based economy, with its consequent implications for policy formation in the context of associative and joined-up governance, is radically altering the design of economic development strategies. The implications of this shift began to influence the thinking of economic development agencies in the 1990s. Most significant is the

fact that the emerging model has the potential to overcome some of the sources of weakness traditionally ascribed to Canadian economic development policy: the lack of a strong state tradition and the inability to locate responsibility for economic development policy in a strong centralized bureaucracy. In fact, the insights associated with the new model of associative and joined-up governance suggest that the very factors perceived as sources of strength for economic development strategies in the old industrial paradigm no longer are in the emerging knowledge-based economy. Similarly, new developments at the regional level in Europe and the local level in North America provide helpful examples of a new direction in regional and local economic development strategies.¹

Innovative Approaches to Economic Development in Ontario

Historically, the economy of Ontario has been the industrial heartland of Canada, a strong manufacturing base built behind the protective shelter of tariff walls. As the country moved to a more open trading environment through successive rounds of tariff reduction in the General Agreement on Trade and Tariffs, the creation of the World Trade Organization, and the negotiation of the North American Free Trade Agreement, provincial industry was forced into successive rounds of restructuring in the 1980s and 1990s. During the latter part of this period, both the federal and the provincial governments began to dedicate increased support to the postsecondary education sector through increased research funding and creation of dedicated research networks, using the provincial Centres of Excellence program and the federal Networks of Centres of Excellence. The dynamism of the provincial innovation system was hampered to some extent by the legacy of its manufacturing culture, which had matured under tariff protection, and by a deeply entrenched individualistic business culture that made sectoral or cluster-based cooperation at the local and regional levels a distant ideal (Gertler and Wolfe 2004).

Beginning in the early 1990s, a number of notable experiments with new approaches to economic development policy began to overcome this tradition of Anglo-Saxon individualism. Although the underlying principles of associative and joined-up governance have been far from the political mainstream in Ontario during much of this period, the approach has

¹ For a more detailed discussion of the relevance of recent European and U.S. policy approaches for the Canadian situation, see Wolfe (2002a).

been of growing interest to a wide range of economic development policy makers at the regional and local levels. The roots of the province's buildup to more associative approaches to economic development strategy can be traced to the Industrial Policy Framework introduced by the provincial government and the provincewide sector strategies that were developed as the centerpiece of that initiative (Bradford 1998; Wolfe 2002b).

The sector strategy approach was abandoned with the election of a new provincial government in 1995, but associative approaches to economic development strategy found a home in the Urban Economic Development (UED) branch of the provincial Ministry of Enterprise, Opportunity, and Innovation. The branch originated with the appointment of a special adviser on urban economic affairs in May 1998. From the outset, the approach adopted by the UED branch was to pursue a more effective strategic alignment of existing resources in the provincial government for supporting research, postsecondary education, urban development, and health, as a means of promoting urban economic development. A key part of the UED branch's mandate was to build strong links between provincial and local economic development organizations in Ontario's urban regions so as to better align objectives, actions, and investments. With the commitment to this approach by the UED branch, universities began to emerge as key participants in some of these initiatives, both as valuable strategic assets to be leveraged in a knowledge-based economic development strategy and as central community actors in their own right. Indeed, a key report prepared for the Ontario government at the time explicitly adopted the innovation systems approach in analyzing the potential contribution of Ontario's established network of postsecondary educational institutions to its economic future.

To understand how innovation is created, it is necessary to look at the innovation systems of a jurisdiction—the interaction among the various forces and partners, including government, industry, communities, and universities, that foster innovation. All players in an innovation system unite to create an environment to support these conditions. The importance of universities is clear. Universities provide the supply of highly talented, qualified people. The ability of firms and other organizations to develop specialized expertise in applying leverage and designing innovative products and processes depends critically on the availability of suitably talented leaders and employees (Munroe-Blum 1999, 14).

The UED branch focused on the development and implementation of economic strategies and partnerships to advance industry clusters in urban regions. It worked with economic development agencies and business organizations in large urban regions to increase their capacity to support economic development in Ontario's urban regions. It did so by working with local partners to refine and implement specific economic development initiatives in their communities, in part by developing new, innovative approaches to urban and regional development. Its mandate also included broadening local partners' awareness of best practices in economic development in competing urban regions across Canada, the United States, and other countries of the Organisation for Economic Co-operation and Development (OECD).

In the late 1990s, the UED branch was involved in several initiatives across the province. In both Ottawa and Toronto, it launched major cluster studies, in partnership with local economic development agencies and community-based groups, to chart the competitiveness of the leading clusters in the local economy and their prospects for growth (ICF Consulting 2000a, 2000b). In Toronto, the study was conducted by a U.S. consulting firm in partnership with local consultants and under the direction of the Economic Development and Planning Offices of the city of Toronto. The study fed directly into the formation of the Toronto Economic Development Strategy.

The recent OECD review of territorial policy and urban initiatives in Canada painted a broadly positive picture of the process, suggesting that it "benefited from the active involvement of business, labour, academic, and community leaders" (OECD 2002, 156), although the author's own interviews with participants painted a less sanguine picture of the degree of community engagement. In part, this perception of the participants reflected the absence in Toronto of strong cohesive leadership committed to the economic success of the entire city-region, as well as the lack of key civic entrepreneurs in the economic or political sphere who were willing to assume leadership of the process of developing the cluster strategy. However, the strategy development process did lay the groundwork for subsequent initiatives that have been more successful.

The shortcomings revealed by the process associated with the original Toronto cluster study have been overcome by a new initiative called the Toronto City Summit and the subsequent formation of the Toronto City Summit Alliance. The original summit was a one-day event organized in June 2002 at the initiative of the mayor's office, with strong participa-

tion from community organizations including the United Way and the Canadian Urban Institute. It brought together a diverse group of leaders, reflecting the many communities that make up the urban area, to assess the region's strengths and challenges and frame an agenda to respond to those challenges.

Following the successful conclusion of the summit, a coalition of more than 40 civic leaders from the private, labor, voluntary, and public sectors came together to form the Toronto City Summit Alliance. The alliance worked through the following eight months, using staff resources committed by a number of organizations to produce its own analysis of the region's economic and social situation and to formulate its own action plan. The plan, released in April 2003, sets out a broad agenda for change in physical infrastructure, tourism, research infrastructure, education and training, immigration, and social services. The release of the report was followed by a second summit in June 2003 and commitment to proceed on a number of key initiatives, including the proposal for a Toronto Region Research Alliance (Toronto City Summit Alliance 2003). What is unique about the Toronto City Summit Alliance is that the leadership has come almost entirely from the private and voluntary sectors—true civic entrepreneurs—yet the process has included many of the elements of community-based strategic planning.

Of the several initiatives launched by the Toronto City Summit Alliance, perhaps the most significant has been the creation of the Toronto Region Research Alliance (TRRA). TRRA is a coalition of leading research institutions that serves the communities in the broader Toronto region, including the greater Toronto area, the regions of Kitchener-Waterloo and Hamilton-Wentworth, and the city of Guelph. Its mission is to build the region into a leading area for research and research-intensive industry by increasing public and private research capacity, enhancing the commercialization of research, attracting new research-intensive companies to the region, and working to expand the opportunities for those companies already located in the region. It focuses on expanding research capabilities in three priority areas: biotechnology and life sciences, information and communication technology, and materials and advanced manufacturing (which reflect some of the core strengths of the region's research universities).

The TRRA has been trying to convince both the federal and the provincial governments of the need to expand funding commitments to key research institutes in the region (TRRA 2005). It has achieved a considerable

degree of success. Since 2005, both national and subnational governments have called for expanding the presence of federal research laboratories in Toronto and matching financial commitments by private entrepreneurs to leading research institutes in Waterloo. However, the election of a new Conservative government at the federal level in January 2006 cast some doubt on whether it will live up to the commitments made by its predecessor (*Research Money* 2006).

The city of Toronto, which was slow to capitalize on its initial cluster strategy in 1999, has recently become more engaged in using associative approaches to expand its economic development initiatives. Under the leadership of the city's economic development office and with active participation by both the federal and provincial governments, the inclusive strategy development process involved a broad cross-section of representatives of industry, government, and the educational sector. The recently released strategy document notes that Toronto's information and communications technology cluster is currently the third largest in North America in employment and one of the largest private sector employers in the region. However, it is not operating at optimal efficiency because of such factors as the lack of recognition of the sector's size and relative contribution to the local economy, the need for identification and support of its regional strengths and assets, the lack of a catalyzing influence by local champions, and the need to strengthen and reinforce the local research and education infrastructure that supports the cluster.

Among the many actions that the strategy calls for are working with the TRRA and other local organizations to improve the local research infrastructure and boost research activity. Among the actions that flow from this goal are increasing access to federal and provincial research support by local research institutions and advocating for the establishment of a major federal or provincial research or commercialization institute in Toronto focused on information and communications technology, to strengthen the existing research institutions (ICT Toronto 2006). The acquisition of ATI Technologies, a leading Toronto-based video graphics company, by Silicon Valley's AMD in mid 2006 is viewed as exactly the sort of development that Toronto should be leveraging into a major research investment. The strategy is notable in the extent to which it has overcome some of the limitations of previous cluster strategy processes and the extent to which it builds on other recent initiatives, including the Toronto City Summit Alliance and the TRRA, in recognizing the critical nature of the links between the region's research infrastructure and dynamic cluster development.

Ottawa is both the national capital and the second largest city in Ontario. Although it was long identified exclusively as a seat of government, it emerged in the 1980s as a full-blown high-tech cluster in its own right, building on the strengths of the region's federal government laboratories, the two local research universities, and the community college. The competitive study of Ottawa's clusters undertaken in the late 1990s with support from the UED branch reflected the social makeup of the economic community from the outset. A key factor that differentiates the Ottawa clusters is the strength of the local institutions of collaboration and the high degree of social capital that they generate.

The linchpin is the Ottawa Centre for Research and Innovation (OCRI), a not-for-profit organization dedicated to helping the city's technology community shape its economic future. Founded in 1983 as a collaborative effort by partners from industry, the regional municipality, local institutions of higher education, and federal laboratories, OCRI has about 700 members. OCRI sponsors a wide range of corporate programs that involve up to 120 events a year and provide the members of the Ottawa area clusters with a virtually unlimited range of networking opportunities. OCRI is also involved in a dense network of partnerships with many federal and provincial organizations that are aimed at strengthening the region's innovation capabilities. These partnerships include provincially funded, university-based centers of excellence, working relationships with the Ottawa-Carleton Manufacturers Network and the Ottawa Photonics Cluster, and joint ventures with the National Research Council's Regional Innovation Centre.

OCRI was also closely involved with the Economic Generators Initiative in 1999 to 2000. That initiative was launched under the auspices of The Ottawa Partnership (TOP), a group of public and private leaders committed to advancing the local economy. TOP's mandate "is to provide leadership and advice at a strategic level, on action required to improve and grow Ottawa's economy" (ICF Consulting 2000a, i). Members include the chairs of the region's business and economic development agencies and representatives of its municipal council, the higher education sector, and the business community at large. As one of TOP's first priorities, TOP leaders decided to undertake a detailed study of the region's economic generators and to use the study to prepare a strategic plan to further develop the key engines driving the local economy. More than 300 people participated in the work of the various cluster groups that formed part of the visioning exercise and helped formulate 33 goals for promoting the growth of the seven key clusters identified as the growth generators for the regional economy.

The exercise also produced a higher-order set of flagship initiatives designed to work across the individual clusters to benefit the regional economy as a whole. The level of participation in the Economic Generators Initiative engendered great expectations in the region about the results that would follow from the presentation of the report in June 2000 (ICF Consulting 2000a). Unfortunately, the report was released just as the high-tech sector entered a serious downturn. Despite the impact of the recession, TOP, in cooperation with local economic development agencies and the municipal council, forged ahead with planning for many of the cluster and flagship initiatives outlined in the report. Of the 33 cluster initiatives, 10 have achieved tangible results. New steps have been taken to strengthen the region's photonics and biotechnology clusters with the formation of the Ottawa Biotechnology Incubation Centre and the Ottawa Photonics Research Alliance.

A review and update of the report was released in January 2003 (ICF Consulting 2003). A key goal set out in the updated report was to reenergize the cluster approach developed in the Economic Generators Initiative. The objective was to engage the individual clusters identified in the initial report in working with a range of community partners, to strengthen each element of the city's innovation system, and to collaborate on the flagship initiatives designed to strengthen all the clusters. The recent report, "Innovation Ottawa," set out a strategy for strengthening the links between the region's research infrastructure—especially its postsecondary education sector and national laboratories—and the local sources of enterprise within existing and emerging clusters (ICF Consulting 2003). The report elaborated a vision of what the region should aspire to become: a leading example in North America of a truly networked and collaborative region that mobilizes its information infrastructure to link every firm and institution; a home to a disproportionately large share of the creative class; an integrated region that successfully brings together the elements of research, development, and commercialization; and a dynamic region that generates a diverse and continually evolving set of clusters (ICF Consulting 2003).

A more recent initiative launched by the Ontario government, the Biotechnology Clusters Innovation Program (BCIP), warrants consideration in this context. The provincial minister of enterprise, opportunity, and innovation launched Ontario's biotechnology strategy on June 7, 2002. As part of that strategy, the government announced a new program initiative: the BCIP. The overall goal of Ontario's biotechnology strategy was

to make the province one of the top three biotechnology jurisdictions in North America. The BCIP was a component of that strategy, with the goal of accelerating the development of Ontario's biotechnology clusters by supporting the commercialization of infrastructure projects and the diffusion of biotechnology-related innovations into knowledge-based or traditional industry sectors.

The program consisted of two distinct phases. In the first phase, the government supported the development of plans that address the innovation capacity of Ontario's regional biotechnology clusters. It provided funding up to Cdn\$200,000, on a matching basis, to regional consortia for the development of a biotechnology cluster innovation plan. The second phase was designed to support the development of infrastructure such as commercialization centers, research parks, and other regional initiatives that promote entrepreneurship and innovation. Eleven regional consortia developed regional innovation profiles and corresponding regional cluster strategies in the first phase of the program. Between late 2003 and early 2005, provincial officials held a series of seminars with representatives of the 11 consortia, as well as separate meetings with the individual groups.

In the provincial budget of May 2005, the province launched the follow-on phase of the program in the form of a series of regional innovation networks. These networks are described in a budget document as "multi-stakeholder, regional development organizations established with Provincial funding that support partnerships among business, institutions, and local governments to promote innovation" (Ontario Ministry of Finance, 110). These networks are mandated to expand beyond their original focus on the life sciences to include other areas of innovation excellence, such as information technology, energy conservation, and advanced materials, depending on local strengths and opportunities.

The networks are also described as constituting part of a multilayer commercialization network that includes the province, multiregional groups focused on key technology areas or industrial sectors, and the original regional consortia described above. The constituent parts of the network support two complementary sets of activities—those that build on and connect the components of the network and those that contribute to a more effective alignment of existing federal, provincial, and local research infrastructure and related innovation assets. A key function is to increase the knowledge flow and build links between existing postsecondary and other public research institutions and firms, so as to

build industrial capacity for the uptake and adoption of new research and technology. The overriding goal of the regional innovation networks is to increase regional innovation capacity by addressing commercialization gaps in the existing level of support for small and medium-size enterprises in innovation-intensive sectors and clusters. The program also aims to develop strong networks that can improve the accessibility of the public research infrastructure and resources for firms. Although the transition from the BCIP to these networks is still in its early stages, overall the program displays many of the positive features of bottom-up strategic planning that have been described in the preceding sections. Ultimately, the goal of the program's developers is to link the entire infrastructure of research institutions and innovation support organizations into denser clusters at the regional and local levels.

Lessons for Policy: Principles, Institutions, Practices

The preceding examples present a picture of an emerging paradigm for economic development policy based on the underlying principles of associative and joined-up governance. The current challenge for economic development policy is to ensure that public sector agencies learn to work in a new and more effective way with a range of public and private sector partners. The same recommendation applies to the current mix of policies and programs—provincial and federal—available to support innovation and economic development. The new wave of innovation policies and programs that gained support in the 1980s and 1990s created a dense network of research institutions and technological infrastructure. Those initiatives at both levels of government have strengthened the research capacity of the province. The increased emphasis on research-industry links has also improved knowledge flows within the regional innovation system. On the downside, the initiatives have also resulted in a plethora of programs, making it virtually impossible for bureaucrats, let alone private firms, to track them all.

Achieving better integration and coordination of available programs and policy instruments can best be accomplished at the level of the local and regional economies from the perspective of strategic clusters or local and regional innovation systems. It requires a greater degree of coordination between all three levels of government and their economic development agencies. No one level has a monopoly on the policy instruments and approaches necessary for an effective economic development strategy. Many policies and programs have been implemented in a traditional,

top-down, bureaucratic fashion, administered by individual departments or agencies with little cross-jurisdictional coordination and often little attention to the broader implications of the program for cluster development in the local or regional innovation system. The coordinated approach to economic development policy requires a more integrated approach to policy planning at the governance level, rather than a new round of institutional renovation at the federal, provincial, or local level.

As the discussion in the preceding sections make clear, this approach has been applied in a number of different contexts in Ontario. The sector strategy development process in the early 1990s, the cluster development process in leading urban centers in the province, the BCIP, and—most recently—the transformation into regional innovation networks all evince elements of the approach to economic development policy envisioned in this chapter. The key challenge is to extend the approach to a broader cross-section of provincial economic development policy and to use the resulting planning exercises as a criterion for allocating program dollars. The strategic planning approach to economic development policy does not require significant new public spending but rather is intended to produce a new set of criteria to be used in determining the allocation of existing program dollars in the economic development policy envelope. At most, the provincial and federal governments might choose to use relatively small amounts of new program funding to stimulate the kind of planning exercises described above, as in the case of the BCIP. However, they should also recognize that many programs at both the federal and provincial levels currently contain budgetary allocations that can be applied for this purpose (OECD 2002).

Effective economic development policy builds on successful experiments with associative governance. There is a growing recognition that such development policies work most effectively when the direct beneficiaries play a direct role in both their design and their implementation. This approach involves developing a rolling set of innovation strategies at the cluster, local, and regional levels to ensure that the existing R&D infrastructure, including research-intensive universities and economic development programs, is used to maximum advantage—to assess existing needs and identify gaps in the program array. Ensuring that the mix of research infrastructure and innovation programs is used to maximum advantage for the local economy requires an ongoing process of reflexive monitoring and social learning. The success of the recent initiatives at the local level in Ontario provides an important illustration of how other jurisdictions can adopt and use these processes.

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