
Life Sciences Clusters in Ontario

Meric S. Gertler and Nichola J. Lowe

Program on Globalization and Regional Innovation Systems

Centre for International Studies

University of Toronto

Presented at the ONRIS-MEDT Workshop
'The Policy Implications of ONRIS Research'

Delta Chelsea Inn

21 October 2004

Innovation Systems Research Network



Scope of Study

Medical and Assistive Technologies	54
Core-Biotech (early/late-stage)	25
MAT-Core Biotech Hybrid	6
Pharma (brandname/generic)	5
Venture Capitalists	4
Procurement Specialists	3
Contract Research/Manufacturing	2 (4)
Government/University/Associations	10
INTERVIEW TOTAL	109



I. Cluster Strengths (1)

- **Talent:** 68% of MAT firms and 64% of core bio/pharma firms identify local supply of skilled workers as their top growth factor
 - Local sources of talent include universities and colleges, ethnic networks and “pill-hill”
 - Range of skills from engineering to sales
 - Firms identify local knowledge and expertise as especially key input



What are the most important factors in the local/regional economy that contribute to the growth of your firm?

	MAT	Core/ pharma
co-location with other firms in the same industry	5	3
supply of workers with particular skills	1	1
physical, transportation, comm. infrastructure	3	3
availability of financing	8	2
specialized research institutions and universities	2	4
specialized training or educational institutions	6	6
presence of key suppliers and/or customers	4	7
government policies or programs	7	5

Cluster Strengths (2)

- **Research Institutions:** 63% of MAT and 75% of core bio/pharma firms have formal/informal exchanges with Ontario research institutions
 - 48% of MAT and 70% core bio/pharma report these relationships are very important for the development of new products and services
 - For MNC MAT firms, local exchanges also very important for product modification and testing



Cluster Strengths (3)

- **Sophisticated Buyers:** 46% of MAT firms say proximity to customers is very important
 - 48% of MAT firms in GTA (vs 15% in London, Ottawa) secure local sales through exchanges with front-line practitioners/physicians – specialty products
 - Interviews reveal strong benefits from close interaction between MAT users and producers



Cluster Strengths (4)

- **Financing:** Core bio/pharma firms identify availability of local financing as second most important growth factor
 - Core biotech firms rely heavily on local angel investors and venture capital funds
 - Local strengths in start-up and late-stage financing (mid-stage gap)
 - Divergence with MAT, where majority of firms finance their operations through product sales



II. Cluster Challenges?

- **Financing:** 42% of core biotech/pharma firms and 23% of MAT firms identify this as the most important obstacle to future firm growth and success
 - Core biotech: mid-stage financing gap; VCs more interested in US or other foreign investments than in home-grown prospects
 - MAT: unique needs not understood



More Challenges

- **Product Approval Process:**
 - core biotech/pharma: regulatory approval system compares unfavourably to US (slower process; shorter patent protection period (28% identify this as a challenge))
 - Large biopharma: communication with provincial government re approvals, health care reform currently poor
 - MAT firms: regulatory approval process is slower/less accommodating for domestically developed new products
- **Product Acceptance:**
 - MAT firms: face 'not invented here' syndrome in Canadian marketplace (15% MAT firms highlight this issue)

More Challenges

- **Government Funding for Health Care Expansion:**
 - MAT firms see the current level of funding for health care in the Ontario system as a constraint on market growth (18% of firms)
- **Qualified, Experienced Managers:**
 - Scarcity of managers with experience in commercializing products and building companies from start-up to stable operations (25% of core bio/pharma firms; 8% of MAT firms)



More Challenges

- **Lack of Visibility:**
 - Toronto's life sciences cluster (both core biotech/pharma and MAT) has not been very visible ***locally*** until very recently; nor does it enjoy a high profile ***internationally*** (14% of core biotech/pharma firms)



More Challenges

- **Tech Transfer Agencies:** Some dissatisfaction amongst core biotech firms (esp. GTA) with local tech transfer agencies (in university sector)
 - Inexperienced staff
 - Too focused on making money: taking their cut of profits, owning IP
 - Too risk averse



III. Implications for Public Policy?

- **Promotion of Locally Made Biomedical Technologies: in Local and Global Markets**
 - Build on existing successes: identify, showcase local firms that already produce products for local hospitals
 - Demand-side incentives for local procurement: encourage front-line staff/practitioners in hospitals to seek out local technologies (decentralized decision-making *critical*; facilitates access to hospitals by local MAT firms)
 - Help local firms access US market (Work in partnership with industry groups – e.g. HTX?)



Policy Implications (2)

- **Financial Assistance**

- Core biotech: more support for mid-stage development and commercialization; government can provide stability in financing (offset volatility, inconsistency of private VC sector)
- MAT: government intervention can educate financial sector on particular needs of this industry; educate MAT firm managers about how to ‘talk to’ financial community, prepare business plans, become ‘finance-ready’; ‘hybrid’ MAT firms (core biotech-MAT) with relationships to VC community could play a mentoring role
- Province could act as guarantor or lead customer for MAT firms, reducing risk perceived by finance community



Policy Implications (3)

- **‘Embedding’ Global Life Science Firms**
 - Large global biomedical firms dominate hospital procurement (bundling; long-term contracts): they could be encouraged to partner with local MAT firms for technology co-development; offered incentives to do more product development in Ontario;
 - Showcasing noteworthy success stories can have positive demonstration effects (e.g. Baxter: acquired Autros; now global base for Baxter’s point-of-care patient safety systems development)



Policy Implications (4)

- **Leveraging Ontario's Public Health Care System to Attract/Retain Knowledge-Intensive Investment**
 - Global firms (MAT and biopharma) benefit from Ontario's *public* health care system and high-quality teaching hospitals in developing/improving products for the global marketplace; public medicare system offers some important advantages (vs. US-style HMOs) – physicians are more likely to engage interactively, provide feedback on experimental products;
 - Need to rethink how we can use public health care assets more strategically to anchor and deepen global firms' knowledge-intensive activities in the province



Policy Implications (5)

- **Exploit Global Consolidation and Merger Activity for Local Benefit**
 - Identify opportunities for local firms to acquire local assets of global firms
 - Build on established successes (we have identified at least two prominent examples)
 - Government and industry associations can be effective information broker, intermediary



Policy Implications (6)

- **Talent Strategy**

- Incentives and strategies to attract and retain highly qualified scientific personnel
- New approaches to developing managerial talent: beyond traditional MBA
 - Other innovative approaches to developing managerial capability: creating opportunities for *learning-by-doing*
 - Executive-in-residence programs
 - Specialized continuing education in business schools
- Vocational Training (MAT sector)
 - Shortage of customized vocational training, esp. for SMEs



Policy Implications (7)

- **Reforms to Approval Processes: For New Drugs and Biomedical Equipment**
 - Large firms willing to pay for faster, more streamlined approval process



Policy Implications (8)

- Showcase/Promote Local Firms and the Wider Industry/Cluster: Locally and Internationally
 - Need to put Toronto's Life Sciences cluster 'on the map', generate 'buzz' locally and globally
 - Large, visible initiatives important, but need to build on identifiable local successes and long-term assets

