Innovation and Creativity in City Regions

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Context

• Innovation Systems Research Network (ISRN)

• Established in 1998 to support interaction among researchers and their partners
  – SSHRC, NSERC, NRC funding
  – Diffuse research findings to public and private sector partners

• ISRN cluster initiative launched in 2001
  – Support from SSHRC and other federal and provincial partners

• To investigate the process of cluster development in:
  – knowledge-intensive and traditional sectors
  – metro and non-metro regions

• Structure mirrors regions being studied
  – Research methodologies tailored to regions being studied

• Builds upon the capabilities and partnerships of ISRN
  – Links with extensive network of government partners
  – Strong network of international collaborators – RAC

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Primary Question

How do local social characteristics and processes in city-regions determine their economic vitality and dynamism as centres of innovation and creativity?
Key Dimensions

- Social learning dynamics and knowledge flows between economic actors in dynamic city-regions
- Social dimensions of quality of place (including diversity, openness, inclusion)
- Social nature of civic engagement and governance processes
Key Issues

• Knowledge dynamics: intra-cluster or within city-region?

• Prospects for mid-size and smaller city-regions?

• Global ‘pipelines’ and local ‘buzz’: further evidence?

• Can city-regions pursue socially inclusive talent-based ED strategies?

• Conditions that facilitate/inhibit effective collaborative leadership, civic engagement?
# Case Study City Regions

<table>
<thead>
<tr>
<th>Population Range</th>
<th>Montreal</th>
<th>Halifax</th>
<th>St. John’s</th>
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<tbody>
<tr>
<td>1,000,000+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250,000-999,000</td>
<td>Toronto</td>
<td>Quebec City</td>
<td>St. John</td>
</tr>
<tr>
<td>100,000-249,000</td>
<td>Vancouver</td>
<td>Hamilton</td>
<td>Chicoutimi</td>
</tr>
<tr>
<td>50,000-99,999</td>
<td>Ottawa-Gatineau</td>
<td>Kitchener-Waterloo</td>
<td>Kingston</td>
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<tr>
<td>25,000-49,999</td>
<td>Calgary</td>
<td>London</td>
<td>Saskatoon</td>
</tr>
<tr>
<td>10,000-24,999</td>
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New Global Competition for Research

- Intra-industry trade in research is becoming source of global competition

- Corporations shift from ‘closed’ innovation model to ‘open’ innovation model (Chesborough)
  - Traditional corporate laboratories closed or downsized as companies move to ‘open’ innovation model
  - Pharmaceutical firms outsource 50% of R&D

- Regional knowledge capabilities begin to determine industry location
  - GE in Bangalore, Microsoft in Beijing and Cambridge, UK

- Knowledge capable firms seek out regional knowledge domains
  - Novartis, Roche, Syngenta to San Diego, San Francisco and Boston
  - Nokia, Ericsson to San Diego
Knowledge Spillovers in Learning Regions

- Learning Regions act as anchors of talent in the global economy
  - Innovation: social, interactive; tacit knowledge
  - Strong local knowledge flows
  - Rates of new firm formation are higher in creative and talent rich regions
  - Regional innovation systems

- Distance Matters
  - Firms located close to research benefit disproportionately
  - Especially true for advanced research in fields such as biotechnology

- Untraded interdependencies - technological spillovers in clusters
  - Knowledge and practices transferred between firms
  - Draw upon specialized labour pool and training institutions

- Most effective knowledge transfer is ‘person-embodied’
  - Role of students as transfer agents
Regional Advantage: Specialization or Diversity?

- Cluster literature: implies specialization
- ‘Jane Jacobs’ models: benefits of diversity
- Specialization is risky: few regions can make it work
- Many of most dynamic regions have BOTH
  - A diverse portfolio of specializations
  - ‘Old’ industries: basis for ‘new’ ones
- Can mid-size city-regions pursue such a strategy?
  - Waterloo region: high-tech darling or diverse specialization?
  - Two Ontarios: GTA + mid-size S Ont centres, and ‘the rest’
Knowledge and Learning in City-regions

- **International knowledge flows**
  - Access to global networks
  - Global networks – suppliers and strategic partners

- **Local learning dynamics**
  - Knowledge spillovers, mentoring, demonstration effects
  - Labour mobility – recombine assets

- **Challenge is to structure knowledge in social ways**
  - Institutions engaged in critical/reflexive self-monitoring
    - ‘learning by learning’
  - Depends on discussion – ‘talk’
    - align interests and common understandings of problems and possibilities
  - Create/strengthen codes and conventions through shared understanding
The Role of Talent in Innovation

- Labour is the single most important input for innovation
  - Labour flows to those places that have a ‘buzz’ about them
  - Track this through star scientists (Darby and Zucker)
  - ‘postdoc indicator’

- Universities are key creators and attractors of talent
  - “universities are a crucial piece of the infrastructure of the knowledge economy, providing mechanisms for generating and harnessing talent” (Florida)

- Universities reinforce quality of place by fostering tolerance and diversity and creating ‘humane’ capital

- Many places can produce talent – but far fewer succeed in retaining it and attracting it from elsewhere
  - Why? Is the key question
New Global Competition for Talent

• Economic success depends on new terms of competition
  – A nation’s ability to mobilize, attract and retain creative human talent (Richard Florida, *Flight of the Creative Class*)

• Wide range of countries are increasing their ability to compete for talent
  – Industrial economies are investing in education
    • Ireland, Canada, Finland, Sweden, Australia, New Zealand
  – Emerging economies are rapidly catching up to the leaders
    • India, China, Korea, Taiwan, Singapore, Brazil

• But! REGIONS compete for talent, not nations
  – Creative people don’t choose countries, they think of cities or regions
    • Silicon Valley, Cambridge, Stockholm, Vancouver, Sydney
Universities and Communities: A Wider View

• Universities are key institutions in building ‘quality of place’
  - Attract talent to local regions by
    • Fostering diversity through accessibility
    • Creating ‘humane’ capital

• Diverse, open, tolerant city-regions enhance universities’ ability to attract, retain top graduate students and researchers from elsewhere

• Diversity, openness, tolerance also improve the ability of city-regions to retain their talented graduates locally

• City-regions are engaged in a continental (and global?) competition for talent
  - Pittsburgh vs Boston, Waterloo vs Redmond

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Success in the Global Talent Competition

- Some places are better at generating, attracting, and holding onto talent
  - Answer lies in their openness, diversity, and tolerance
  - Quality of Place attracts talent to city regions:
    - Critical mass of creative people/activities
    - Successful places provide ‘thick’ labour market that matches people to jobs and provides conducive social life
    - ‘Buzz’ in both cultural and career sense
    - Quality of place, diversity, creativity
  - Tolerance is a critical factor in attracting and harnessing creative talent
    - Creates ‘low barriers to entry’ (Florida)
    - Provides a more welcoming environment for talented newcomers

- Students are ‘canaries of the talent mine’ (Florida)
  - Students are the leading indicator of global talent flows
  - Countries and regions that attract students have an advantage in retaining them and attracting other pools of domestic and foreign talent
Attracting Global Talent: Foreign Students in Canada and the US


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Canadian Policies to Promote Talent

- Since 1997, Government of Canada has introduced wide range of programs to support post-secondary education and research - $13 billion in new funding
  - Canada Foundation for Innovation
  - Canadian Millennium Scholarship Fund
  - Canada Research Chairs Program
  - Creation of Canadian Institutes for Health Research
  - Creation of Genome Canada
  - Expanded support for Federal Granting Councils
    - CIHR, NSERC, SSHRC
    - Federal support for research overhead costs

- Provincial Governments have followed suit
  - Ontario Research and Development Challenge Fund
  - Ontario Innovation Trust
  - Ontario Research Fund
  - Biotechnology Cluster Innovation Program
New Role of Governance

- Multilevel governance draws on programs and resources of all three levels of government
- Recognizes the importance of community actors as important sources of local knowledge
- Helps overcome policy silos and improve coordination among policies at different levels of government
- Allows for economic development to be addressed holistically
  - Community level issues that are key to economic development (e.g. transportation) can be addressed in decision-making.
Role of Collaborative Institutions

- Formal and information organizations that:
  - Facilitate exchange of information and technology
  - Foster cooperation and coordination

- Social capital - shared norms and trust (Morgan)
  - Trust is a unique asset – it has value, but no price
  - Earned by discharging obligations to your partners
  - Facilitates cooperation among firms and sectors
  - Expedites learning and speeds the flow of knowledge

- Enhance social capital and improve competitiveness by:
  - Creating relationships and establishing trust
  - Creating collective institutions
  - Identifying common strengths and developing common agenda

- Strategic planning exercises draw upon social capital created by these institutions
  - Generate trust by engaging key social partners in ‘talk’ – builds set of shared understandings and expectations

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Strategic Planning at the Community Level

- Innovation-based strategic planning
  - Promotes innovative ideas in all aspects of regional economy
  - Facilitate relationship-building

- Strategic assessment of local/regional assets
  - Workforce skills
  - Knowledge assets and R&D
  - Creative elements
  - Infrastructure
  - Quality of place
  - Collaborative institutions
  - Entrepreneurial networks and clusters

- Key Role of Community Leadership
  - Civic entrepreneurs
    - bring civic interests together to collaborate
    - Create broad buy-in across all sectors of community
Best Practices

• Made in Ontario examples
  – Sector strategies, 1992-1996
  – Office of Urban Economic Development
    • Toronto, Ottawa cluster studies
  – Ontario Competitive City Regions initiative
  – Biotechnology Cluster Innovation Program (BCIP)
  – Regional Innovation Networks

• Lessons for Policy
  – Adopts principle of ‘joined-up’ governance
  – Focuses on alignment of strategic assets and resources
    • Leverages local talent base by linking federal and provincial programs to local needs
  – Associative and reflexive
    • Brings the community back-in
Toronto Regional Initiatives

- Toronto Competes
  - Cluster studies with support of Ontario Government Office of Urban Economic Development

- Toronto, Mississauga, York Region Biotechnology Cluster Strategies
  - Align research and teaching capabilities with industry and institutional capacities

- MaRS Discovery District
  - Federal and Provincial support aligned with existing research capacity

- City of Toronto ICT Strategy
  - Leverage both public and private ICT assets to gain increased recognition for local strengths

- Toronto City Summit Alliance – coalition of 50 civic leaders
  - Emerged from Mayor’s summit on the future of the city
  - Toronto Regional Research Alliance
    - Pressure for expansion of federal research presence in Toronto
  - Toronto Region Immigrant Employment Council
Waterloo Regional Initiatives

- University of Waterloo key institutional player
  - University of Waterloo Research and Technology Park
    - Designed to house high tech industries in the region and promote partnership between university and local industry

- Local business leaders fund major research institutes
  - Perimeter Institute for Theoretical Physics
  - Institute for Quantum Computing
  - Centre for International Governance Innovation

- Local Civic Associations build ‘civic’ capital
  - Canada’s Technology Triangle (1987)
  - Communitech Technology Association (1997)
  - The Prosperity Council (2003)
Local Benefits

- Nurture and develop new firms, technologies, industries
- Identify workforce assets and needs
  - Attract, train & retain skilled, talented people locally
- Leverage existing assets – research infrastructure, skill base, etc.
- Build receptor capacity - drive innovation culture locally
- Build-on and strengthen local institutional capacity – at all three levels
- Attract international investment to regions based on technological strength and social interaction
Ottawa Regional Initiatives

- Collaborative institutions anchor local knowledge base
  - Ottawa Centre for Research and Innovation
    - formed by leading universities, community colleges and government laboratories with strong municipal support
    - 700 members, $4.5 million budget
    - Sponsors 120 events annually
  - Ottawa Life Sciences Council
    - Ottawa Region Biotechnology Strategy and Initiatives

- Strong research infrastructure
  - National Research Council institutes concentrated in capital
  - Two universities with strong engineering faculties
    - Expand research in fields relevant to local industry, i.e. photonics
  - Strong private sector labs – Bell Northern Research, Nortel

- The Ottawa Partnership Economic Generators Initiative
  - Initiative of municipal government, OCRI and local business to chart economic development strategy
    - O Vitesse – local skills training initiative
    - NRC – Canadian Photonics Fabrication Centre

- NRC Regional Innovation Forums
  - Federal agency collaborates with local organizations

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