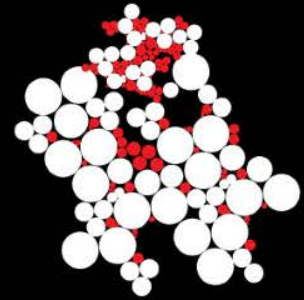


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Effective Knowledge, Research and Innovation Systems: Policy Needs

Professor Stefan Kuhlmann
University of Twente, Netherlands

Hanoi, Vietnam
March 2018



OECD Review of STI in Viet Nam 2014

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- Current science, technology and innovation (STI) capabilities are weak and the national **innovation system** is in a nascent, fragmented state.
- Viet Nam's **business sector** still accounts for a very small share of R&D expenditure.
- There is an urgent need to strengthen the **information base** for STI policy, indicators and evaluation practices.
- Viet Nam's **public research sector** has undergone profound changes since *doi moi*, but problems persist. These include a large number of often overlapping labs and R&D units, many of which are of sub-optimal scale, a lack of resources (...) and distance from potential end-users.
- **Innovation system governance** in Viet Nam has been beset by a number of shortcomings which can be related to a lack of effective commitment, co-ordination and implementation of government policies.

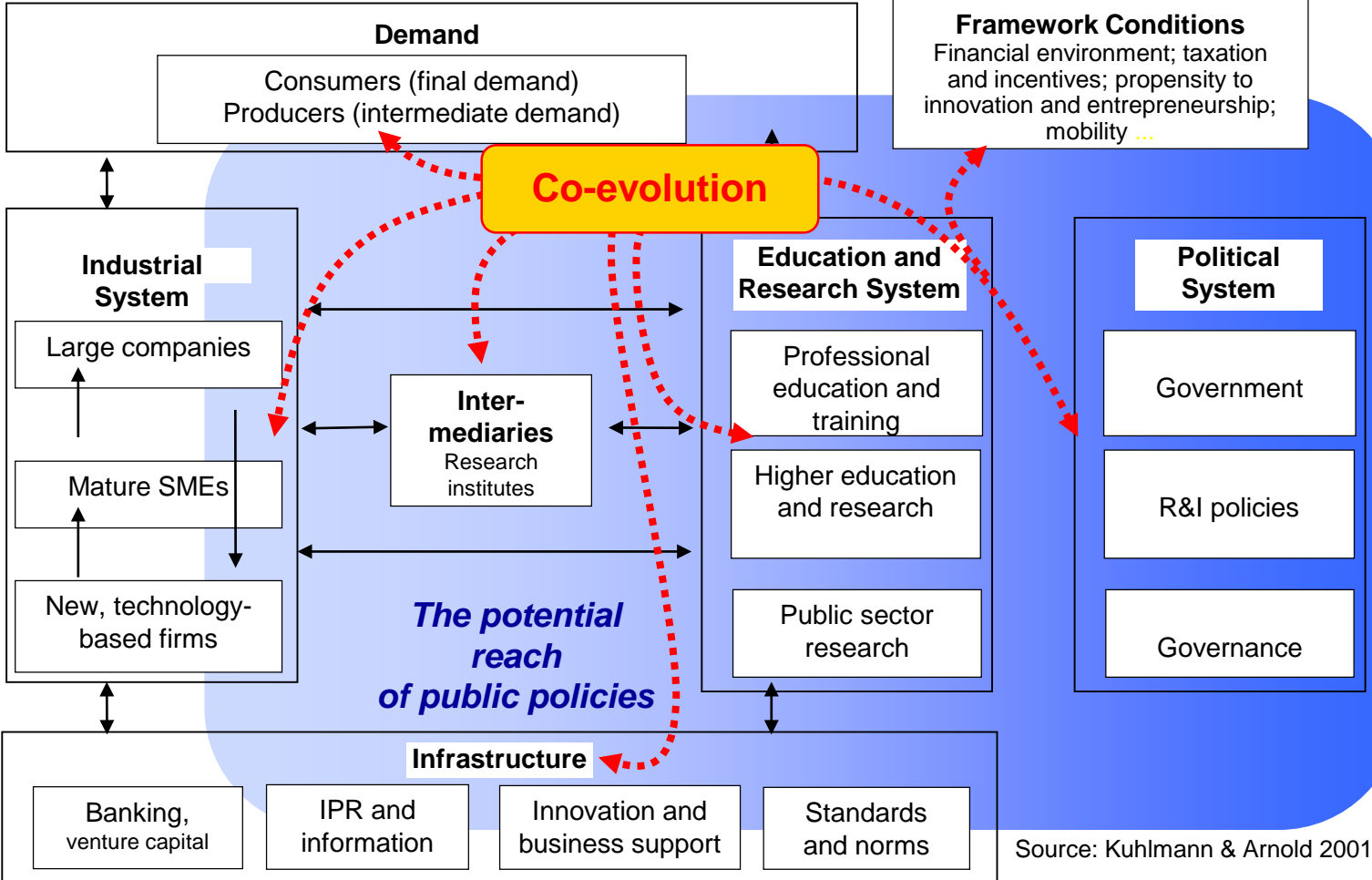
Overview

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- Knowledge, Research & Innovation Systems (KRIS)
- Functions of KRIS
- Roles of Public Policy for KRIS
- Strategic Intelligence for Policy

Knowledge, Research & Innovation System (KRIS): A Heuristic

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Source: Kuhlmann & Arnold 2001

National KRIS (NIS)

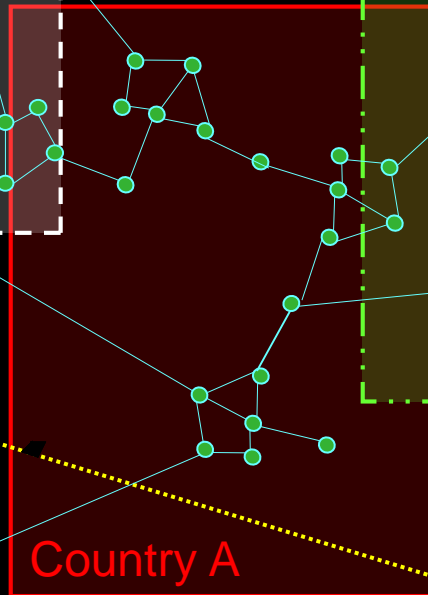
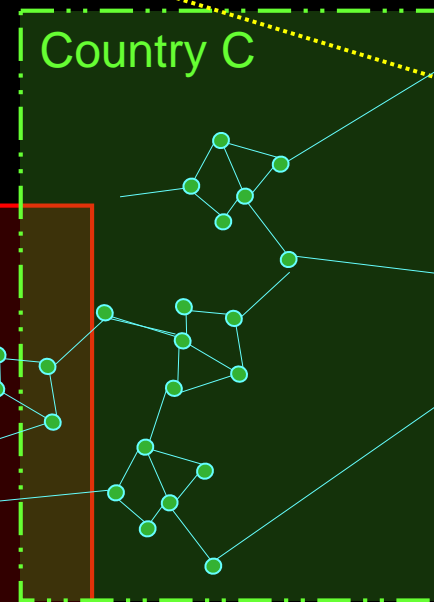
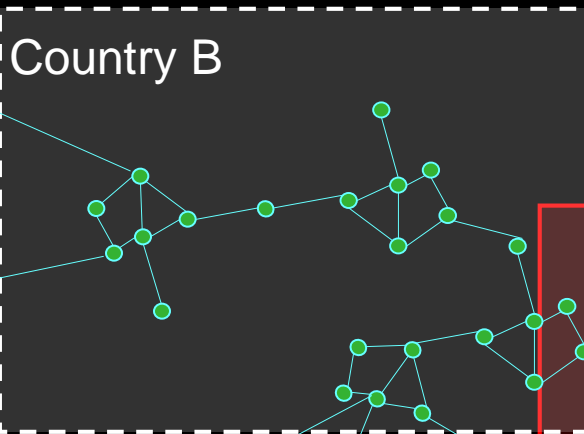
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- KRIS approach in OECD world largely agreed.
- KRIS = “biotopes” of all institutions engaged in scientific research, accumulation and diffusion of knowledge, education and training of working population, technology development, production and distribution of innovative products and processes.
- KRIS: Schools, universities, research institutions (education and science system), industrial enterprises (economic system), politico-administrative and intermediary authorities (political system), and formal and informal networks of related actors.
- Each KRIS is different. Sustainable systems develop their special profiles and strengths only slowly, based on stable exchange relationships among the institutions of S&T, industry and the political system (= co-evolution).

Knowledge Dynamics and Governance Reach

ERA

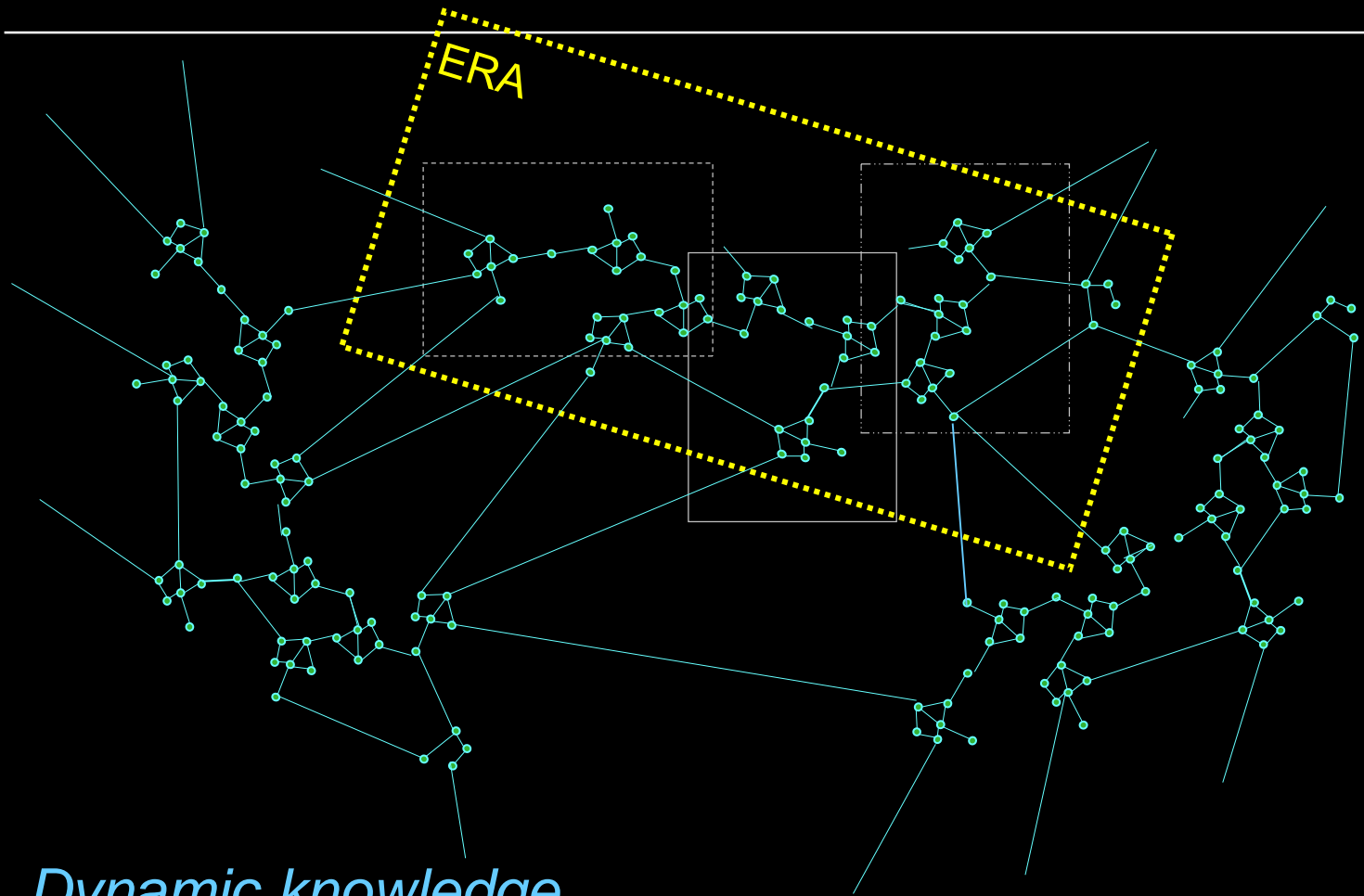
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Dynamic knowledge networks

Knowledge Dynamics and Governance Reach

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*Dynamic knowledge
networks, globally*

Regional KRIS

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- **Universities and other Higher Education Institutions (HEI)**
- **Beyond HEI**
 - Incumbent regional industry
 - Creative industries
 - Grassroot and ‘user’ innovation movements
 - HackerSpaces; FabLabs (e.g. LivingLabs)
 - ‘Green producers’
 - Social innovation initiatives
- **Smart Cities**
 - E.g. ‘Copenhagenisation’



S Kuhlmann | October 2016

Kuhlmann | Innovation Systems | Hanoi | March 2018

Universities and Regional Development



Twente University (UT), established in 1961, entrepreneurial spirit, committed to making an economic and social contribution to Twente, a European region shaped by international textile industry in a rural context, since 19th century.

Index

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Kennispark Twente (Knowledge Park)

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- Collaboration between province of Overijssel, municipality of Enschede and University of Twente
- Mission: Innovation and entrepreneurship for Twente by realising 10,000 new jobs in 2020
- Converting knowledge into economic activity
- Stimulating and facilitates start-ups (about 1000 in 30 years)
- Stimulating entrepreneurship among staff and students



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National KRIS?

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- **Innovator-producer-user chains** either ‘local’ or ‘inter-local’ (incl. internat.) – less within ‘national’ economy
- In many domains **knowledge** either ‘local’ or ‘inter-local’ (collaboration; internat. migration) – less ‘national’
- **Public knowledge policy institutions** (regulation; funding; evaluation) structurally alike (public sector reforms; NPM, ...)

*What counts is content + governance of
‘KRIS configurations that work’,
‘national’, ‘local’ and ‘inter-local’*

Factors/Functions of KRIS

Source: Hekkert et al. 2007

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- Entrepreneurial activities
- Knowledge creation
- Knowledge diffusion through networks
- Guidance of the search
- Market formation
- Resources mobilization
- Creation of legitimacy/counteract resistance to change

Role of Public Policy for KRIS

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Factor	Public policy
Entrepreneurial activities	Corporate governance; insolvency legislation; education
Knowledge creation	Funding of basic and applied research; (higher) education and training
Knowledge diffusion through networks	Support for R&D and innovation networks (industry, academia, et al.) and clusters; multi-actor programmes; support for knowledge infrastructures (e.g. patent data bases)
Guidance of the search	Science and technology foresight exercises; communication platforms/fora for industry, academia, societal organisations and public policy
Market formation	Regulatory frameworks for technical standards and norms; ethical regulation; Intellectual property rights (IPR); et al.
Resources mobilization	Thematic or sectoral profiling of public investment in science, R&D, and education
Creation of legitimacy/ counteract resistance to change	S/T foresight exercises; communication platforms/fora; maintaining policy networks (e.g. multilevel cooperation across regions, nations and trans national levels); fostering institutional adaptation and change

KRIS Politics for Less Developed Countries: Major Challenges

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- To overcome inequality; to mobilise social innovation
- To facilitate endogenous knowledge, innovation for local and global needs
- To go beyond “government” and technocratic approaches – inclusive governance
- To build legitimacy; democratic culture and procedures

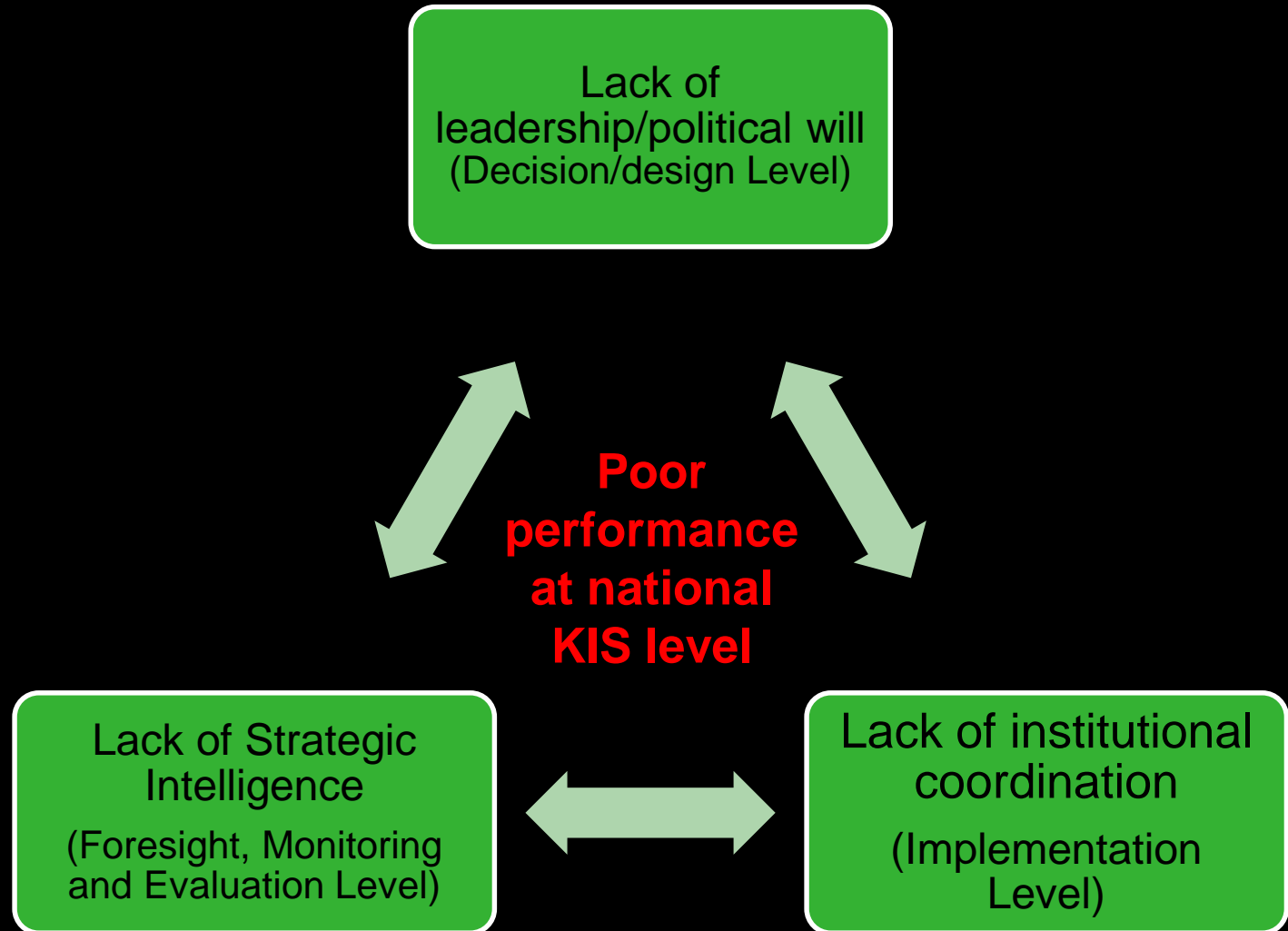
KRIS Systemic Failures in Emerging Economies

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- Lack of entrepreneurial and innovative culture
- Lack of local S&T capacities
- Weak interaction and communication failures
- Weak institutions and governance

Governance Failure in Emerging Economies

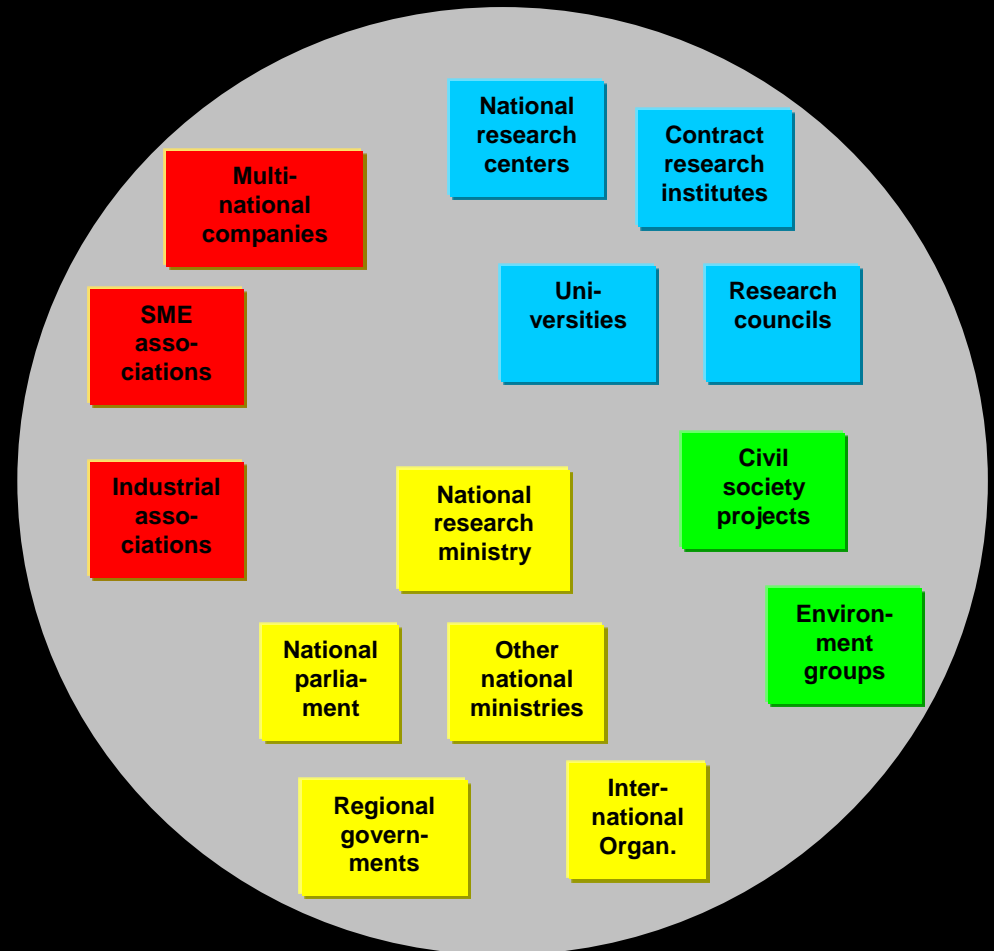
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Public research and innovation policy actors' arena – a heuristic

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- Organised actors: differing interests, values, and power; bounded rationality
- Competition for impact and resources
- No dominant player?
- Contested policies
- Search for (some) alignment and policy learning - otherwise 'exit'



Public research and innovation policy actors' arena – Strategic Intelligence

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- Organised actors: differing interests, values, and power; bounded rationality
- Competition for impact and resources
- No dominant player?
- Contested policies
- Search for (some) alignment and policy learning - otherwise 'exit'
- 'Enlightenment' through 'Strategic Intelligence'



Strategic intelligence, policy learning, capacity building

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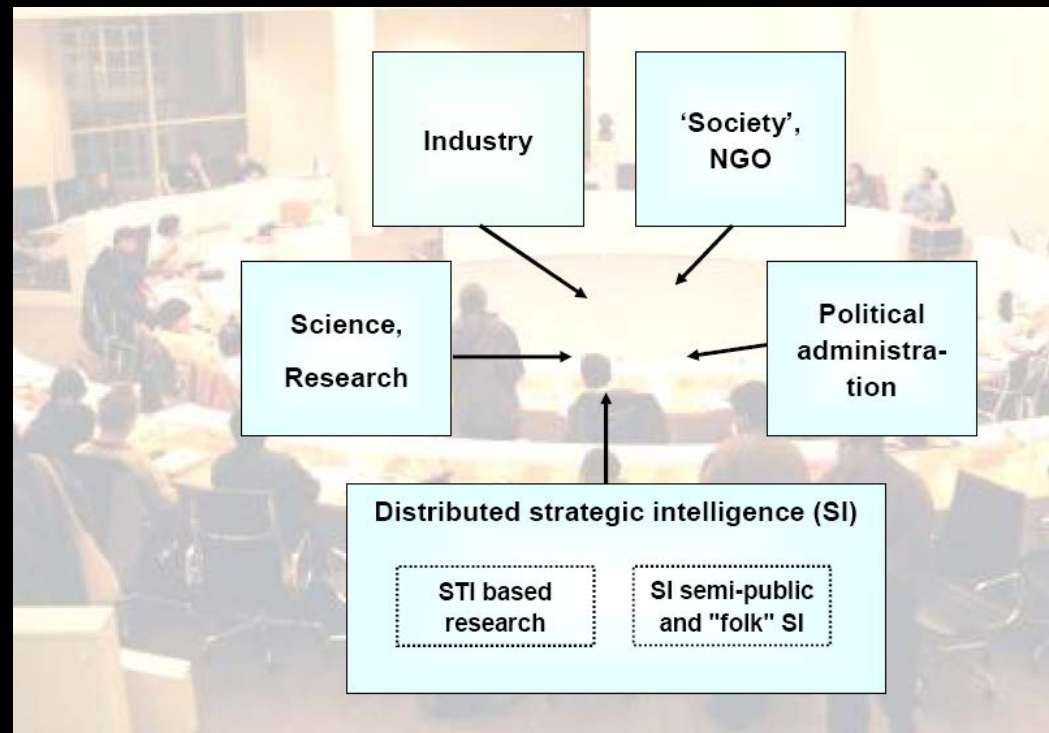
Strategic intelligence is ...

- ... a set of sources of information - often distributed and heterogeneous
- produced by academic, governmental, civil society and other experts
- explorative/empirical as well as analytical (theoretical, heuristic, methodological) tools
 - well known strategic intelligence tools are evaluation studies, performance measurement, benchmarking initiatives, foresight exercises, or technology assessment (TA)
- to be 'injected' and 'digested' in political arenas, to facilitate “multi-perspective” insight in the actual or potential costs and effects of public or private policy and management
- facilitating policy learning and capacity building.

Need for 'Policy Platforms' as 'Fora' for deliberation

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- Policy Platforms as 'Forum': institutionalised spaces for deliberation
- Thematic visions, on regional, national, transnational level
- Focus on multi-level arrangements: nation states, regional & transnational agencies
- Policy-makers from different levels and policy domains
- Representatives from research, industry and society
- **Use of Strategic Intelligence**



Summing up

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- Focus on knowledge and innovation system capacity
- Understanding special needs of less developed countries
- Beyond a mainly national perspective: facilitate intelligent governance of knowledge and innovation in regions – with international perspective
- Capacity building: Particular role for scientific advice, Strategic Intelligence, and stakeholder Fora

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