

**Meric Gertler**

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**n e p t i s**  
THE ARCHITECTURE  
OF URBAN REGIONS

This is the seventh in a series of nine issue papers commissioned by the Neptis Foundation for consideration by the Central Ontario Smart Growth Panel established by the Government of Ontario.

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Gertler describes the current structure of the Central Zone economy, including important economic clusters, and recent trends that have affected economic development. He looks at "locationally flexible" businesses and the kinds of locations they might be attracted to within the Zone, and examines the extent to which the location of businesses can be influenced by planning policies and growth management tools. Finally, he suggests approaches to attracting new economic activity to the region and makes five recommendations for a smart growth strategy designed to strengthen the region's economy.

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- 1 Agriculture in the Central Ontario Zone, Margaret Walton
  - 2 Air, Water and Soil Quality, Ken Ogilvie
  - 3 Energy and Smart Growth, Richard Gilbert
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  - 5 The Growth Opportunity, Pamela Blais
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Research for the series has been coordinated by Dr. Pamela Blais, of Metropole Consultants.

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**The opinions and ideas expressed in this report are those of the authors, and do not necessarily reflect those of the Government of Ontario.**

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## Introduction

Employment and wealth generation are fundamental to the economic vitality and long-run livability and well-being of urban regions. The Central Ontario Zone is home to a large and dynamic collection of economic activities that, taken together, dominate both the provincial and national economies. This report analyses the zone's economic structure and recent development to inform a smart growth strategy for Central Ontario. Accordingly, it addresses the following questions:

- What is the structure of the Central Zone economy and how is it changing?
- What kinds of economic activities are locationally flexible and what kinds of locations within the region might they be attracted to?
- To what extent can the location of new economic activities and the retention of existing economic activities be influenced within the Central Ontario Zone by planning policy and other growth management instruments?
- What kinds of policies and supporting measures would have to be put in place to influence locational decision-making of businesses?
- What approaches might be adopted in a smart growth strategy, and what supporting measures and principles put in place, in order to attract new economic activity to the Zone?

**The economy of the Central Ontario Zone consists of several distinct but inter-related economies. That of the Greater Toronto Area is the largest. It is surrounded by the regional economies of Hamilton, St. Catharines-Niagara, and Kitchener-Waterloo-Cambridge. Smaller economies are centred on cities such as Guelph, Barrie, Peterborough, and Brantford.**

The economy of Central Ontario should more accurately be thought of as several distinct but inter-related regional and local economies. The economy of the Greater Toronto Area is by far the largest and most diverse within the Zone. The regional economies of major urban centres –Hamilton, St. Catharines-Niagara, and Kitchener-Waterloo-Cambridge – constitute the next tier. At the next level down are local economies centred on smaller cities such as Guelph, Barrie, Peterborough, and Brantford. Finally, there are many small towns surrounded by largely rural areas that have economies dominated by agricultural, tourism, and recreational activities.

Owing to the rather extended nature of its boundaries, the Central Zone economy as defined by the Smart Growth Secretariat has not been the subject of much systematic empirical analysis to date. This means that, in order to docu-

ment its economic structure, one must largely rely on analyses conducted at two other geographical scales: the Greater Toronto Area<sup>1</sup> and the Province of Ontario.<sup>2</sup> The following discussion leans heavily on a substantial body of recent work, supplementing it where possible with information provided by the Smart Growth Secretariat pertaining to smaller regional and local economies in the Central Ontario Zone. This analysis is also informed by the author's past and ongoing research in Southern Ontario on foreign direct investment, and on the emergence and evolution of innovative industries and clusters.

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### What is the structure of the Central Zone economy?

In describing the structure of a regional economy, it is helpful to differentiate between activities that determine the rate of growth of the overall economy and those that are subsidiary to them. It is commonplace to refer to the former activities as the "drivers," "engines," or "pillars" of a regional economy. Whatever the term, this type of designation normally hinges on whether or not the good or service in question is sold in markets beyond the borders of the region – hence the distinction between "traded" and "local" sectors. The central idea is that such goods or services draw income into the region from outside, creating a propulsive force that ripples through the rest of the local economy.

A closely related idea is the concept of the cluster, developed by Michael Porter and now commonly applied in the analysis of regional and national economies. Porter offers the following definition:

*A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities*

**Local economies are structured around activities that determine the rate of growth. These are generally goods and services that are sold outside the region, and that draw income into the region.**

**Economic clusters consist of interconnected businesses and institutions located in the same geographical area. They may include several large competing firms, along with their suppliers and customers and firms that provide support services.**

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1. ICF Consulting, GHK International, Metropole Consultants, WEFA Canada, and Meric Gertler, *Toronto Competes: An Assessment of Toronto's Global Competitiveness*, prepared for Toronto Economic Development Office and the Ontario Ministry of Economic Development and Trade, 2000; M.S. Gertler, *A Region in Transition: The Changing Structure of Toronto's Regional Economy*, Toronto: Neptis Foundation, 2000; M.S. Gertler, "Self-determination for Toronto: what are the economic conditions and do they exist?" in M.W. Rowe, ed., *Toronto: Considering Self-Government*, Owen Sound: The Ginger Press, 2000, pp. 33-53; D. Drummond, D. Burleton, G. Manning, and K. Richardson, *The Greater Toronto Area (GTA): Canada's Primary Economic Locomotive in Need of Repairs*, Toronto: TD Economics Special Report, Toronto-Dominion Bank, May 22, 2002; D. Pecaut, "Setting a course for the future," Toronto City Summit, Rotman School of Management, University of Toronto, June 26, 2002.

2. Institute for Competitiveness and Prosperity, *A View of Ontario: Ontario's Clusters of Innovation*, Toronto: Working Paper No. 1, April 2002, and *Measuring Ontario's Prosperity: Developing an Economic Indicator System*, Toronto: Working Paper No. 2, August 2002.

*and complementarities. ... Clusters take varying forms depending on their depth and sophistication, but most include end-product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries. Clusters also often include firms in downstream industries (i.e., channels or customers) ... Clusters also often involve a number of institutions, governmental and otherwise, that provide specialized training, education, information, research, and technical support ...*<sup>3</sup>

A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities. ... Clusters take varying forms depending on their depth and sophistication, but most include end-product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries. Clusters also often include firms in downstream industries (i.e., channels or customers) ... Clusters also often involve a number of institutions, governmental and otherwise, that provide specialized training, education, information, research, and technical support ...

The recent work of the Institute for Competitiveness and Prosperity combines these ideas to produce an analysis of the Ontario economy based on the concepts of "traded clusters" and "local clusters." Traded clusters consist of industries that sell their output primarily to non-local – that is, interregional and international – markets. Because they do not depend on local demand, "they are concentrated in specific regions where they choose to locate production, due to the competitive advantages afforded by these locations. Employment levels in traded industries thus vary greatly by region, and have no clear link to regional population levels."<sup>4</sup>

In contrast, local clusters "provide goods and services almost exclusively for the area in which they are located," which means that they tend to be present in all regions, generally in proportion to the regional population. Classic examples include retailers and public services such as primary and secondary education. While this means that the most highly populated regions have large employ-

**Traded clusters consist of industries that sell their output to non-local markets. Local clusters provide goods and services to the area in which they are located.**

**The Institute for Competitiveness and Prosperity has found that traded clusters provide 41% of Ontario's total employment.**

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3. M.E. Porter, "Locations, clusters, and company strategy," in G.L. Clark, M.S. Gertler, and M.P. Feldman, eds., *The Oxford Handbook of Economic Geography*, Oxford: Oxford University Press, 2000, p. 254.

4. Institute for Competitiveness and Prosperity, *A View of Ontario: Ontario's Clusters of Innovation*, p. 50.

ment concentrations of such activities, it does not mean that these regions have any kind of competitive advantage over other regions in supporting this kind of activity.

### **Clusters in the Ontario and Central Zone economies**

In its analysis of the Ontario economy, the Institute for Competitiveness and Prosperity reports that traded clusters constitute 41% of total provincial employment, with local industries responsible for 59% of all jobs in the province. This ratio is close to that for Canada as a whole (40% traded, 60% local), although the corresponding figures for the U.S. economy are 33% traded versus 67% local employment.<sup>5</sup>

These ratios suggest one further important point: although employment in locally oriented industries exceeds employment in traded sectors, most of the local demand for the goods and services produced by local industries originates ultimately with the income generated by a region's traded industries. The money that households spend on basic consumption goods and services, such as housing, clothing, food, transportation, and consumer services, flows from the traded sectors. This means that the long-run competitive success of any region is tied to its traded activities. For this reason, analysts of regional economic growth have tended to focus most of their attention on traded industries and clusters.

**Most local demand for goods and services produced by local industries originates with the income generated by a region's traded industries.**

The Institute study analyzed 41 traded clusters, based on a method for identifying traded clusters in the United States.<sup>6</sup> The study identified the top fifteen traded clusters in the Ontario economy (in descending order, based on employment share in 2000) as:

- business services;
- financial services;
- automotive;
- education and knowledge creation;
- hospitality and tourism;

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5. Ibid, p. 26.

6. Since the objective of the Institute's study was to compare Ontario's competitiveness to that of its most significant competitor states south of the border, there was a strong rationale to adopt a consistent set of traded clusters to facilitate a Canada-U.S. comparison. The initial "cluster mapping" for American states was performed by Michael Porter's Institute for Strategy and Competitiveness at the Harvard Business School.

- metal manufacturing;
- transportation and logistics;
- distribution services;
- heavy construction services;
- publishing and printing;
- processed food;
- entertainment;
- building fixtures, equipment and services;
- production technology;
- jewelry and precious metals.<sup>7</sup>

**Table 1: Top Five Traded Clusters for Central Ontario CMAs**

	CMA and Traded Clusters		Employment
Toronto	1	Business services	189,766
	2	Financial services	143,500
	3	Distribution services	66,129
	4	Transportation and logistics	57,534
	5	Publishing and printing	55,637
Oshawa	1	Automotive	22,833
	2	Business services	3,405
	3	Financial services	2,612
	4	Metal manufacturing	1,939
	5	Transportation and logistics	1,731
Hamilton	1	Metal manufacturing	23,848
	2	Education and knowledge creation	10,914
	3	Business services	10,804
	4	Financial services	9,865
	5	Processed food	6,095
St. Catharines-Niagara	1	Hospitality and tourism	10,930
	2	Automotive	7,568
	3	Metal manufacturing	7,004
	4	Education and knowledge creation	3,642
	5	Business services	3,528
Kitchener-Waterloo-Cambridge	1	Automotive	9,969
	2	Education and knowledge creation	9,904
	3	Business services	8,832
	4	Metal manufacturing	7,389
	5	Processed food	6,870

Source: Institute for Competitiveness & Prosperity, A View of Ontario: Ontario's Clusters of Innovation, and presentation by James Milway, Executive Director, to the Central Zone Smart Growth Strategy Sub-Panel, July 8, 2002.

<sup>7</sup> Institute for Competitiveness and Prosperity, A View of Ontario: Ontario's Clusters of Innovation, p. 27.

Had this list been ordered on the basis of the value of *output* rather than numbers of jobs, several traded clusters that appear far down the list – such as information technology (16th), plastics (19th), communications equipment (21st), and pharmaceuticals and biotechnology (30th) – would have been more prominent. Moreover, an analysis of individual CMAs in Ontario shows that the rank of traded clusters varies, in line with their differing importance in each regional economy (see **Table 1**).

Another recent study of the GTA economy that employed a cluster framework produced a longer and somewhat different list of the leading clusters in the Toronto region (including the Oshawa CMA).<sup>8</sup> In this case, the selection of clusters was based on three criteria: (i) the "lead" industry in the cluster must produce goods and/or services that are consumed outside the region, (ii) the region must have a clear, historically based competitive advantage in the industry (indicated by a disproportionately high share of employment in the cluster industries), and (iii) the cluster must be a major employer in the region. The resulting list (in rough order of employment size) is as follows:

- **Business and professional services:** advertising, personnel services, legal, accounting, professional services and consulting;
- **Financial services:** banks, brokerages, investment banking, insurance;
- **Tourism:** amusement and recreation, accommodation and hospitality;
- **Information technology and telecommunications:** telecom equipment, computer hardware and peripherals, packaged software and software services, semiconductors and electronic components, telecom services;
- **Automotive:** vehicle assembly and parts manufacturing;
- **Food and beverages:** processed and packaged food/beverage production;
- **Media:** film and television production and distribution, printing and publishing, new media, theatre;
- **Biomedical and biotechnology:** including pharmaceuticals, medical devices;
- **Apparel and textiles:** including designers, contractors;
- **Aerospace:** aircraft assembly and parts manufacturing.

**ICF Consulting has identified 10 traded clusters in the GTA economy in which the region has a clear, historically based competitive advantage. In this list, business and professional services, financial services and tourism emerge as the top three economic clusters.**

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8. ICF Consulting et al., *Toronto Competes: An Assessment of Toronto's Global Competitiveness*, 2000.

These lists suggest two important points. First, traded clusters, for both Ontario and the leading urban regions of the Central Zone, include both manufacturing and service industries.

Second, within each of these two broad categories, there is considerable variation in terms of knowledge intensity. Within manufacturing, for example, are high-tech clusters such as biomedical/biotechnology and information technology, as well as medium- to low-tech activities such as automotive, media, metal manufacturing, and food/beverage processing. Within services, some clusters are based on highly sophisticated scientific, professional, and technical expertise (such as business and professional and financial services, education and knowledge creation) while in others, such as tourism and hospitality, knowledge intensity is considerably lower. In between are clusters, such as distribution services or transportation and logistics, which make growing use of sophisticated hardware and software systems.

### **Geographical variation within the Central Zone**

The lists of traded clusters for Toronto, when compared to the other major urban centres within the Central Zone, show considerable geographical variation in regional economic structures *within* the Central Zone. In Kitchener-Waterloo-Cambridge, Hamilton, and St. Catharines-Niagara, manufacturing-based clusters such as automotive, metals, and processed foods are prominent. Nevertheless, service-based clusters such as hospitality and tourism (in St. Catharines-Niagara), business services, and education also emerge as significant regional economic drivers. In the GTA, the mix of traded clusters is also balanced between a wide range of services and manufacturing activities. Indeed, successive analyses of the Toronto economy have identified it as having a degree of sectoral balance and diversity that is virtually unmatched by any other major metropolitan area in North America.<sup>9</sup>

Nevertheless, this aggregate picture obscures important geographical variations within the GTA itself.<sup>10</sup> The GTA "core" (the City of Toronto) is dominated by high-order, knowledge-intensive business, professional and financial services,

**Central Ontario's economic clusters include both manufacturing and service industries, and exhibit a wide variation in terms of knowledge intensity, from biotech to tourism.**

**The sectoral balance and diversity of the Toronto economy is virtually unmatched by any other major metropolitan area in North America.**

<sup>9</sup> Boston Consulting Group, *The Fourth Era*, prepared for the Golden Task Force on the Future of the Greater Toronto Area, Toronto, 1995; M.S. Gertler, *A Region in Transition: The Changing Structure of Toronto's Regional Economy*; D. Pecaut, "Setting a course for the future."

<sup>10</sup> M.S. Gertler, *A Region in Transition: The Changing Structure of Toronto's Regional Economy*; ICF Consulting et al., *Toronto Competes: An Assessment of Toronto's Global Competitiveness*.

and headquarter functions, along with cultural industries, such as media, and major postsecondary institutions of education and research.

On the other hand, the GTA "fringe" (the so-called 905 belt within the GTA) exhibits a mix of higher- and lower-order services (such as back-office functions in financial services, call centres, distribution services and warehousing, transportation and logistics), as well as larger, more land-intensive, assembly-type manufacturing operations requiring ready access to freeway and airport connections.

The more detailed cluster geography described above is confirmed by reviewing the data on major employers by municipality.<sup>11</sup> These data are reported below for a representative sample of communities within the Central Zone, grouped according to the classification presented in the Introduction (see Tables 2 through 5).

**The GTA core is dominated by high-order, knowledge-intensive businesses, while the GTA fringe has a mix of higher- and lower-order services, including back-office functions and call centres.**

**Table 2: Major Traded-Cluster Employers in the GTA (including Oshawa)**

Cluster	Firm	Employment
Financial Services	Royal Bank of Canada	12,100
	CIBC	8,200
	Toronto-Dominion Bank	7,800
	Bank of Montreal	5,500
	Amex	3,000
Automotive	General Motors	22,833
	Magna	9,350
	Ford	5,100
	Daimler-Chrysler	5,100
	Lear	1,620
	Karmax	850
Transportation/Logistics	Air Canada	12,100
	Mackie	8005
IT/Telecom	Bell Canada	7,700
	IBM	5,000
	Nortel	3,400
Education/Knowledge	University of Toronto	7,400
	York University	5,030
Aerospace	Bombardier	2,100
	Boeing	1,500

11. Information provided by the Office of the Greater Toronto Area.

**Table 3: Major Traded-Cluster Employers in Other Major Urban Regions**

City/Region	CMA and Cluster	Firm	Employment
Hamilton	Metal Manufacturing	Stekco	7,800
		Dofasco	7,200
		National Steel Car	2,400
		Camco	1,200
		Dominion Castings	1,000
	Education/Knowledge	Hamilton Health Services*	9,200
		McMaster University	3,300
		St. Joseph's Hospital*	1,570
Kitchener	Automotive	Toyota	4,000
		Budd Canada	1,400
	IT/Telecom/Software	Research in Motion	1,500
		Open Text	1,100
	Education/Knowledge	University of Waterloo	3,200
		Wilfrid Laurier University	1,050
Financial Services	Clarica	3,500	
	Manulife	3,100	
	Economical Insurance	700	
Food/Beverages	Schneider	2,300	
St. Catherines	Hospitality/Tourism	Casino Niagara	3,600
	Automotive	General Motors	5,200
		TRW	1,700
	Education	Brock University	1,580
Metal Manufacturing	Atlas Specialty Steels	1,100	

\* These employers represent traded activities to the extent that they (i) perform research and development activities, or (ii) provide specialized health services to a non-local population. Undoubtedly, some of the employment is associated with the provision of health care services to local markets (untraded activities).

**Table 4: Major Traded-Cluster Employers in Smaller Cities**

City/Region	Cluster	Firm	Employment
Barrie	Automotive	Alloy Wheels	550
		Yachiyo	400
Dana		310	
	Education/Knowledge	Georgian College	1,100
Guelph	Automotive	Linamar	5,300
	Education/Knowledge	University of Guelph	3,400
Peterborough	Electrical/Electronics	General Electric	1,100
	Education/Knowledge	Trent University	720
	Food/Beverages	Quaker Oats	635
	Building Fixtures	NHB	500
	Automotive	Ventra Plastics	450
	Metal Manufacturing	Fisher Gauge	380

**Table 5: Major Traded-Cluster Employers in Small Towns and Rural Areas**

County	Cluster	Firm	Employment
Simcoe County	Automotive	Honda	4,200
		Techform	710
	Hospitality/Tourism	Casino Rama	2,460
	Transportation/Logistics	PMCL	700
	Optical Instruments	Elcan Optical Technologies	650
Northumberland County	Automotive	Collins & Aikman	4,000
	Metal Manufacturing	Cameco	270
		Zircatec Precision	240
	Food/Beverage	Kraft General Foods Weetabix	450 180
	Electrical/Electronics	Belden	312
Haldimand & Norfolk Counties	Metal Manufacturing	Lake Erie Steel	1,325
	Food/Beverages	Bick's Good Humor/Breyer's	400 360

Sources: Office of the Greater Toronto Area, supplemented with information from company websites and recent newspaper stories.

The tables clearly show that, as one moves outward from the GTA and other major urban centres, into the smaller cities, towns, and rural areas, manufacturing becomes the dominant activity, especially in sectors such as automotive, metal manufacturing, electrical/electronics, and food/beverage production related to the local and regional agricultural base. For the most part, these kinds of activities tend to be stand-alone, strongly trucking-based, requiring highway-oriented facilities.

**In smaller cities, towns and rural areas, manufacturing is the dominant economic activity.**

### **How is the regional economy changing over time?**

Several major transformations are evident in the Central Zone economy. Three in particular are worthy of closer attention:

**Within the GTA, the goods-producing sectors have seen their share of total employment decline from 31% in 1981 to 23% in 1996.**

- the transition from goods production to services production (especially measured in terms of employment);
- the transition to more knowledge-intensive and creative forms of economic activity across many sectors;
- selective decentralization of certain sectors.

### ***The rise of the service economy***

This trend has been well documented by numerous studies at the national, provincial, and regional levels. Within the GTA, for example, the share of total employment in the goods-producing sectors has declined from 31% in 1981 to 23% in 1996. Business and professional services have experienced especially high rates of growth, and their share of total GTA employment over the same period has risen from 7 to 16% over the same period.<sup>12</sup>

**While employment in all industries in the Toronto CMA grew at an average annual rate of 2.4% between 1991 and 2000, job growth in professional, scientific and technical services as a whole, grew by 5.2% a year and in telecommunications services by 8% a year.**

Labour Force Survey data for the Toronto CMA underscore the significance of this growth between 1991 and 2001.<sup>13</sup> While employment in all industries grew at an average annual rate of 2.4%, job growth in professional, scientific and technical services as a whole was 5.2%. Within this broad group, the management, scientific and technical consulting subsector grew at an annual rate of 6.2%. Scientific R&D services expanded at an average rate of 6.3% a year.

<sup>12</sup> M.S. Gertler, *A Region in Transition: The Changing Structure of Toronto's Regional Economy*. Toronto Economic Development, Toronto CMA 2001 Industry Profiles, City of Toronto, 2002.

<sup>13</sup> Toronto Economic Development, Toronto CMA 2001 Industry Profiles, City of Toronto,

Computer systems design services grew at an astonishing 12.2% per year. In related areas of business services, the rates were also impressive: 6.9% for employment services and 9.8% for other business support services.

Employment growth in the Toronto CMA was also well above average in communications and transportation and distribution services. For example, employment in telecommunications services grew by 8% annually; for warehousing and storage, the figure was 7.9%; for other support activities for transportation, 8.8%. Meanwhile, in services industries more closely tied to local population growth, growth rates were more modest. For example, retail trade grew at an annual rate of 2.6%.

Similar, though more muted, transitions have taken place in all of the major urban centres in the Central Zone (where the persistence of manufacturing activity has slowed the relative decline of the goods-producing sectors).

### ***Knowledge-based production and the creative economy***

The second trend – the transition to more knowledge-intensive and creative forms of economic activity across many sectors – is arguably more important than the first, and has been well documented both nationally and internationally. The consensus among economic theorists is that the defining feature of capitalism at the start of the new millennium is the central importance of knowledge and learning in the creation of economic value and the determination of competitive success.<sup>14</sup> There are several distinct dimensions of this transition.

First, competition between firms is increasingly being waged on the basis of the qualitative characteristics of products (goods or services) and the ability to bring new or improved products to the marketplace quickly. Innovations in the production process are often just as important as innovations in the products themselves, since they enable both the rapid shift to the creation of new products and the attainment of quality standards and performance that consumers now expect. Firms that compete most successfully are no longer simply those that offer their product at the lowest price: rather, their ability to generate new products and process innovations in a timely and effective fashion has become equally, if not more, important.

**In segments of the services industries closely tied to local population growth, growth rates were slower. The retail trade grew at an annual rate of only 2.6%.**

**Economists generally agree that the defining feature of capitalism today is the importance of knowledge in the creation of economic value and the determination of competitive success.**

**Innovations in the production process are often as important as product innovations, since they enable rapid shifts to new products and the attainment of quality standards that consumers expect.**

**14.** OECD, "The knowledge-based economy," Science, Technology and Industry Outlook, Paris: Organisation for Economic Cooperation and Development, 1996, pp. 229-256; B.-A. Lundvall and B. Johnson, "The learning economy," Journal of Industry Studies 1992, 1, pp. 23-42.

Second, while major research institutions such as universities, public research centres, and corporate R&D facilities play a pivotal role in the production and dissemination of knowledge, it is now widely acknowledged that for economic actors, social processes of learning have increased in importance.<sup>15</sup> In other words, a large and growing proportion of innovation occurs through the interaction between economic actors: between technology users/customers and technology producers, or between partnering technology producers. The actors engaged in these processes include private firms of all sizes, colleges and universities, stand-alone research centres, technology transfer organizations, producers' associations, unions, and other institutions.

**Much innovation occurs through the interaction of economic actors: for example, between technology customers and technology producers, or between partnering technology producers.**

This phenomenon of learning-based innovation is equally important to both manufacturing and service activities. There are no better examples of this than Kitchener-Waterloo-Cambridge and Hamilton. In the former, intensive interaction between the University of Waterloo and local firms has spawned and nurtured the development of highly innovative, knowledge-intensive manufacturers such as Research in Motion and software firms such as Open Text and Descartes Systems. In Hamilton, the McMaster University Medical Centre and affiliated teaching hospitals have triggered the emergence of a research-intensive health services cluster.

**Most of us earn our living by producing intangible rather than physically tangible things. Accordingly knowledge – that is, ideas, know-how, creativity, and imagination – has become the most important resource for economic prosperity.**

Third, intangible assets have attained unprecedented levels of importance in determining the competitive success of firms. As C. Leadbeater argues in *Living on Thin Air*, most of us earn our living by producing intangible rather than physically tangible things.<sup>16</sup> This is not to deny the continuing importance of tangible commodities in our lives, but merely to emphasize that competitive success, even for those producing tangible commodities, depends on the extent to which products can be imbued with desirable intangible assets. Accordingly knowledge – that is, ideas, know-how, creativity, and imagination – has become the most important resource for economic prosperity.

If the production of intangible assets and products has become central to regional and national economic vitality, one particular subset of these activities has, according to some well-respected analysts, assumed a position of increasing prominence in contemporary market economies – that is, cultural products.

**Cultural products – from books to fashion to museum exhibitions – are increasingly important in contemporary market economies.**

15. B.-A. Lundvall, "Innovation as an interactive process: from user-producer interaction to the national system of innovation," in G. Dosi, C. Freeman, G. Silverberg, and L. Soete, eds., *Technical Change and Economic Theory*, Frances Pinter, 1988, pp. 349-69; M.S. Gertler and D.A. Wolfe, *Innovation and Social Learning*, Basingstoke: Palgrave/Macmillan, 2002.

16. C. Leadbeater, *Living on Thin Air*, Viking, 1999.

These include activities as diverse as book and magazine publishing, television, film and video production, live and recorded music performance, multimedia, advertising, the design of clothing, footwear, jewellery, and furniture, live theatre, museums, and specialty foods and beverages.

The common attribute shared by all of these products is their high cultural content. In other words, their competitive success depends on their originality and distinctiveness, and the creativity and imagination of their producers. As geographer Allen Scott, planning scholar Sir Peter Hall, social analyst Joel Kotkin, and others have recently argued, cities have long been the pre-eminent centres for the creation of such products. As their production increases in importance, so too do the "cultural economies of cities."<sup>17</sup>

Recent employment data clearly illustrate the extent to which many of these cultural and creative industries have grown in the Toronto CMA (see Table 6). According to Labour Force Survey data, for example, employment in the information and cultural industries grew at an average annual rate of nearly 5.2% between 1991 and 2001 (compared to 2.4% for all industries). Within this category, activities such as film, recording and television production and distribution grew considerably faster.

The revival of the furniture and related products sector provides an especially vivid example of the importance of creativity and cultural content to the economic fortunes of an otherwise mature industry. In the late 1980s, when the Free Trade Agreement between Canada and the United States was first imple-

**Employment in Toronto's cultural industries grew more than 5% a year between 1991 and 2000, compared to 2.4% for all industries.**

**Table 6: Average Annual Employment Growth Rates for Selected Cultural and Creative Industries, Toronto CMA 1991-2001**

Industry	Growth Rate (%)
Information and cultural industries	5.2
Motion picture and sound recording	5.8
Broadcasting and telecommunications	7.8
Arts, entertainment and recreation	3.9
Performing arts, spectator sports	4.5
Furniture and related products	9.0
Specialized design services	4.1
Advertising and related services	4.1

Source: Toronto Economic Development (2002) based on Statistics Canada's Labour Force Survey.

**17.** A. Scott, "The cultural economy of cities," *International Journal of Urban and Regional Research* 1997, 21(2), pp. 323-39; A. Scott, *The Cultural Economy of Cities*, Sage, 2000; Peter Hall, *Cities in Civilization: Culture, Innovation and the Urban Order*, Weidenfeld and Nicholson, 1998; Joel Kotkin, *The New Geography*, Random House, 2000.

mented, many economists forecast the disappearance of what was then a mature, labour-intensive industry producing standard products, sheltered by significant tariffs. In the years immediately following the introduction of the FTA, the furniture industry suffered staggering losses of employment and output, and many firms in Toronto and the rest of Ontario went out of business.<sup>18</sup> Nevertheless, as the above figures attest, this industry has experienced a reversal of fortune since bottoming out in the early 1990s. There is strong evidence to suggest that a widespread shift to greater design-intensity, creativity, and more specialized products has brought about this transformation.<sup>19</sup>

Similar transformations have taken place in other mature manufacturing sectors in the GTA, such as food and beverages and clothing production, as the design and cultural content of these products has increased substantially. In the latter case, employment in clothing manufacturing has increased at an average annual rate of nearly 5% since the industry reached its lowest point in 1992.

### **Geographical shifts**

Geographical change within the Central Zone economy has been dominated by one major trend: the decentralization of certain activities from central to suburban and exurban locations.<sup>20</sup> As suggested in our earlier analysis of the traded cluster activities in the Central Zone's smaller urban centres, small towns, and rural areas, manufacturing industries have led the way. These are typically larger operations in sectors such as automotive assembly and parts production, electronics, and metal manufacturing.

This phenomenon occurred in two distinct shifts. First, over the past three decades, industries in the GTA have moved from central employment zones to suburban greenfield locations (industrial parks and stand-alone, dispersed sites). A similar phenomenon has occurred within the Kitchener-Waterloo-Cambridge, Hamilton, and St. Catharines-Niagara CMAs. This process has also seen the partial suburbanization of financial services (particularly back-office functions such as mortgage processing, credit card departments, e-com-

**The revival of the furniture industry since the early 1990s illustrates the importance of creativity and cultural content to the economic fortunes of an otherwise mature and formerly struggling industry.**

**The decentralization of certain activities in the Central Zone has taken place in two phases: first, the movement of industries from central employment zones to suburban industrial parks and stand-alone sites, followed by a second wave of decentralization to small towns and rural locations near major highways.**

**18.** M.S. Gertler, "Negotiated path or 'business as usual'? Ontario's transition to a continental production regime," *Space and Polity* 1999, 3(2), pp. 171-97.

**19.** Institute for Competitiveness and Prosperity, *A View of Ontario: Ontario's Clusters of Innovation*, p. 45.

**20.** M.S. Gertler, *A Region in Transition: The Changing Structure of Toronto's Regional Economy*; ICF Consulting et al., *Toronto Competes: An Assessment of Toronto's Global Competitiveness*.

merce, and telephone banking), as well as a decentralization of employment in activities such as retailing that serve local resident populations.

Second, there was a further wave of decentralization to greenfield sites in small towns and rural locations outside these urban regions. In most cases, the industries involved depend on trucking for shipping supplies and finished products – often on a just-in-time basis – and consequently located close to major highways in the Central Zone.

At least two other forces are driving this decentralization process, in addition to the increasingly widespread adoption of just-in-time production systems.<sup>21</sup> First, firms in these industries have sought cheaper land on which to build sprawling, high-ceilinged, single-storey plants with multiple truck bays to facilitate frequent deliveries. Second, for land-intensive operations, the significantly lower industrial property tax rates in suburban and exurban locations have offered an additional economic advantage, helping to reduce firms' annual operating expenses in comparison to more central locations.

The companion trend to this selective decentralization has been a recentralization or reconcentration of the fast-growing knowledge-intensive sectors in the core urban areas of the Central Ontario region – notably the knowledge-intensive components of financial services, business, professional and scientific services, broadcasting, telecommunications services, arts, entertainment and recreation, design, and advertising. We describe the logic behind this increasing specialization and reconcentration below.

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### **What kinds of economic activities are locationally flexible?**

In the learning economy, cities are the principal sites of innovation and production of knowledge-intensive goods and services.<sup>22</sup> Given the interactive and social nature of innovation, city-regions provide the ideal space in which social learning processes can unfold, for several reasons.

The concentration of economic actors in large cities offers multiple opportunities for contact, interaction, and information exchange. The presence of spe-

**21.** Berridge Lewinberg Greenberg Dark Gabor Ltd. and M.S. Gertler, *Adapting to the New Realities: Industrial Land Outlook for Metropolitan Toronto, Durham, York, Halton, Peel, Hamilton-Wentworth and Waterloo*, Report to the Industrial Land Strategy Study, Municipality of Metropolitan Toronto, 1995.

**22.** E. Glaeser, "Are cities dying?," *Journal of Economic Perspectives* 1998, 12, pp. 139-60.

**Decentralization can be attributed to just-in-time production systems that require locations near highways, the need for cheaper land for large plants, and lower industrial property tax rates in suburban and exurban locations.**

**City-regions provide the ideal space in which social learning processes can unfold, because they offer many opportunities for interaction and can support specialized services.**

cialized providers of services and goods in the city supports these interactions.<sup>23</sup> Furthermore, while the simple geographical concentration of economic actors facilitates productive interaction, spatial concentration in larger urban regions provides another ingredient essential to the innovation process.

In many sectors of the economy, innovation depends on the sharing of both explicit (codified) knowledge as well as tacit knowledge. The latter form of knowledge is not readily transmitted between actors unless they share a code of communication and a set of norms and expectations governing the practices of individual firms.<sup>24</sup> Recent empirical work on the geography of innovation confirms that these commonalities are most likely to arise when the parties concerned are located in the same region.

Regional institutions play a key role in producing and reproducing these shared codes and norms (the essence of a unique regional culture), whether in California's Silicon Valley, in the industrial districts of Europe and Asia, or in Canada's centres of knowledge-intensive production.<sup>25</sup> Moreover, these commonly shared codes of communication and norms of behaviour constitute an important, regionally specific, intangible asset that helps build and maintain collaborative social learning relationships by reducing uncertainty, fostering trust, and enhancing the sharing of tacit knowledge among local economic actors. This idea is captured by the term "social capital,"<sup>26</sup> which conveys the same idea of intangible assets that support productive social interaction. Thus, city-regions are places where social capital is most easily generated. As a result, they have become places where socially organized learning processes take root and flourish – what some have called "learning regions."<sup>27</sup>

**Social learning processes are also supported by the shared culture of a city-region, which reduces uncertainty, helps build trust, and enhances the sharing of tacit knowledge among economic actors.**

**City-regions can produce, attract, and retain workers who provide the ideas, know-how, creativity, and imagination that are a crucial component of intangible economic assets.**

**23.** M.E. Porter, "Locations, clusters, and company strategy," in G.L. Clark et al., eds., *The Oxford Handbook of Economic Geography*, pp. 253-74.

**24.** M.S. Gertler, "Tacit knowledge and the economic geography of context," *Journal of Economic Geography* 2003, 3.

**25.** A. Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Harvard University Press, 1994; P. Cooke and K. Morgan, *The Associational Economy*, Oxford University Press, 1998; D.A. Wolfe and A. Holbrook, eds., *Innovation and Territory: Regional Innovation Systems in Canada*, School of Policy Studies and McGill-Queen's University Press, 2000.

**26.** R. Putnam, *Making Democracy Work*, Princeton University Press 1993.

**27.** R. Florida, "Toward the learning region," *Futures* 1995, 27, pp. 527-36; K. Morgan, "The learning region: institutions, innovation and regional renewal," *Regional Studies* 1997, 31, pp. 491-503; OECD, *Cities and Regions in the New Learning Economy*, Organisation for Economic

Another advantage of city-regions is their ability to produce, attract, and retain those workers who play the lead role in knowledge-intensive production and innovation – who provide the ideas, know-how, creativity, and imagination. Because production in many growing sectors of the economy is increasingly oriented to non-tangible assets, the locational constraints of earlier eras – for example, the access to good natural harbours or proximity to raw materials and cheap land and energy sources – no longer exert the same pull.

Instead, what matters most now are those attributes and characteristics of particular places that make them attractive to potentially mobile talent. The most recent research on this question indicates that the generation, attraction, and retention of potentially footloose talent – the most crucial resource in the knowledge-based or learning economy – depends on considerations such as the attractiveness and condition of the natural environment and built form, the quality of schools, safety from crime, the richness of cultural amenities, recreational opportunities, and the "buzz" of the local arts and music scene.<sup>28</sup>

Local diversity is also extremely important, in at least two senses. First, it means the diversity of labour market opportunities for subsequent career advancement (and related to this, the potential that one's spouse or partner will also be able to find appropriate work in the same local labour market). Second, it implies the openness of local economic and social systems to diverse, talented newcomers. Indeed, measures of local openness, tolerance, and social diversity appear to dominate all other considerations in recent analytical studies of the geography of growth in knowledge-intensive, creativity-intensive activity in U.S. metropolitan areas.<sup>29</sup>

Taken together, these processes explain why, despite the advent of globally organized economic activity and the increasingly widespread use of information and communications technologies (ICTs), innovation, knowledge-intensive production, and other forms of creative activity have become more, not less, geographically concentrated in city-regions. Much of the long-anticipated decentralization of economic activity resulting from the widespread use of ICTs

**Whereas city-regions once relied on access to natural harbours or proximity to raw materials and energy sources to attract business, today they compete on factors such as good schools, safety, an attractive natural environment, the richness of cultural amenities, recreational opportunities, and openness to newcomers.**

**Despite the widespread use of communications technologies, knowledge-intensive production has become more, not less, concentrated in city-regions.**

**The potential for decentralization of knowledge-intensive economic activity to outlying parts of the Central Zone will be limited, as such places do not offer the depth and diversity of opportunities and amenities that cities do.**

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**28.** R. Florida, "The economic geography of talent," working paper, Heinz School of Public Policy and Management, Carnegie Mellon University, 2000; E. Glaeser, "The new economics of urban and regional growth," in G.L. Clark et al., eds., *The Oxford Handbook of Economic Geography*, pp. 83-98; E. Glaeser, J. Kolko, and A. Saiz, "Consumer City," *Journal of Economic Geography* 2001, 1, pp. 27-50.

**29.** R. Florida, *The Rise of the Creative Class*, Basic Books, 2002.

has failed to materialize, for good reason.<sup>30</sup> In short, large city-regions have become the key nodes in the production and flow of ideas – that is, learning.

This analysis therefore suggests that the potential for wholesale decentralization of knowledge-intensive economic activity to smaller urban centres and outlying parts of the Central Zone will be limited at best. Such places do not offer the kind of critical mass, depth, and diversity of opportunities, services, amenities, and other aspects of urban character that are of growing importance to knowledge-intensive activities.

The most locationally flexible economic activities will likely continue to be those activities that have already been the most footloose over the past 20 to 30 years – that is, manufacturing activities in sectors such as automotive parts, metal manufacturing, and standardized electronic products.

**The most locationally flexible economic activities will likely be manufacturing activities such as automotive parts, metal products, and standardized electronics.**

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### **Can planning and growth management policies influence the location of economic activities within the Central Zone?**

It should be clear from the discussion above that, for those activities with a significant degree of knowledge intensity or creative and cultural content, investments in maintaining and improving the quality of place are key. City-regions hoping to retain their existing share of such activity, or to generate or attract new employment opportunities, must ensure that:

- neighbourhoods are safe, clean, socially harmonious, and vibrant;
- social diversity is embraced and income polarization minimized;
- public school systems are of high quality and on a stable financial footing;
- cultural and entertainment opportunities are rich and varied;

**To attract and retain knowledge-intensive economic activities or those with creative and cultural content, cities must maintain and improve the quality of place. These investments should contribute to safety, social diversity, good schools, cultural and entertainment opportunities, attractive urban design, a healthy natural environment, and alternatives to automobile travel.**

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**30.** E.E. Leamer and M. Storper, "The economic geography of the Internet age," *Journal of International Business Studies* 2001, 32(4), pp. 641-65; K. Morgan, "The exaggerated death of geography: Localized learning, innovation and uneven development," paper presented at the Future of Innovation Studies Conference, Eindhoven Centre for Innovation Studies, Eindhoven University of Technology, The Netherlands, September 20-23, 2001; M. Storper and A.J. Venables, "Buzz: the economic force of the city," paper presented at the DRUID Summer Conference on Industrial Dynamics of the New and Old Economy, Copenhagen/Elsinore, June 6-8, 2002; *The Economist*, "Press the flesh, not the keyboard: face-to-face communications," August 24, 2000, pp. 50-51; M.S. Gertler, "Tacit knowledge and the economic geography of context," *Journal of Economic Geography*, 2003, 3.

- elements of the existing urban fabric that are qualitatively unique, distinctive, and authentic are maintained and strengthened (examples include ethnic neighbourhoods with distinctive shopping streets, dining opportunities, and streetscapes, and historically significant buildings, streets, and districts);
- natural environmental assets are protected and, where appropriate, enhanced (such as Toronto’s long-neglected waterfront);
- residential and employment densities are high enough, and land uses are sufficiently mixed to support a vibrant urban economy and cultural scene;
- alternatives to automobile travel – public transit, walking, and cycling – are readily available (increasingly, the availability of high-quality, attractive alternatives to auto-based daily commuting represents a unique asset and feature of local and regional quality of place that ought to be encouraged and developed).

**Good planning and growth management policies amount to good economic policies. The failure to upgrade existing infrastructure will seriously imperil future growth prospects.**

Sound planning and growth management strategies are directly implicated in many of these considerations. The evidence indicates that the connection between physical and social quality of place and economic dynamism are strong and getting stronger. Good planning and growth management policies amount to good economic policies, and the (admittedly expensive) investments required to restore, maintain, and improve key physical and social infrastructure in the Central Zone’s urban regions represent money well spent. Indeed, one can say that failure to upgrade our existing infrastructure will seriously imperil our future growth prospects.

It is also clear that urban critical mass is vital. Only those places that have attained a certain size, density, and complexity will offer the optimal conditions to support knowledge- and design-intensive employment growth. The reasons relate to the local availability of supplies, services, and leading-edge knowledge assets found in world-class institutions of research and education, as well as the ability to attract and retain highly skilled and talented employees.

These considerations imply that the major nodes for future employment growth within the Central Zone – at least for the most knowledge-intensive and creativity-based activities in the Zone’s traded clusters – are particularly in the GTA and secondarily in the three next-largest urban centres: Hamilton, Kitchener-Waterloo (including Guelph), and St. Catharines. Within each of

**The major nodes for future employment growth within the Central Area- at least for knowledge-intensive and creativity-biased activities in traded clusters- are in the GTA and the three next largest urban centres: Hamilton, Kitchener-Waterloo (including Guelph), and St. Catharines.**

these urban regions, central built-up locations offer distinct advantages for nurturing the development of wealth-generating activities. It is especially important to remove impediments to the redevelopment of vacant or underused brownfield sites, so that the potential value of these lands can be realized.

For less knowledge-intensive activities, the most important locational assets for retaining existing investments and attracting new ones are (i) the availability of serviced industrial land close to major highways that have excess capacity and offer good connections to major destination points (customer plants along the 401 corridor, as well as border crossings at Windsor, Sarnia, and in the Niagara region), and (ii) a sufficient supply of well-trained workers. In the increasingly competitive North American automotive industry, in particular, such considerations weigh heavily in the locational decision-making of firms. Central Zone communities can compete successfully to attract new investments (or retain existing ones) only if they can provide the conditions necessary to support the cost-effective production of high-quality vehicles and parts.

While there may appear to be no obvious link between these considerations and smart growth, it must be pointed out that the effectiveness of existing (and future) highway connections for industrial users will be inversely related to the demand for highway use generated by automobile drivers. In other words, if we continue to encourage patterns of development that invite – indeed, necessitate – growing automobile use for ever-lengthening daily commutes, we will be impairing the Central Zone’s ability to attract and retain future investments in all-important industries such as automotive assembly and parts production.

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### **What approaches might attract new economic activity to the zone?**

As has already been suggested, the principal objectives for an economic development strategy include:

- offering potential investors a high quality of place to enable them to attract and retain a talented workforce;
- maximizing opportunities for entrepreneurs to benefit from highly localized "knowledge spillovers" – that is, opportunities to engage in learning processes with local customers, suppliers, and institutions of knowledge creation.

**For less knowledge-intensive industries, highway access and lack of congestion are key. Therefore, new developments that require residents to commute to work by automobile, will make it harder to attract and retain investment in industries such as automotive assembly and parts production.**

**The battle for talent is ferocious in the higher education sector. A crucial bargaining chip in recruiting talented people from abroad (and for keeping local talent at home) has been quality of life and quality of place.**

With respect to the second objective, it should be pointed out that the battle for talent is especially ferocious in the higher education sector. Labour market analyses indicate that this battle will only intensify in the coming decade as institutions across North America strive both to replace retiring academics and create new areas of research excellence. For the universities within the Central Zone, which pay their salaries in Canadian dollars – and indeed, for any employers competing for creative, talented knowledge workers – a crucial bargaining chip in recruiting talented people from abroad (and for keeping local talent at home) has been quality of life and quality of place.

Central Zone communities such as Toronto, Hamilton, Waterloo, Guelph, and St. Catharines have been able to offer highly livable and (in world terms) affordable communities that meet the needs of this key segment of the labour pool. There is growing evidence, however, that this advantage is being eroded by the declining quality of public and private transportation systems, relatively unchecked urban sprawl, environmental degradation and pollution, increasing social and economic polarization, and a public school system under unprecedented stress.

**The attractiveness of the Central Zone is being eroded by the declining quality of public and private transportation systems, urban sprawl, environmental degradation and pollution, social and economic polarization, and a public school system under stress.**

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## Recommendations

Although the smart growth panel for the Central Zone does not include education policy in its mandate, it does have the potential to address many of the other challenges discussed above. The following suggestions for the strategy are based on the analysis in this paper.

1. Build strong, safe, vibrant neighbourhoods and communities that provide living and working opportunities for a wide range of groups across the socio-economic spectrum. This means providing affordable housing to potential new entrants into local labour markets, supporting and enhancing the integrity and distinctiveness of existing neighbourhoods, and encouraging greater mixing of residential and commercial-industrial land uses within Central Zone communities.
2. Protect and enhance existing natural assets within the Zone by limiting the encroachment of residential and industrial/commercial development. Concentrate future urban growth nodally through judicious planning of major infrastructure investments (e.g., water, sewer, arterial, and highway) and the careful, logical application of development charges.

3. Facilitate redevelopment of brownfield, vacant, or underused land by removing existing impediments and disincentives.
  4. Restructure industrial and commercial property taxation within the GTA to remove the remaining incentives for decentralization. So long as these differentials are unrelated to the true costs of development or provision of services, this artificial impetus to the outward movement of employers does not serve the overall needs of the region well.
  5. Strengthen local and regional public transit systems to enhance the attractiveness of alternative modes to auto-based travel through enhancements to regional rail and bus systems (GO Transit), and more effective integration with local transit systems.
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