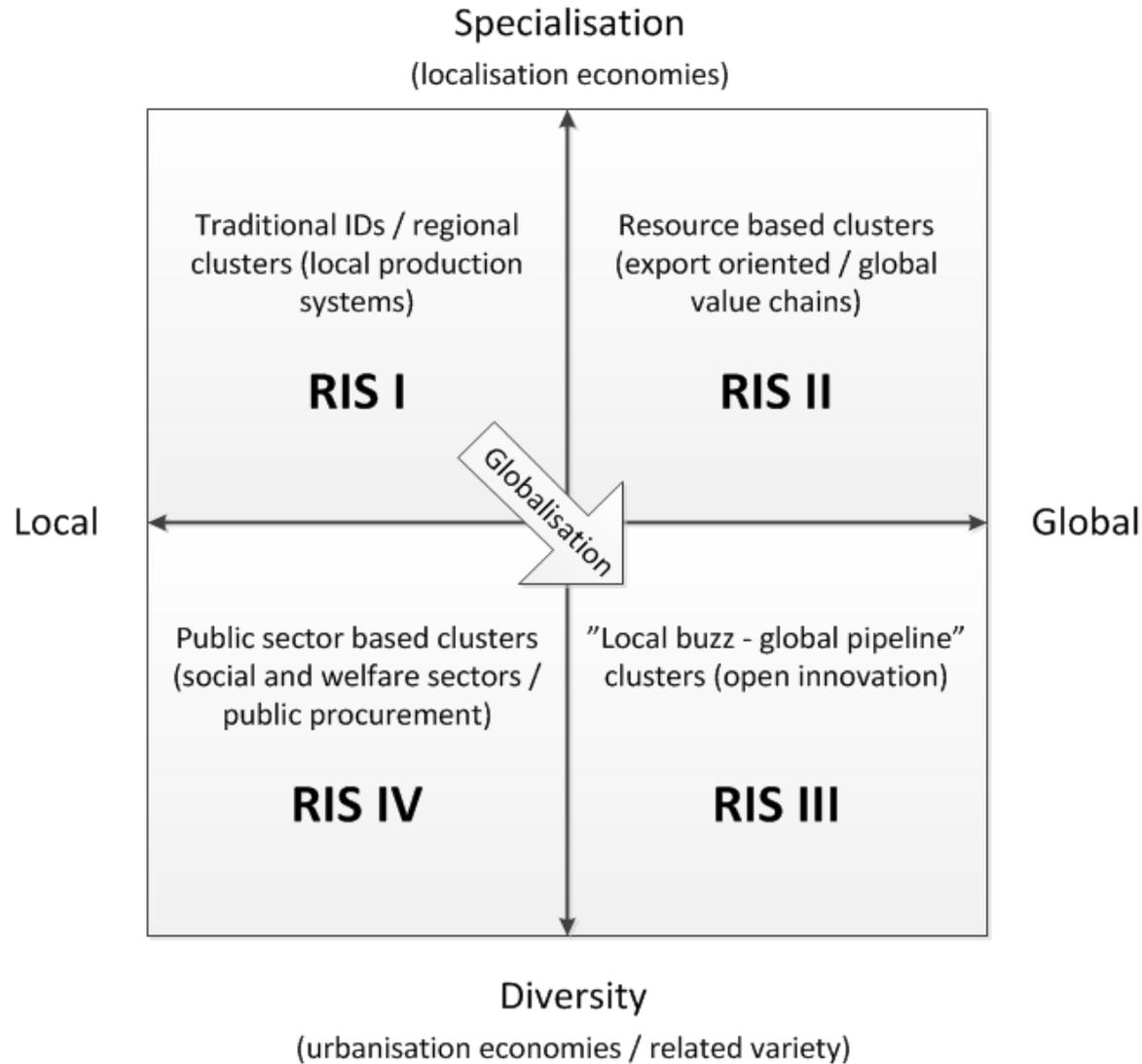


KIBS and Regional Policy Implications

Professor Bjørn Asheim, CIRCLE, Lund University
Key note presentation at RSA Research Seminar on
'Policy Implications of KIBS and Innovation in
Regions in a Globalising Economy'.
University of Algarve, Faro, 15th October 2011

CIRCLE (Centre for Innovation, Research and Competence in the Learning Economy)

- Multidisciplinary centre of excellence in research on innovation and entrepreneurship at Lund University (established in July 2004)
- Lund University the largest (45.000 students) and third oldest (1666) university in the Nordic countries
- CIRCLE has long term funding from the Swedish Agency for Innovation Systems (VINNOVA), the Swedish Research Council (Linnaeus grant) for centres of excellence, and Lund University
- Becoming one of the largest centres in Europe of its kind with around 40 researchers employed (50% non-Swedish).
- <http://www.circle.lu.se/>



Growth paradigms and transformation of RIS.

Distributed knowledge networks

- At present, the awareness and importance of implementing strategies for external knowledge sourcing is increasing, linked to the challenges and opportunities of global knowledge networks
- Concepts such as open innovation and innovation systems build on the recognition that interorganisational linkages are critical to the innovative capabilities of firms and the growth of economies
- As a result of the increasing complexity and diversity of knowledge creation and innovation processes, firms need to access and acquire new, external knowledge to supplement their internal, core knowledge base(s) – *Absorptive capacity*
- Transition from *internal* knowledge base(s) within firms to *distributed* knowledge networks across a range of firms, industries and sectors locally and globally – *(global) open innovation*

Differentiated knowledge bases

- Knowledge creation and innovation take place in all kind of industries but is done in different ways, needs different kinds of knowledge and skills and requires different forms of innovation support
- No type of knowledge should a priori be considered superior with respect to generating economic growth and innovation
- Characterise the nature of the *critical knowledge* which knowledge creation and innovation processes in different industries cannot do without (ontological, generic category)
- Distinguish between three *different* knowledge bases:
 - a) *analytical* (science based)
 - b) *synthetic* (engineering based)
 - c) *symbolic* (art based)

Differentiated knowledge bases: A typology

<i>Analytical</i> (science based)	<i>Synthetic</i> (engineering based)	<i>Symbolic</i> (art based)
Developing new knowledge about natural systems by applying scientific laws; <i>know why</i>	Applying or combining existing knowledge in new ways; <i>know how</i>	Creating meaning, desire, aesthetic qualities, affect, intangibles, symbols, images; <i>know who</i>
Scientific knowledge, models, deductive	Problem-solving, custom production, inductive	Creative process
Collaboration within and between research units	Interactive learning with customers and suppliers	Experimentation in studios and project teams
Strong codified knowledge content, highly abstract, universal	Partially codified knowledge, strong tacit component, more context-specific	Importance of interpretation, creativity, cultural knowledge, sign values, implies strong context specificity
Meaning relatively constant between places	Meaning varies substantially between places	Meaning highly variable between place, class and gender
Drug development	Mechanical engineering	Cultural production, design, brands

Different modes of innovation

- *'How Europe's Economies Learn. Coordinating Competing Models'* : Different *modes* of innovation (Lorenz and Lundvall, 2006)
 1. *STI* (Science, Technology, Innovation) – *analytical* knowledge/basic research (science push/supply driven) and *synthetic* knowledge/applied research (market/user driven)
 2. *DUI* (Doing, Using, Interacting) – *Competence* building and *organisational* innovations – *synthetic* and *symbolic* knowledge (market/user driven)
 3. Combining modes of innovation (STI/DUI) makes firms perform better (Berg Jensen et al., 2007)
 4. Firms sourcing broadly (both R&D and experience based knowledge) are the most innovative (Laursen and Salter, 2006)

Policy challenges: Institutionally thin (peripheral) and old industrial (lock-in) regions

- *Institutionally thin regions*
 - Less innovative in comparison to more agglomerated regions
 - Less R&D intensity and innovation
 - A less developed knowledge infrastructure (universities and R&D institutions)
 - Suffering from institutional thinness
- *Lock-in regions*
 - Overspecialised in mature industries experiencing decline (negative lock-in in specialised localisation economies)
 - Few R&D activities, mature technological trajectories, cognitive lock-in
 - University and public research oriented at traditional industries / technologies

Policy challenges: Fragmented metropolitan and networked regions

- Fragmented regions
 - Many and diverse industries/business services
 - Lack of dynamic clusters of (local) innovative firms and knowledge spill-overs (unrelated variety of urbanisation economies)
 - R&D departments and headquarters of large firms
 - Many and high quality universities and public research organisation but weak industry-university links (weak connectivity in RIS)
- Networked regions
 - Regions with cutting edge technologies and a high level of R&D as well as high connectivity in RIS)
 - Exposed to new challenges and competition from emergent economies
 - Diversify into new but related industries (related variety/differentiated knowledge bases)
 - New ways of continuous innovation support

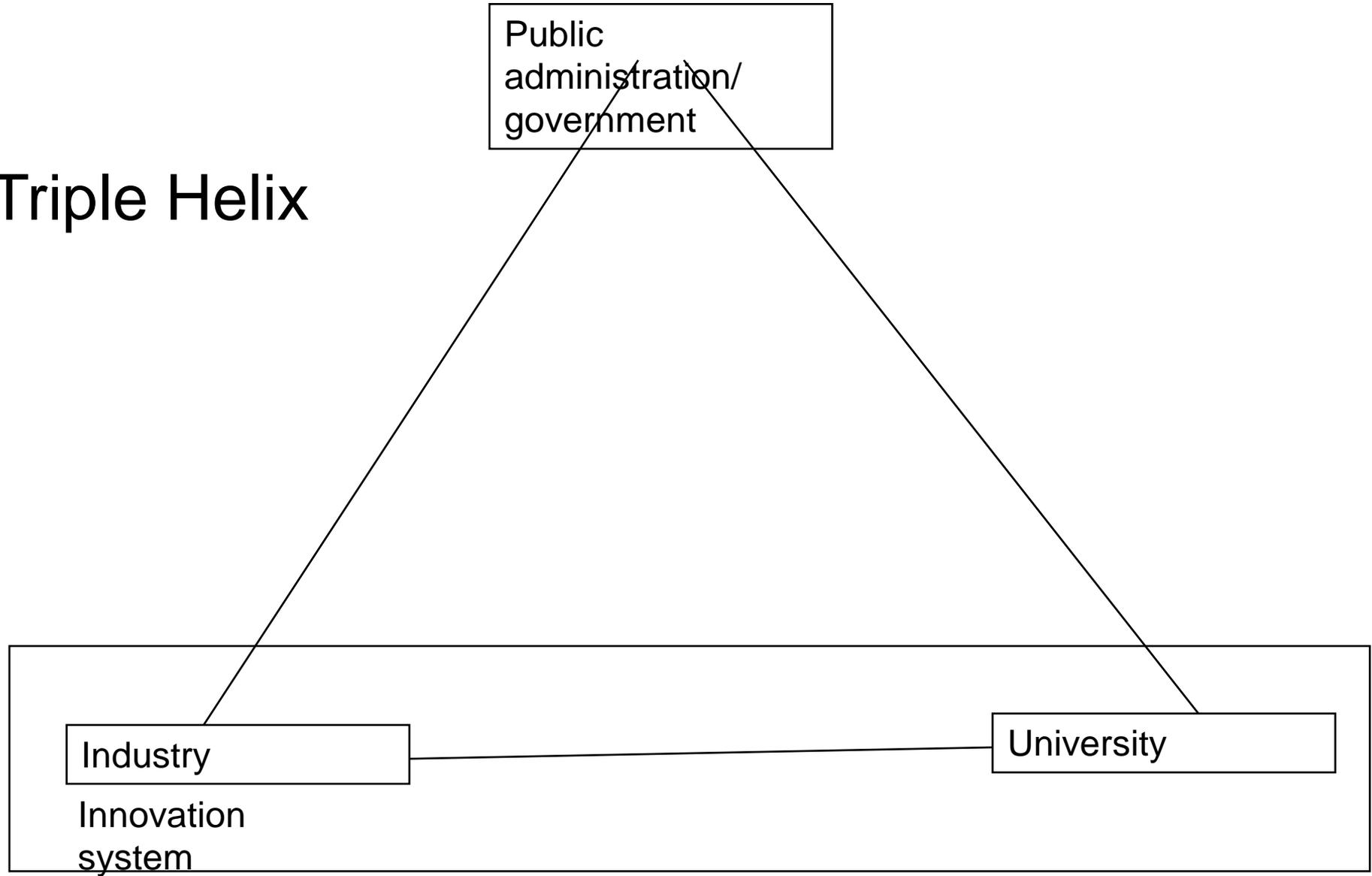
KIBS FUNCTIONS

Knowledge base KIBS functions	Analytical	Synthetic	Symbolic
Knowledge provision (diffusion)		X	X
Linkage provision (intermediates)	X	X	X
Service provision (outsourcing)	X	X	X

Knowledge provision: Modes of innovation – technological and application development

- Two modes of innovation (synthetic knowledge based, engineering industries with batch production):
 1. *Application* development. Incremental innovations through user-producer relationships with demanding customers and suppliers in connection with the actual production. In-house experience based competence dependent on a highly qualified workforce. **D**(oing), **U**(sing), **I**(nteracting) mode of innovation
 2. *Technological* development. Research projects together with universities to develop platform technologies as the basis for application development. **S**(cience), **T**(echnology), **I**(nnovation) mode of innovation

Triple Helix



Policy responses to regions' innovation challenges - RIS with organisational thinness.

- **Financial:** Attract and retain innovating firms
- **Technological:** Link firms with technological resources outside the region – absorptive capacity key resource
- **Human Resources:** Attract/retain highly-skilled workers – raise absorptive capacity through mobility schemes
- **Openness and learning attitude:** Promotion of networking between firms and clusters at every geographical scale
- **Strategy and Organisation:** Support firms in linking to international input and output markets

Policy responses to regions' innovation challenges – RIS with lock-in problems

- **Financial:** Ensure long-term finance for 'overall' innovation project and new firms formation
- **Technological:** Push firms to seek new technology options using brokers, also through international partnerships
- **Human resources:** Develop creative capacities of workers (human capital development; learning work organisation)
- **Openness and learning attitude:** Help SMEs evolve towards more creativity and autonomy in production
- **Strategy and organisation:** Open windows of opportunities for SMEs; innovation management training

Policy responses to regions' innovation challenges – RIS with fragmentation problems

- **Financial:** Coach firms in linking to finance sources
- **Technological:** Provide bridge between firms and technological resources by promoting university-industry interaction and improving connectivity in RIS
- **Human resources:** Foster exchange of codified and tacit knowledge (*STI* and *DUI* mode of innovation)
- **Openness and learning attitude:** Foster a more collaborative spirit and more strategic orientation in the regions (learning to innovate)
- **Strategy and Organisation:** Help firms identify, articulate and 'de-bundle' their needs

Regional Innovation Policies: A Classification of Policy Instruments

	Support: Financial and technical	Behavioural change: Learning to innovate
Firm-focused	Financial support Brokers	Mobility schemes
System-focused	Technology centres	Regional innovation systems

Why a broad based innovation policy?

- Is more R&D driven innovation policies always the only answer to improving regional innovativeness and competitiveness? Hardly, as
- Regions' industrial structure are heterogenous, where a one dimensional R&D (S&T) based policy will not work. A fine tuned regional innovation policy is needed (Constructing Regional Advantage)
- Many drivers of innovation (supply, demand, market, employee driven)
- Many types of innovation (radical vs incremental; product, process, organisational)
- Many regions and nations starting to have a stronger focus on this problematic. Thus, the idea of a *broad based innovation policy* get increasingly more support
- Needs both *narrow* and *broad* RIS to be implemented combining the STI and DUI modes of innovation

What is Regional Innovation Systems (RIS) – *narrow* definition?

- A RIS is constituted by two sub-systems and the systemic interaction between them (and with non-regional actors and organisations):
- The *knowledge exploration and diffusing sub-system* (universities, technical colleges, R&D institutes, corporate R&D, technology transfer agencies)
- The *knowledge exploitation sub-system* (firms in regional clusters)
- *STI* (Science, Technology, Innovation) mode of innovation – supply/science driven basic research - radical innovations and market/user driven applied research

What is a RIS - *broad* definition?

- A wider system of organisations and institutions supporting learning and innovation, and their interactions with firms in the region. Integrating innovation policy with education and labour market policies
- *Developmental (creative) learning*: learning work organisations, interactive learning (user-producer relationships), inter-firm networks
- *DUI (Doing, Using, Interacting)* mode of innovation – market/user as well as employee driven - incremental innovations

Policy implications – global perspectives

- Public policy needs to carefully balance between:
- Promoting the formation of international linkages for knowledge sourcing and information exposure
- Providing incentives for domestic industry intramural R&D for building absorptive capacity and knowledge accumulation
- Sustaining domestic networking to allow accumulated knowledge to diffuse and recombine
- KIBS role and contribution in such a policy framework?