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A new tech economy is emerging in Toronto

- The Toronto economy is large and diverse. Examining its development is Professor David A Wolfe, University of Toronto Mississauga, Canada.
- Since the First World War, Toronto has experienced four distinct economic periods.
- The current era has seen the expansion of digital technologies and declines in traditional manufacturing.
- Multinational enterprises increasingly engage with local knowledge and talent to expand and inspire research and development.
- Toronto is approaching a mature entrepreneurial ecosystem, but clear oversight and government policies are needed.

Countries, cities, communities, and individuals alike are grappling with the profound change brought about by new technologies. Among Canadian metropolitan areas, Toronto has the largest and most economically diverse economy – and accounts for almost 20% of the country's GDP. At the University of Toronto Mississauga and Innovation Policy Lab at the Munk School of Global Affairs and Public Policy in Canada, Professor David A Wolfe is shining light on the dynamic changes experienced by large cities in this new technological era, with a particular focus on the Toronto economy.

Fourth era economy

Since the First World War, Toronto has experienced four distinct periods of economic growth (see Table). Its economy has transformed from centring on traditional manufacturing in the 20th century. In the 21st century, Toronto is now a hive of digital technological innovation and highly trained professionals providing services that require substantial skills, knowledge, and expertise.

Since the First World War, Toronto has experienced four distinct periods in its economy and industrial clusters.

The third era originates in the 1990s and early 21st century with the decline of traditional manufacturing and its replacement with high-tech manufacturing – like aerospace – and the rapidly expanding financial and business service industries. New creative and cultural industries emerged, such as entertainment, digital media, and publishing.

The current era is based on the rise of digital technologies alongside further declines in traditional manufacturing. Where manufacturing still exists, it has evolved to harness technological innovation (such as artificial intelligence), and all sectors of the economy rely heavily on information and communication technology (ICT). Today, the leading sectors in Toronto's economy are concentrated in the knowledge and design-intensive sectors around business and financial services, some core manufacturing sectors, including automotive and computers, the biopharmaceutical and biotechnology sectors, as well as the cultural and creative sectors. The city has become a magnet for highly skilled and educated individuals, whose arrival drives new innovation; 40% of all new immigrants to Canada settle in Toronto and foreign-born residents account for more than 50% of the metropolitan area's population.

Entrepreneurs and cluster evolution

As in many cities around the world, 21st-century Toronto has seen the growth and expansion of sectors that develop new digital technologies, with the application of those same technologies across a wide range of other sectors, like the financial services and manufacturing industries. A strong technology cluster of ICTs has been key to Toronto's economic growth. Originally, Toronto's ICT cluster was focused on the marketing and sales offices of foreign (usually American) multinational enterprises (MNEs). This dominance of foreign companies was a legacy of policies designed to make Toronto attractive to foreign investment. However, since the Millennium, cluster evolution has produced a more dynamic ecosystem that supports service-based domestic start-ups and emerging scale-ups. Much of this change can be attributed to cloud

The four eras of Toronto's industry and economy

1st era	1914 – late 1960s	• Manufacturing hub for traditional legacy industries. • Substantial governmental investment in the social economy.
2nd era	1970s – late 1980s	• Continued growth of legacy manufacturing industries. • Financial and business services established.
3rd era	1990s – early 21st century	• Traditional manufacturing declines, while high-tech manufacturing like aerospace flourishes. • Marked growth of financial and business industries. • New creative and cultural industries emerge. • Increasing socio-economic divide between old and new economy.
4th era	Early 21st century – present	• Rise of digital technologies. • Further decline of traditional manufacturing. • Where manufacturing still exists, it has evolved to harness technological innovation. • Economy is now mainly concentrated in office-based knowledge and design-intensive sectors and relies heavily on ICT. • Employers demand high levels of cognitive and cultural input. • City becomes a magnet for highly skilled/educated individuals whose arrival drives new innovation.

computing and mobile applications, which have lowered financial and geographical barriers to entry for start-up enterprises.

Overall, 264,630 people were employed in technology occupations in 2016, an increase of over 11% since 2001 and accounting for 8.5% of total employment in the Metropolitan region. After the San Francisco Bay Area and New York, Toronto now hosts one of the largest technology clusters in North America.

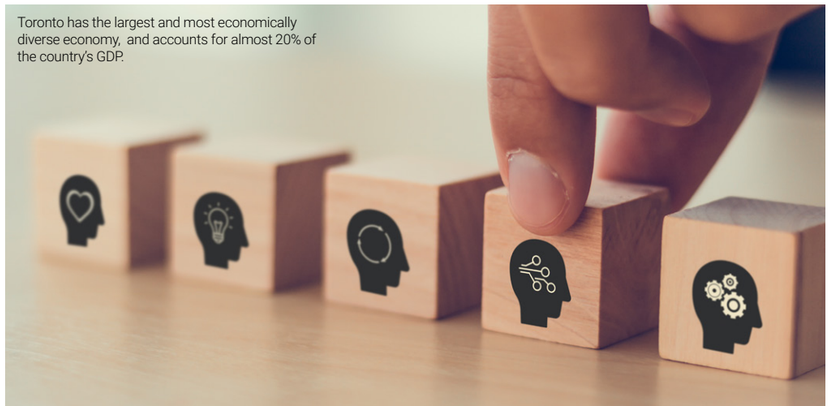
Ultimately, Toronto is approaching a mature entrepreneurial ecosystem. Among those working in the sector, there is now significant depth and breadth of experience, resulting in substantial civic capital and a dynamic and supportive network for start-ups. Together with the large pool of available talent, this has driven both a dynamic start-up and scale-up innovation system, as well as greater inward investment by MNEs seeking to capitalise on the deep strength of the city's technology talent pool.

Localisation of global networks

The current wave of technological transformation has thus affected the dynamics between global and local scales. These changes have altered MNE investment strategies dramatically in host economies – and the Toronto region is no exception. Firms are engaging with host regions in new and different ways by accessing local knowledge and information sources to diversify the regional and locational base of their research and development (R&D) activities, as well as by engaging with local innovation systems to support firm growth in emerging technologies and new industry niches. In so doing, they are creating new linkages between the regional economy in which they invest and their global innovation activities. In other words, it's a move away from investment in 'tangible' assets to a focus on 'intangible' assets, such as creating new knowledge through R&D: from a model based on 'competence exploitation' to one based on 'competence creating strategies'. These strategies access the region's knowledge base through the recruitment of top-quality graduates and research collaborations with the post-secondary education sector. They enhance firm capabilities by establishing links between the offerings of local start-up and scale-up firms and the company's own products.

21st-century Toronto has seen sectors that develop new digital technologies grow and expand.

In short, MNEs in Toronto are increasingly engaging with local knowledge and talent to expand, diversify, and inspire R&D activities. However, the extent to which the broader economy of Toronto will benefit from this change remains unclear – or whether the gains are still concentrated within the MNEs, most of which are headquartered in other countries.



Toronto has the largest and most economically diverse economy, and accounts for almost 20% of the country's GDP.

Personal response

How unique is Toronto? Are there other global cities that have seen a similar evolution?

While the Toronto region is far from unique in this respect, the breadth of its economic strengths – including advanced manufacturing, high-end financial and business services, the digital technology sector, and the cultural and creative industries – distinguishes it from other leading urban centres in North America

What specific policies could the local and national government put in place to ensure sustainable growth that benefits the city and the country as a whole, and not just MNEs?

A current weakness in the city's growth is a lack of joined-up thinking from regional and city authorities. Poor coordination between arms and levels of government is a barrier to innovation. Addressing this issue would allow the city to better harness the deep pool of talent within its workforce, unleashing entrepreneurial potential and securing more sustainable economic growth.

While Toronto's economy has witnessed considerable entrepreneurial dynamism and strong inward investment through the Fourth Era, civic governance in the region has failed to keep pace. There is no shortage of entrepreneurial civic leadership or organisational presence in the region, but the lack of coordination across the large number of municipalities and the lack of broader governance mechanisms at the regional level impedes development. The broader Toronto region includes 29 municipalities, which often fail to collaborate to promote the region's interests. And in a relatively decentralised federal system, the lack of coordination between the municipal and higher levels of government is a further barrier to innovation. Thus, the Toronto region remains characterised by a fragmentation of scales and scopes in which the regional dimension is poorly organised.

One area where there is a pressing need for a new form of organisation structure at the regional level is with respect to economic development policy. Responsibility for regional economic development in the Toronto Region currently rests with a multiplicity of organisations at the federal, provincial, regional, and municipal level, with overlapping and occasionally conflicting mandates. At the metropolitan level a current obstacle to the region's growth is a lack of joined-up thinking from regional and municipal authorities. The need for providing strong territorial leadership in the largest city-region in the country is a continuing challenge for Toronto. Political leaders have encountered problems in building lasting regional coalitions to promote governance mechanisms at the broader regional level. Highly fragmented governance structures discourage risk taking by local political leaders with respect to forging new institutions for region-wide governance. Addressing this issue would allow the city to better harness the deep pool of talent within its workforce, unleashing entrepreneurial potential and securing more sustainable economic growth.

How soon will we know if Toronto has become a 'fully functional entrepreneurial environment'?

Sustaining growth and ensuring the future dynamism and expansion of Toronto's high technology sector also requires clear oversight and appropriate policies at all levels of local and national governance. The main risk lies in allowing a small number of large, powerful foreign technology firms to dominate the urban ecosystem, stifling the evolution and growth of local enterprises. In this respect, Toronto reflects the broader challenge faced by Canada as a whole. Canada's record in building local successes into global powerhouses is decidedly mixed. Promising start-ups all too often end up sold to foreign (usually US) investors. Without nurturing high-growth companies of global scale, Toronto will lack the training ground for managers with the skills needed to shepherd start-ups into successful scale-ups. Addressing these broader national level issues is crucial for Toronto's economic future as Canada's leading urban centre with its most dynamic technology ecosystem.

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Bio

David A Wolfe is a professor of political science at the University of Toronto Mississauga and Co-Director of the Innovation Policy Lab at the Munk School of Global Affairs and Public Policy in Toronto, Canada. He is also a member of the Scientific Advisory Committee of the Council of Canadian Academies.

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Further reading

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