Innovating in Urban Economies: Economic Transformation and Ontario’s Digital Corridor

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Why City-Regions Matter

• City-regions are:
  – the presence of a core city linked by functional ties to a hinterland –

• City-regions are sites for innovation:
  – Act as repositories of leading edge knowledge for activities in which they are specialized
  – Serve as gateways for diffusing leading edge knowledge through their respective national urban and regional hierarchies

• Key issue:
  – Does Ontario currently have a unique opportunity to capitalize on the potential of its key city-region?
  – What can we do to seize the opportunity?
Cities as Centres of Innovation

- Knowledge economy demands proximity
- Diversity & specialization contribute to economic growth
  - The transmission of knowledge across diverse sectors stimulates growth in new sectors (Jacobs)
  - But concentrations of related industries stimulate growth (Porter)
- Medium-sized & smaller cities are more specialized
  - take advantage of lower land, transportation costs outside of large cities
  - Implications for GTHA-Waterloo Region Corridor
From the Creative Class to the Cognitive-Cultural Economy

- Leading edge technologies facilitate shift to deroutinized production and outputs
  - In leading edge sectors
  - ‘Cognitive-cultural economy’ (Scott)
- Cities are breeding ground for new production or consumption oriented experiments
  - Cities are reconstituted as ‘Schumpeterian hubs’ - “giant matrices for recombining resources in order to generate innovations.” (Veltz 2004)
Toronto Region: Economic Overview

- Largest city in Canada
  - 6 million in the GTA – more than 8 in the GGH
- Most diversified economy
  - Transition from manufacturing to knowledge-intensive business services and cultural/creative industries
- Scores high on creative occupations & number of Bohemians (Florida)
- Greatest challenge is coordinating across large number of jurisdictions in region
  - New developments with Toronto Region BOT, CivicAction Alliance, Western GTA Alliance, Communitech, TRRA
Innovation in the Toronto Region

• Innovation patterns vary across sectors
  – Knowledge flows primarily intra-sectoral within autos and advanced manufacturing
  – Universities primarily contribute to local talent pool
    • Weak collaborative links with firms
  – Biomedical sector relies on inputs from related industries

• Toronto’s cultural-creative sector
  – Strong inputs from local sources
  – Strength of the local talent pool
  – Primarily oriented to serving local/national market
  – Strong infrastructure of supporting institutions
Innovation in Toronto’s ICT & Financial Services Industries

- Toronto’s ICT and Financial Services industries presumed source of resilience through recession and downturn
- Offset economic impact of losses in automotive and manufacturing
- Targeted as potential growth sector for future development of the city
- Focus on emerging ‘white spaces’ in growing industry (BCG Report)
Innovation in Waterloo Region

• Highly diversified industrial economy
  – Strength in ICT’s, advanced manufacturing & automotive, significant financial services sector

• Strong research infrastructure
  – Two universities, plus one community college
  – Start-ups created not just by IP, but university students more broadly
  – Coop students critical agents for knowledge transfer

• Big ‘D’, little ‘R’
  – Research focused on incremental innovations or process innovation
Time to Brand the Region

• Canada has its own large tech hub, stretching from the east end of Toronto to Waterloo and down to Hamilton, and it has everything offered by its U.S. counterpart:
  - talented entrepreneurs,
  - innovative companies
  - supportive governments, major post-secondary institutions
  - and a track record of success
  - GTA/Waterloo/Hamilton triangle has everything — except world-class branding

The Branham Report – August 2014
Ontario’s Digital Corridor
Ontario’s Commercialization Assets

Regional Innovation Networks (RIN)
8 – Southwestern Ontario Bioproducts Innovation Network
9 – London Regional Innovation Network
10 – Waterloo Accelerator Centre
11 – Guelph Regional Innovation Network
12 – Golden Horseshoe Biosciences Network
13 – Western Greater Toronto Area Convergence Centre
14 – BioDiscovery Toronto
15 – York Biotech
16 – Peterborough DNA Cluster
17 – Eastern Lake Ontario Regional Innovation Network
18 – Ottawa Life Sciences Centre
19 – Innovation Initiatives Ontario North

Sector Innovation Networks (SIN)
1 – Health Technology Exchange
2 – Ontario Genomics Institute
3 – Ontario Centre for Environmental Technology Advancement
4 – BioEnterprise
5 – Ontario Agri-Food Technologies
6 – Communitech
7 – Ottawa Centre for Research and Innovation

Provincial Hubs
20 – Bioindustrial Innovation Centre
21 – Stiller Centre in London
22 – Waterloo Accelerator Centre
23 – MaRS Incubator
24 – McMaster Biotech Incubator
25 – Queen’s/Novelis
26 – Ottawa
27 – Northern Centre for Advanced Technology (NORCAT)
28 – MaRS Centre
29 – MaRS Landing
30 – Ontario Centres of Excellence HQ
31 – OCE Satellite Materials and Manufacturing
32 – OCE Satellites – Environmental Tech
33 – OCE Satellites – Materials and Manufacturing
34 – OCE Satellite – ICT and Photonics
35 – OCE Satellite – ICT
36 – Innovation Synergy Centre in Markham
37 – Ontario Society for Excellence in Technology Transfer (OnSETT)
38 – OCE Satellite – ICT
40 – Sault Ste. Marie Innovation Centre
41 – Northwestern Ontario Innovation Centre

Res. Parks / Incubators
20 – Bioindustrial Innovation Centre
21 – Stiller Centre in London
22 – Waterloo Accelerator Centre
23 – MaRS Incubator
24 – McMaster Biotech Incubator
25 – Queen’s/Novelis
26 – Ottawa
27 – Northern Centre for Advanced Technology (NORCAT)
GTHA-KW Super Cluster Share of National Totals

- Employment: 35.8%
- Patents: 29.6%
- VC: 33.0%
World-Leading Research and Education

- 9 Universities
- 12 Academic Hospitals
- 8 Institutes of Technology and Colleges
- Over 300 Research Institutes
- 300,000 Full-Time Students
- 83,000 Graduating Students per Year
- 10,000 Faculty Members
Startup Genome's
Top 20 Startup Ecosystems

1. Silicon Valley
2. Tel Aviv
3. Los Angeles
4. Seattle
5. New York City
6. Boston
7. London
8. Toronto
9. Vancouver
10. Chicago
11. Paris
12. Sydney
13. Sao Paulo
14. Moscow
15. Berlin
16. Waterloo (Canada)
17. Singapore
18. Melbourne
19. Bangalore
20. Santiago
Leading the Convergence of R&D Clusters

Photonics

Robotics

Electronics

Advanced Manufacturing

Medical devices

Medical imaging

Biomaterials

Stem cell research

Drug development

Biomarkers

Proteomics

Agri-Food

Environmental technologies

Nanotechnology

Quantum computing

Cryptography

Digital Media

Wireless

Health informatics

ICT

BIO
Next Steps

• Greater recognition from all levels of government of the integrated nature of the Digital Corridor
• Strengthen connections through existing institutions such as the ONE and its regional innovation centres
• Enhance talent attraction and retention
• Time to create a region-wide economic development agency
• Need to improve transit connections across the leading hubs of the Digital Corridor
• Promote better integration and coordination among leading research institutions