Foundations for Canada’s Prosperity: Signposts & Directions

Address to
The Empire Club of Canada
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Executive Summary

Canada’s cities are building the foundations of our nation’s future prosperity. To position Canada for success, we will have to focus our collective efforts on identifying our most promising assets—both sectorally and geographically—and then leverage them fully.

In a world of highly globalized production systems and supply chains, the only reliable path to sustained prosperity is to concentrate on those activities whose competitive advantage is difficult to replicate in other regions, or at other firms.

Signposts

Given the obvious risks associated with relying on oil to power our economy, and with the uncertain prospects facing our traditional manufacturing sectors, it seems obvious to be asking ourselves a larger, existential question: where will the future prosperity of our city, province and nation come from?
Urban Activities

The international literature on the economic geography of innovation and prosperity confirms what entrepreneurs, venture capitalists, creative populations and business leaders seem to know instinctively: cities are privileged sites for innovation, entrepreneurship and the flourishing of ideas and opportunities.

Biomedical Strength

Many are surprised to learn that the Toronto region is home to the third-largest biomedical cluster in North America, trailing only the San Francisco Bay Area and Boston. This cluster is striking not only because of its size, but also its diverse composition, with significant strengths in everything from immunology to cancer care, cardiac care, children’s medicine and neuroscience.

This diversity has created unparalleled opportunities for convergence across these individual areas of strength to produce unique and highly innovative activities, for instance in personalized medicine and bioengineering.

Top in North America
Primary Health Care • Rehabilitation • Rheumatology

Top Three in North America
Regenerative Medicine • Urology & Nephrology • Paediatrics • Anaesthesiology • Behavioural Sciences • Organic Chemistry • Clinical Neurology • Critical Care Medicine • Endocrinology & Metabolism • Health Care Sciences & Services • Medical Laboratory Technology • General & Internal Medicine • Nursing • Oncology • Pharmacology & Pharmacy • Experimental Psychology • Social Work • Radiology Nuclear Medicine & Medical Imaging • Biomedical Engineering • Gastroenterology & Hepatology • Medical Informatics • Obstetrics & Gynaecology • Respiratory System • Peripheral Vascular Disease • Emergency Medicine • Pathology

Top Five in North America
Health Policy & Services • Haematology • Orthopaedics • Surgery • Biochemistry & Molecular Biology • Biophysics • Neurosciences • Genetics & Heredity • Psychology • Developmental Biology • Physiology • Cardiac & Cardiovascular Systems • Otorhinolaryngology • Nutrition & Dietetics • Psychiatry • Cell Biology • Cell & Tissue Engineering • Toxicology • Public Environmental & Occupational Health • Dentistry • Oral Surgery & Medicine • Neuroimaging • Transplantation • Substance Abuse • Research & Experimental Medicine • Biomaterials • Biomedical Social Sciences • Biochemistry Research Methods • Reproductive Biology

Sources: Web of Science™ Thomson Reuters (2014); and the University of Toronto, Office of the President.
Superlative Research

In all the health and life sciences, only Harvard University publishes more research than the University of Toronto—and publications from U of T are cited more frequently than research from all other universities except Harvard and Johns Hopkins. This is one way to measure the strength of Toronto’s biomedical cluster.

Another way to appraise research quality and performance is by looking at who our researchers partner with, and how frequently. A recent editorial in Nature argued that collaboration among researchers on a global scale is becoming essential in fostering scientific progress. Moreover, in this age of growing global collaboration, “Excellence seeks excellence, so elite national universities are also leading international collaborators.”*

Here is a network graph of the most frequent international collaborators among the world’s top 10 research-intensive institutions by overall publication count. The dark blue circles represent the universities with the greatest number of scholarly publications from 2000–2014. The lines connect each of these institutions to its top ten international collaborators, and the thickness of the lines is proportionate to the number of co-publications.

The prominence of elite research groups is clearly evident. Notice how often the same research groups are interconnected—these institutions are central nodes in a global knowledge network.

“Excellence seeks excellence, so elite national universities are also leading international collaborators.” — Nature


Sources: Web of Science™ Thomson Reuters (2014); and the University of Toronto, Office of the President.
Collaborations & Nodality

Why does this matter?

Quite obviously, in Toronto, Boston, London, Los Angeles, Tokyo—and in every other city on the planet—our present and future prosperity depend on our ability to access and use knowledge produced in other leading centres of research and innovation around the world. Our collective prosperity hinges upon collaboration.

Globally networked centres of knowledge production are increasingly coming to the fore as among the world’s leading economic centres. Venture capital and other forms of mobile investment are seeking out these special places and the opportunities that are signalled by their world-leading research and scholarship.

A Revolution in the Making

We need to rethink our approach to innovation policy, acknowledging that those activities with the greatest innovative capacity are not evenly spread across the national landscape, but are instead concentrated in our city-regions. Public sector investments designed to stimulate innovation ought to be similarly concentrated, rather than allocated in a diffuse and overly dispersed way.

This leads to a few public policy suggestions:

First Canada needs more thoughtful, strategic support for its urban regions. We need to craft public policies locally, provincially and nationally that leverage more fully the inherent potential of our leading city-regions.

Second International connections, partnerships and openness are vital. We need to foster more international collaboration—at the university level, yes, but also at the industry and municipal levels. These are the global networks that will contribute immeasurably to our success.

Third Canadian innovation policy should stimulate investment in business R&D. When industry invests in research, it builds a region’s capacity to absorb and harness the knowledge, discoveries and—most importantly—highly qualified personnel being generated by the higher-education and advanced research sectors.

In the Toronto region, such an innovative ecosystem is just beginning to flower. And as it grows, it will be a powerful complement to the remarkable flourishing of entrepreneurship we are witnessing...

“Money flows where ideas flow.”

— Cited in Univercities: The Knowledge to Power UK Metros
Since 2010, the University of Toronto and its fully-affiliated, partner hospitals have created more startup companies than any other single-reporting institution in North America.
Canada’s urban regions are building the foundations of our nation’s future prosperity.

We need to instigate a local, provincial and national conversation about how we can best help them.

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