Local Systems of Innovation in Vancouver - Report to ISRN, May 2007

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This is a collective effort

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- And many more as time passes……

Theme I Hypotheses

Hypothesis 1: In order to understand the local system of innovation , we must understand knowledge flows.

Hypothesis 2: Economic and creative performance of city regions depends on three characteristics:

- What determines strength of local knowledge circulation processes *within* individual industries/clusters?
- What are the strengths of local knowledge circulation *between* individual industries/clusters?
- What determines the strength of knowledge-based linkages between local and non-local economic actors and local and non-local knowledge flows

Successful high-tech clusters in Vancouver: ISRN I

- Output is often intellectual property, not products
- Strong clusters have strong associations
- Clustering fuelled by sticky labour market
- Strong sources of human capital and basic research

Fuel Cells – Wolfe's criteria

- Strategy for selection: LQ >> 1
- Parallel specializations: the fuel cell value chain and the H_2 value chain
- High knowledge intensity: occupations, creative occupations, educational attainment
- Fast- growing sector: not necessarily (!)

Research questions I (from M. Gertler)

- Question One:
  - What kinds of knowledge flows predominate?
  - Are investment decisions motivated by the local “mix” of economic activities?
  - How is knowledge circulated among firms?
- Question Two:
  - What kinds of knowledge bases predominate?
  - What are potential local or non-local partners?
  - To what extent have local firms invested in”pipe-line” building
  - To what extent do local firms have organizationally defined links to non-local partners?

Research Questions II

- What affinities facilitate learning; what is a good way of thinking about global - local knowledge flows?
- Is it appropriate to think of a local - global dichotomy?
  - Is there a dense network of local relations within Vancouver?
  - Do companies connect to knowledge wherever in the world the knowledge is found?
- Or, alternatively, is there something else going on, a system between the local and global?
  - Again, is there a dense network of local relations?
  - Are extra-local relations are likely to be between specific places (cluster-to-cluster relations)?

Fuel Cells – test case study II - serendipity

- An international conference on fuel cells in Vancouver, April 29 / May 2
- Opportunity to interview actors from overseas – we can now go back to the local actors
- We have the benefit of an NRC-sponsored study on the fuel cells cluster in Vancouver
- The cluster is highly localized within the GVRD, but there are regional links to Victoria, and nationally (GTA)
- The fuel cells industry started in Vancouver because Geoffrey Ballard lived here (because he liked it!)

Some “on the ground” results

- Some jurisdictions – North Rhine Westfalia and Denmark sent large delegations
- Some companies had pre-existing relationships with domestic companies such as Ballard, but wished to foster deeper relationships
- Participants’ primary objectives included:
  - Building their knowledge base about the industry and emerging technology. Tradeshow was easy to cover, but technical sessions were hard to schedule
  - Legitimization: If they *don’t* show up, rumors fly
- Complementary outcomes included:
  - Knowledge transfers (conferences) with non-fuel cells sector. Keeping general consumer interest in fuel cells alive.
  - Being approached by previously unknown players (eg from Japan, Korea, China)

Results : Location matters

- Global players want to see what is happening and also be seen as a player in the fuel cell industry. Vancouver is an important place to be (several confided that they also had already been skiing!)
- Vancouver cluster is well known and highly regarded " *one of the world's best centres*". Vancouver is seen as a centre of world class expertise - most know of Vancouver firms beyond Ballard. They either have or know of companies that have joint ventures with companies here.
- Vancouver is seen as a major knowledge node and appears to be highly connected to other knowledge nodes in the world.
- Hoped to identify potential partners including participating actively in the match-making process and signing contracts
    - Two-way street: Hoped to be discovered by potential partners, too

Next steps – snowballs in Vancouver!

- Interview the Vancouver firms, now that we have the foreign end of the knowledge flows
- Look at parallel technologies / clusters: fuel cells, H_2 power supplies, transportation and materials handling systems, distributed utility systems…..
- Local innovation systems within the GVRD; Burnaby, District of North Vancouver…..
- Knowledge links between Vancouver and Victoria….