Urban Hierarchy or Local Buzz?

High-order Producer Service and (or) Knowledge-intensive Business Service Location in Canada, 1991-2001

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High order services and KIBS

- The same economic sectors (Wood, 2006)
- Different conceptualisations:
  - HOS: Service/manufacture dichotomy.
    - create an information product, sell it to producers.
  - KIBS: Knowledge Intensive/Knowledge poor dichotomy
    - Act as vectors of knowledge transmission; contribute to innovative activities of firms.

Geography

- **HOS:** locate towards top of urban hierarchy.
  - Some diffusion downwards (1970s and 1980s).
  - Are perceived as potential exporters
  - Hence some hope for regional development?
  - Local growth effect due to export capacity.

- **KIBS:** have been studied principally with respect to their interactions with other firms and sectors.
  - The local presence of KIBS may enable local knowledge diffusion and innovation
  - Hence some hope for regional development?
  - Local growth effect due to local interactions and knowledge exchange.

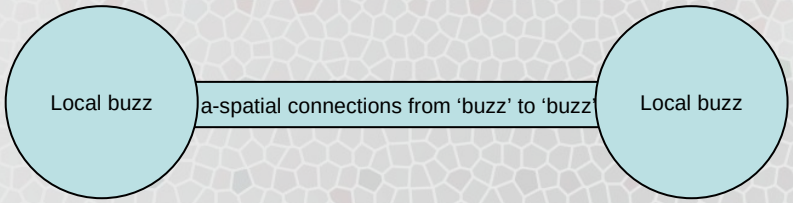
Is there evidence of systematic local interaction between KIBS and other sectors ?

- In this study we do not look directly at interactions.

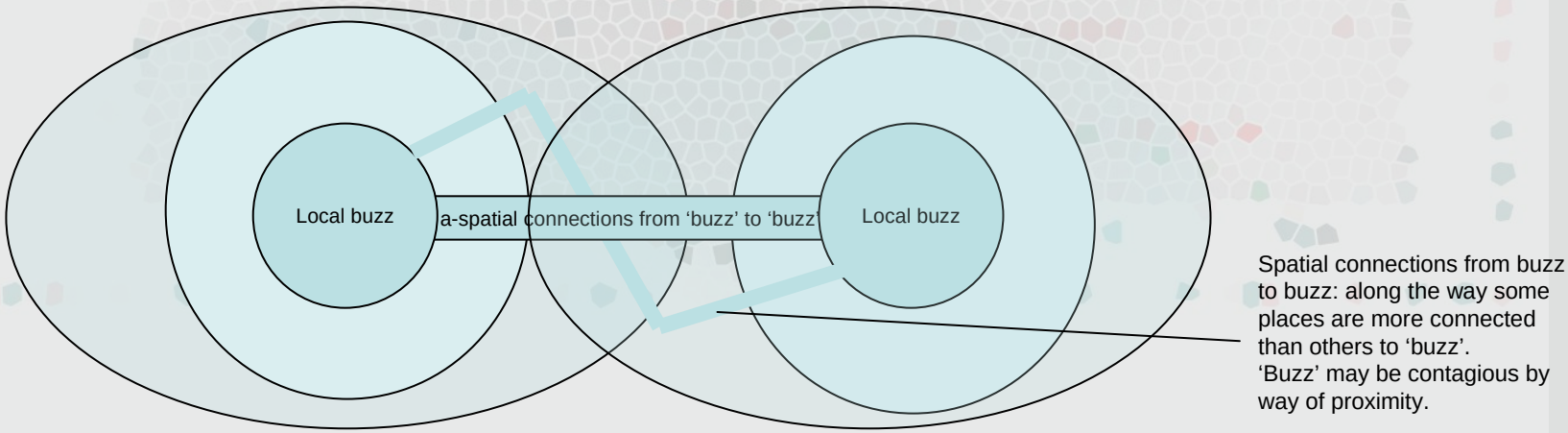
- We try to see whether KIBS locate :
  - purely according to the urban hierachy.
  - closer to economic sectors with which they may interact.
  - closer to certain types of labour

An aside

- Geography and innovation studies have so far had rather different conceptualisations of space.
  - **Innovation:** buzz and pipelines. Considers *place* and *a-spatial social and business connections*.



  - **Geography:** space is continuous. Considers *space* and *spatial diffusion and connection*. It is not only *place* but *relative proximity* that matters.



In other words…

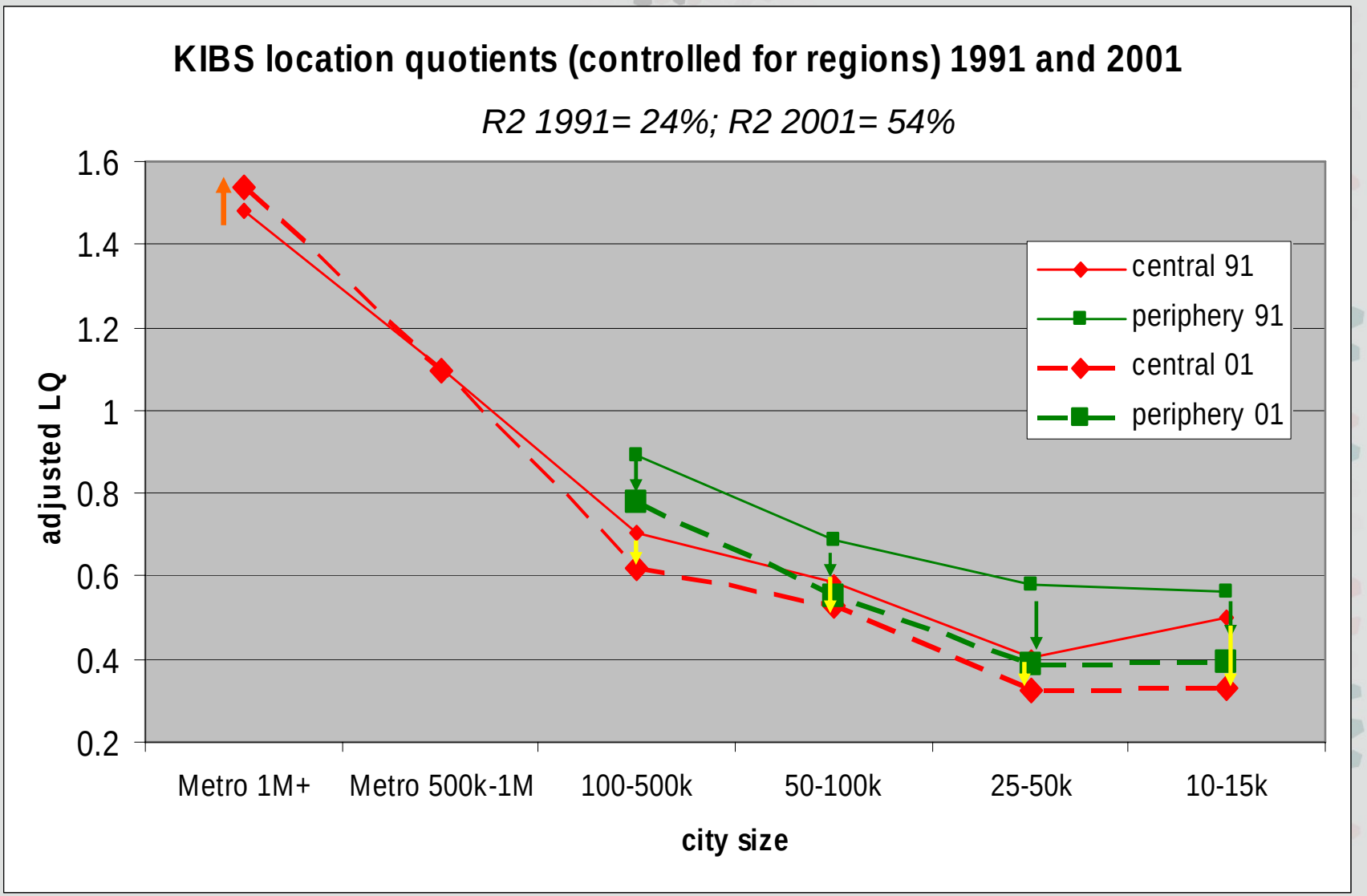
- From a geographic perspective there is no reason for KIBS to be *local* in order for them to play their role in innovation and knowledge diffusion.
- For KIBS to play their role in innovation systems they merely need to be *reasonably accessible* to the firms with which they interact.
- *'Reasonable accessibility'* may differ depending on the sectors and type of knowledge exchange involved.

Data

- 2001: 3 digit NAICS, 152 urban areas, 230 rural areas, covering whole of Canada.
- 1991: aggregations of 3 digit SIC
- How do we define KIBS?

NAICS	Description
1150	Support activities for farms (1151 to 1152)
1153	Support activities for forestry
2131	Support activities for mining and oil and gas extraction
4881	Support activities for air transportation
4882	Support activities for rail transportation
4883	Support activities for water transportation
4884	Support activities for road transportation
5112	Software publishers
5133	Telecommunications
5141	Information services
5142	Data processing services
5413	Architectural engineering and related services
5414	Specialized design services
5415	Computer systems design and related services
5416	Management scientific and technical consulting services
5417	Scientific research and development services
5419	Other professional scientific and technical services

Where do KIBS locate and grow?



Do all KIBS co-locate?

Sector names and NAICS (1997) codes	F1	F2	F3	F4	F5	F6	Communalities
5415 Computer systems design and related services	**0.86**	-0.01	-0.12	0.19	-0.12	0.07	0.80
5112 Software publishers	**0.75**	-0.14	-0.07	0.12	-0.12	-0.08	0.63
5414 Specialized design services	**0.74**	0.14	0.00	-0.16	0.06	-0.09	0.61
5416 Management, scientific & technical consulting services	**0.73**	0.35	-0.02	0.28	-0.02	-0.03	0.74
5417 Scientific research and development services	**0.62**	-0.11	-0.09	0.12	0.01	-0.06	0.43
5142 Data processing services	**0.62**	0.18	-0.11	-0.05	-0.06	0.27	0.50
5419 Other professional scientific and technical services	**0.54**	-0.11	0.37	-0.04	0.15	-0.18	0.50
5413 Architectural engineering and related services	0.35	**0.70**	-0.04	0.15	-0.11	0.02	0.65
2131 Support activities for mining & oil & gas extraction	-0.18	**0.77**	0.00	0.00	0.07	0.00	0.64
4884 Support activities for road transportation	-0.04	-0.06	**0.77**	-0.01	0.04	-0.01	0.61
1153 Support activities for forestry	-0.17	0.03	**0.80**	-0.03	-0.07	0.01	0.67
4881 Support activities for air transportation	-0.16	-0.06	-0.19	**0.71**	0.15	-0.27	0.67
5141 Information services	0.41	0.08	0.00	**0.48**	-0.03	0.22	0.45
5133 Telecommunications	0.29	0.15	0.14	**0.58**	-0.11	0.16	0.50
4883 Support activities for water transportation	0.03	-0.35	0.14	0.15	**-0.65**	0.02	0.59
1150 Support activities for farms	-0.04	-0.24	0.11	0.15	**0.80**	0.11	0.74
4882 Support activities for rail transportation	-0.09	-0.01	-0.03	0.02	0.09	**0.90**	0.82
Variance explained by each factor	3.92	1.52	1.50	1.31	1.18	1.09	

CORE KIBS

RESOURCE EXTRACTION KIBS

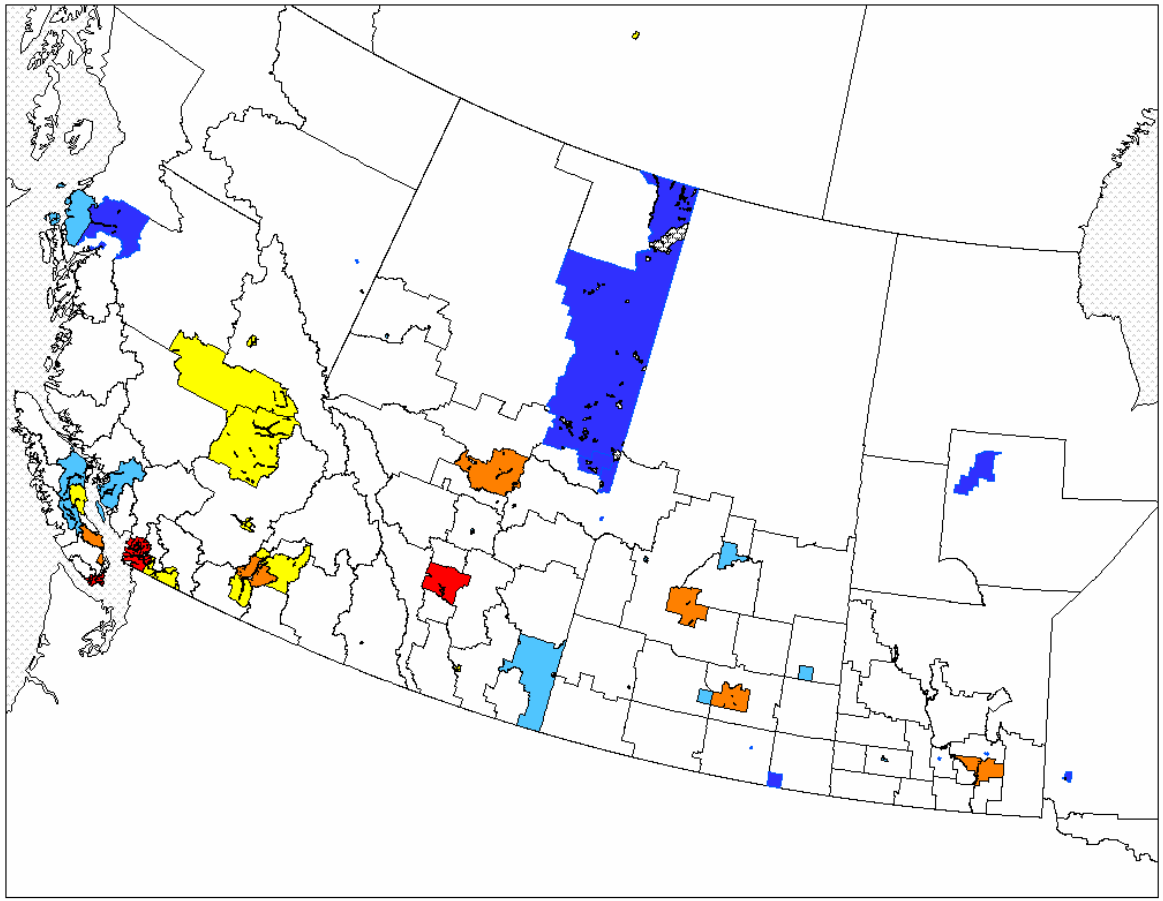
FORESTRY RELATED KIBS

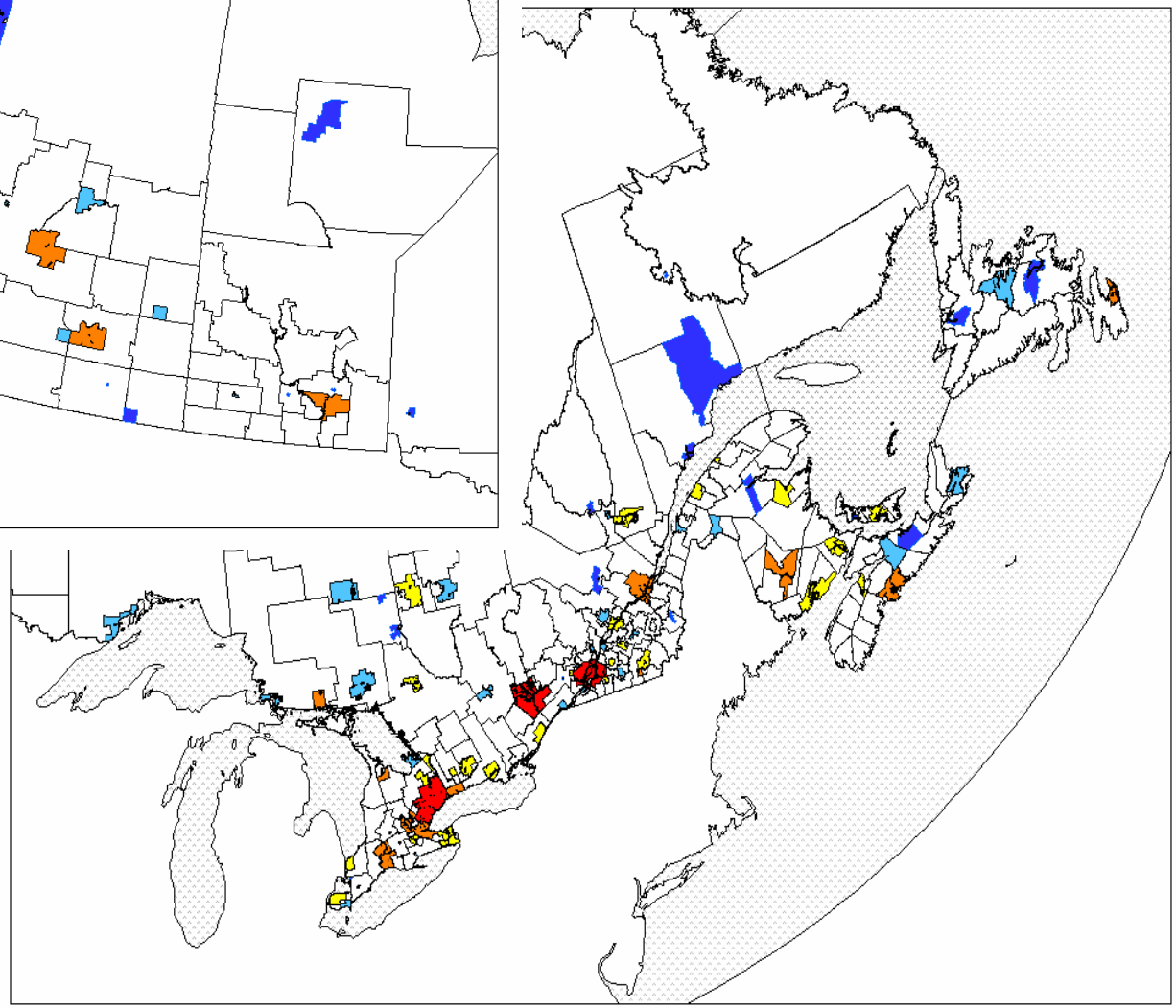
COMMUNICATIONS KIBS

WATER TRANSPORT *OR* FARM KIBS

- Core KIBS:
  - Purely hierarchical (no regional differences)
    - Located in major metropolitan areas
  - Locate in places with
    - Educated workforce (all types of qualifications)
    - Only co-locate with other similar sectors (FIRE, professional services)

Core KIBS

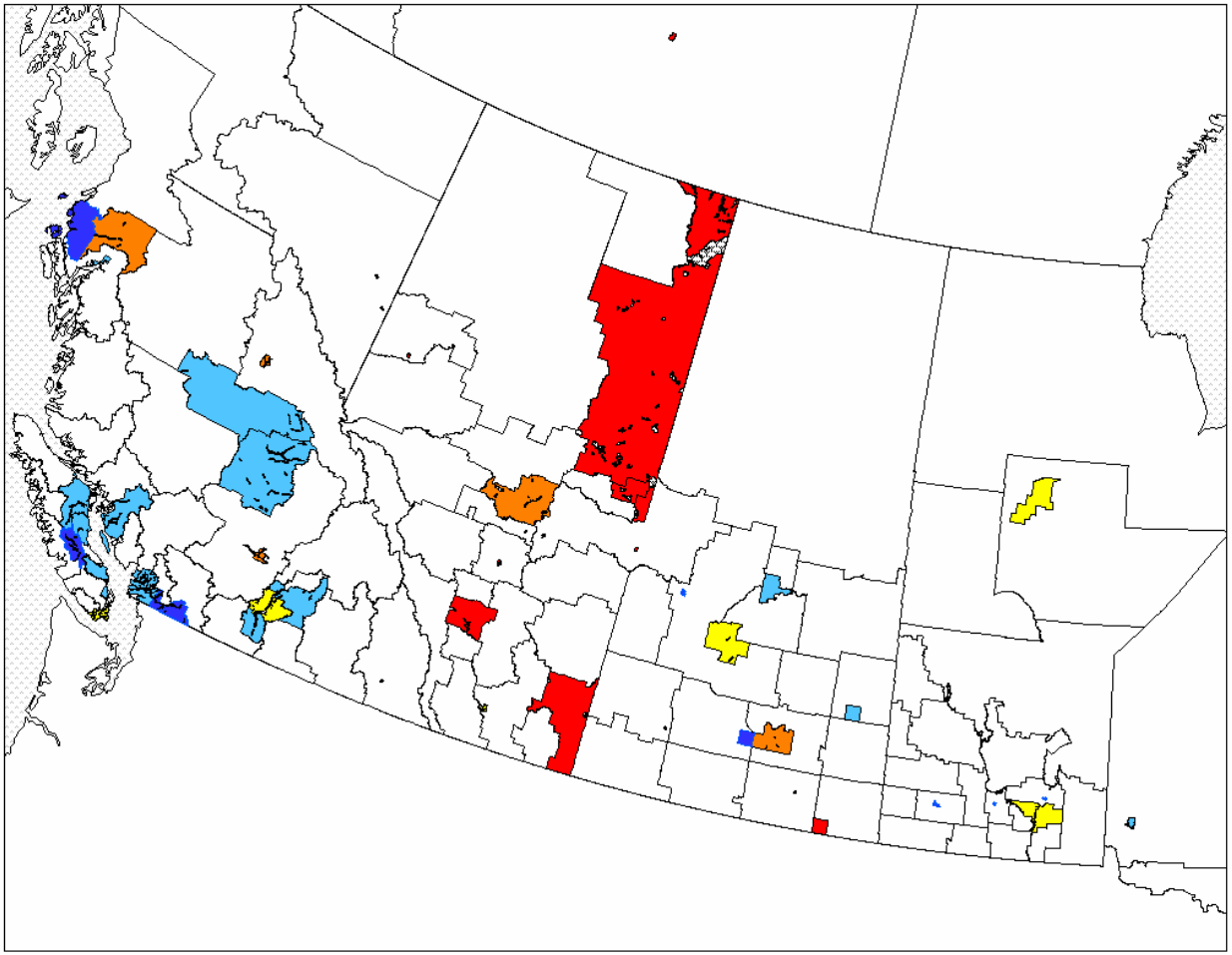


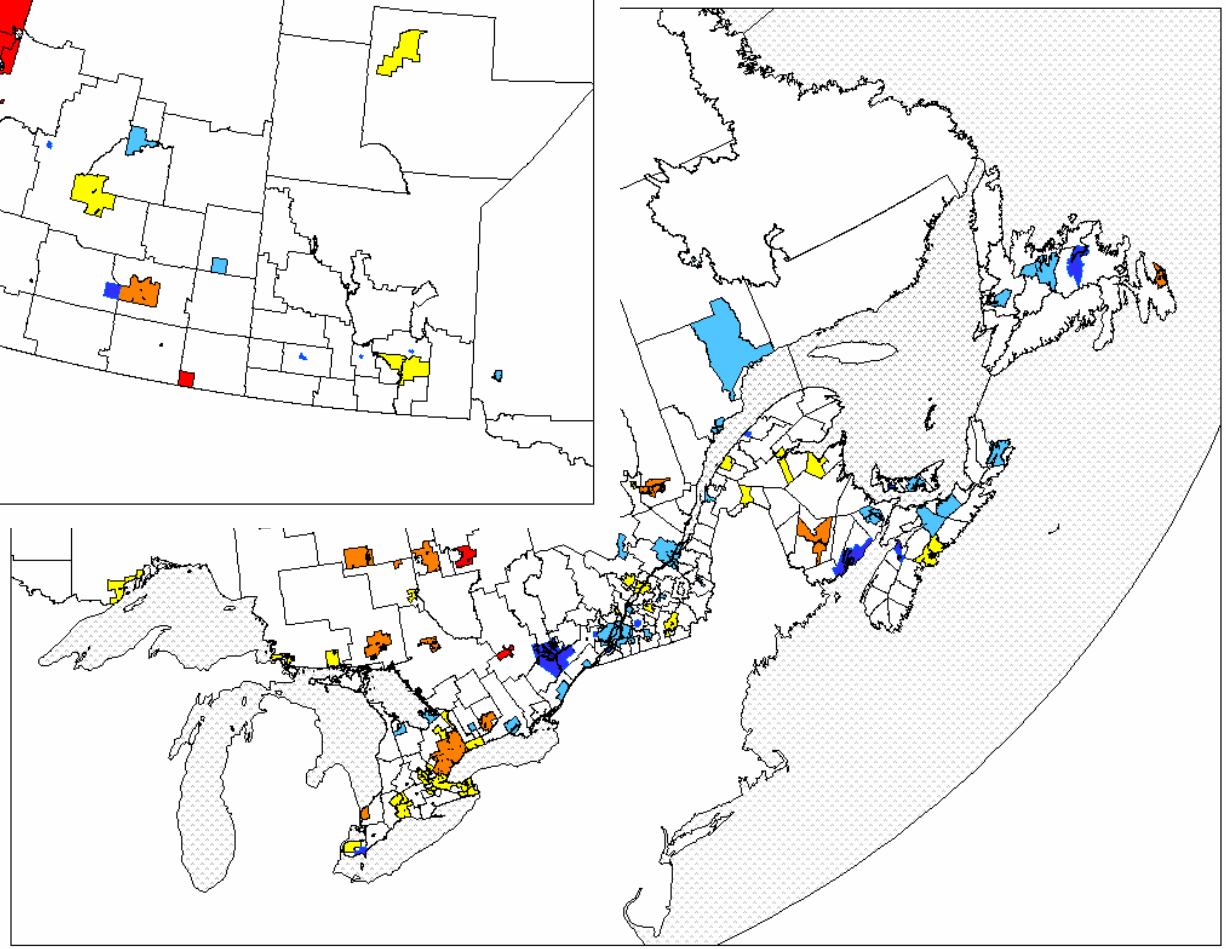


Principally large metropolitan areas.

- RESOURCE EXTRACTION KIBS
  - Locate in Alberta
  - Do *NOT* locate in immediate proximity to resource extraction industries
  - Locate in areas with high proportion of science and engineering qualifications

Resource extraction KIBS (engineering and mining services)





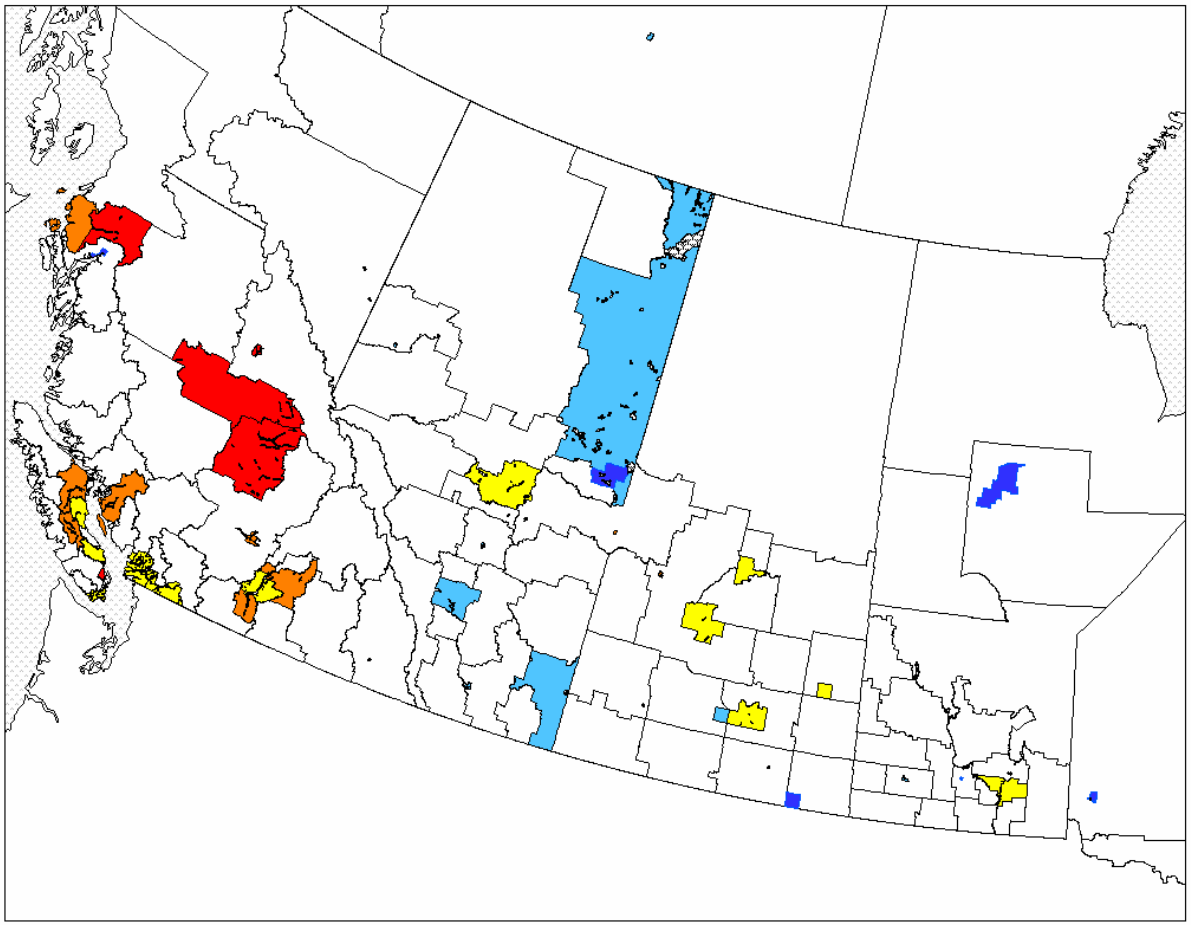
- Urban areas in Alberta
- Some large, some small
- Around Toronto
- Northern Quebec and Ontario

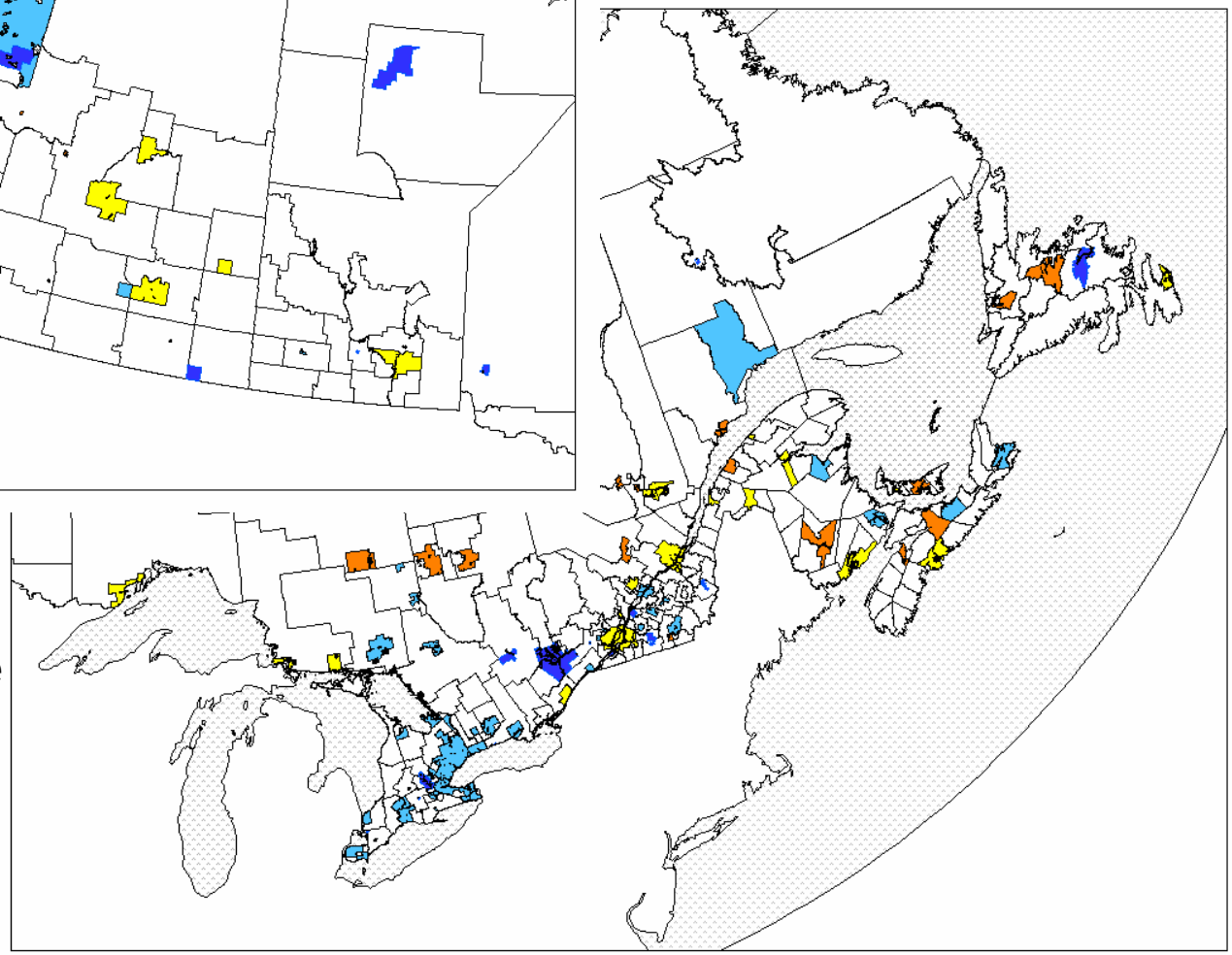
- FORESTRY; COMMUNICATIONS; FARM / not WATER TRANSPORT

  - Each follows a regional distribution
    - **Forestry:** British Columbia and Quebec (forestry provinces)
    - **Communications:** Prairies and Atlantic (remotest regions)
    - **Farm / not Water transport :** Alberta and Prairies

  - Each also follows ‘client’ sectors locally
    - **Forestry:** local proximity to wood and forestry products.
    - **Communications:** local proximity to air transportation
    - **Farm / not Water Transport:** local proximity to agricultural producers / distant from Water transporation industry

Services to forestry and road transport





- British Columbia
- Quebec ?
- scattered presence elsewhere

In sum, three location patterns

1. Hierarchical KIBS (Metro areas)
   - Maximise general accessibility and access to labour with high levels of *general* qualifications.
   - No apparent connection with any particular sectors either at the regional or at the local scale.

   - *If these KIBS participate in knowledge transfers outside metropolitan areas, they do so over distance: they do NOT locate outside metro areas.*
   - *Don't expect these KIBS to generate local 'buzz' outside metro areas.*

2. Regional market KIBS (larger *and* smaller urban areas)

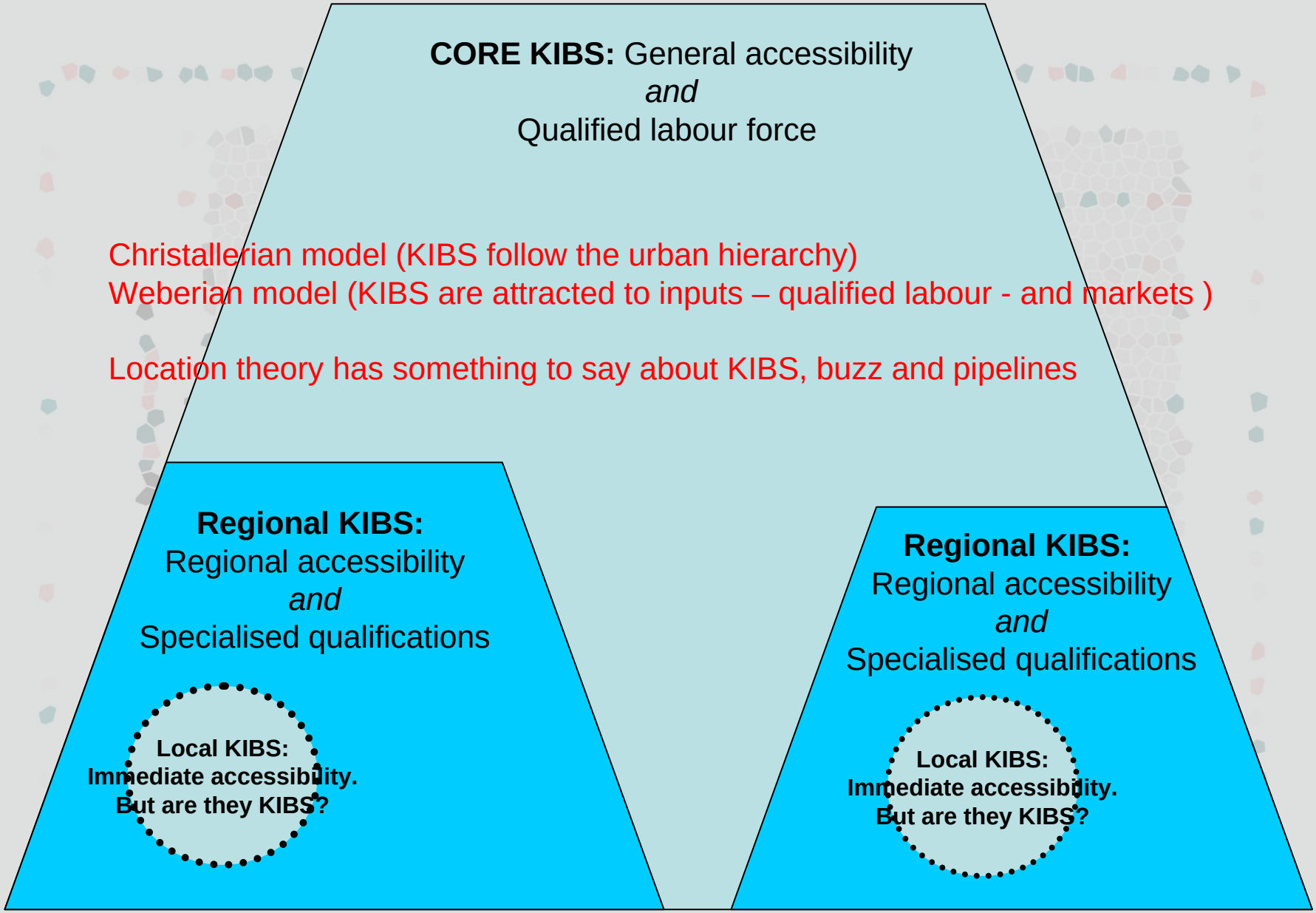
- These KIBS locate in the same region as their client sectors.
- They *DO NOT* necessarily locate in or near the same localities as their client sectors.
- They seek out a *specialised* labour force.

- *These KIBS may help to generate a regional (or provincial) level 'buzz'*
- *These KIBS DO NOT seem to participate in any specifically local interactions*

3. Local market KIBS

- These KIBS locate in regions where their client sectors can be found
- Furthermore, these KIBS locate in immediate proximity to their client sectors

- *These KIBS* may *contribute to local buzz*
- *But are these specialised sectors (support to forestry, support to road transport, support to air transport etc..) KIBS?*


CORE KIBS: General accessibility
and
Qualified labour force
Christallerian model (KIBS follow the urban hierarchy)
Weberian model (KIBS are attracted to inputs – qualified labour - and markets)
Location theory has something to say about KIBS, buzz and pipelines
Regional KIBS:
Regional accessibility
and
Specialised qualifications
Local KIBS:
Immediate accessibility.
But are they KIBS?
Regional KIBS:
Regional accessibility
and
Specialised qualifications
Local KIBS:
Immediate accessibility.
But are they KIBS?

To conclude

- Cities tend to have specific economic functions (urban systems theory).
- Core KIBS functions tend to be at the top of the urban hierarchy.
- How do innovative companies in smaller cities and remoter regions access these KIBS functions? (assuming that KIBS *are* important vectors of information and know-how for innovation)

- Space is not a blank slate upon which social processes play out.
- Space incorporates great inertia (population distribution, cities, infrastructure, transport routes) that current social processes only partly overcome.
- However, existing configurations of space are used in different ways by different actors, and this usage may change, sometimes rapidly.
- It is important to incorporate some elements of *spatial theory* in innovation studies
- This theory can provide a framework for understanding how space is used (and how this use may evolve over time) (e.g. large cities/small cities; central areas/remote areas)

Some more general remarks:

- From the perspective of spatial and geographic analysis, the treatment of space (as opposed to place) in innovation studies remains basic.

- **There is thus much potential for investigating innovation through a spatial prism…**

- **…though detailed geographic data (such as the Quebec manufacturing innovation census of 2005) are very difficult to access.**