



STRENGTHENING INNOVATION AN OECD PERSPECTIVE

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Implementing innovation Policy: Searching
the Perfect Dance
Bogotá, 3-4 August 2016

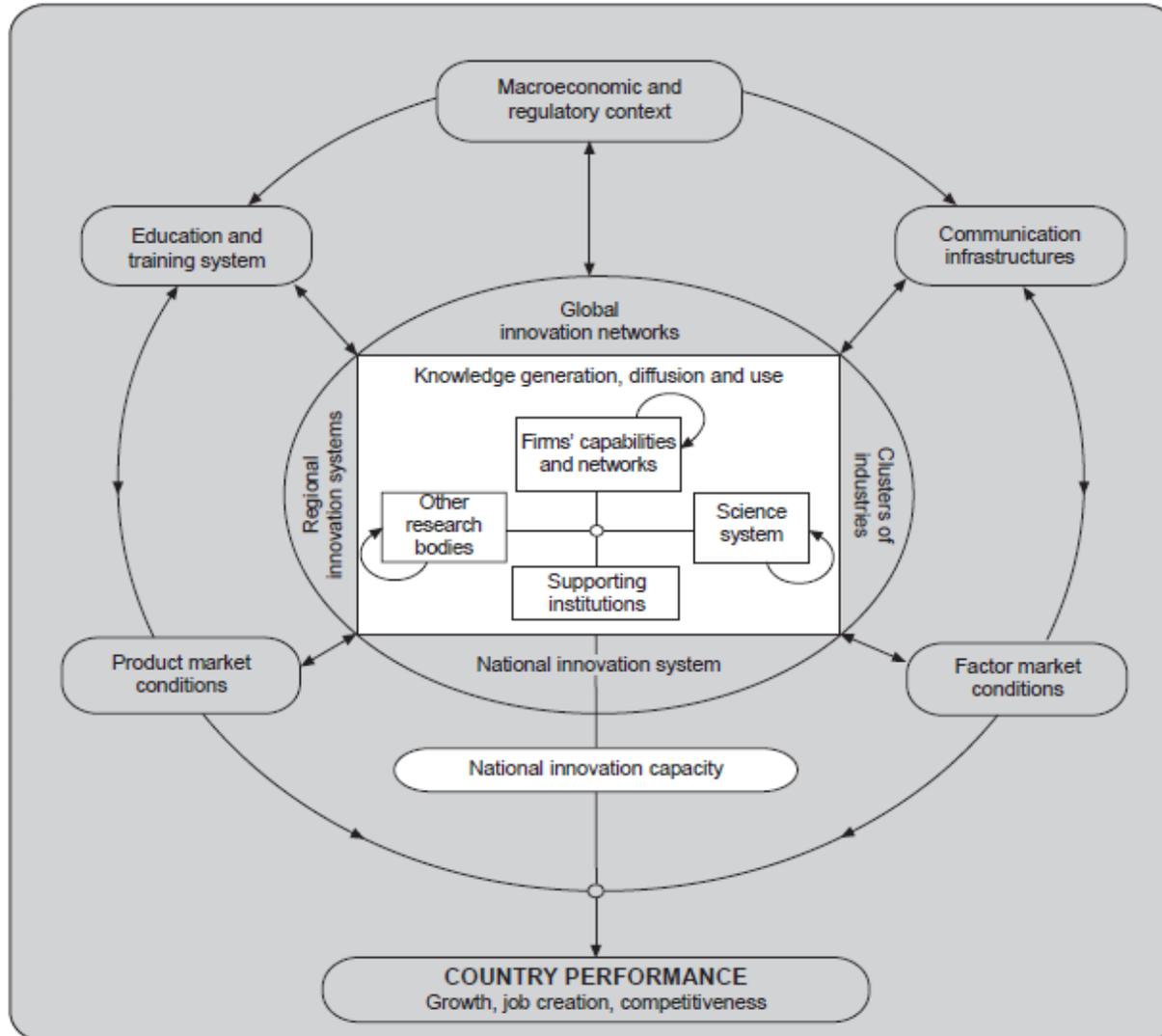


Overview

- Innovation systems thinking at the OECD
- A major application: Country Reviews of Innovation Policy
- Some results and policy implications
- Systems innovation / System transition



Actors and linkages in the innovation system



PHASE 1 (1994-1996)

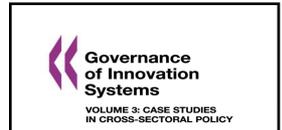
Conceptual framework

Country Reports

- Accessing and expanding the S&T knowledge-base (David and Foray, 1994)
- National systems for financing innovation (Guinet, 1994)

- Austria
- Belgium
- Denmark
- Finland
- Italy
- Netherlands
- Norway
- Sweden
- Switzerland
- United Kingdom

BOEKHOLT BRYANT CAPRON
GUSTAFSSON DEN HERTOEG
HUTSCHENREITER LAURSEN
MARKLUND NAS NUMMINEN
POLT POTI ROELANDT SMITH
STENBERG VITHLANI VOCK



PHASE 2 (1997-2001)

Thematic work

Synthesis

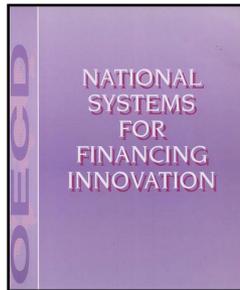
- Innovative firms and networks (lead: Austria and Australia)
- Clusters (lead: Netherlands)
- Mobility of human resources (lead: Norway)
- Organizational mapping (lead: Belgium)
- Catch-up economies (lead: Korea)

- Managing national innovation systems (1999)
- Dynamising national innovation systems (2001)

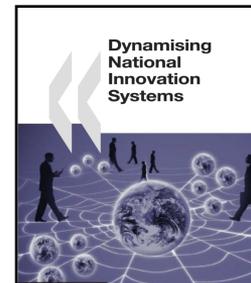
MONIT (2002-2005)

MONIT = Monitoring and Implementing National Innovation Policies

- 12 participating countries (lead: Norway)
- Two work packages:
 - ✓ Governance of innovation systems (country case studies)
 - ✓ Case studies on information society, and sustainable development

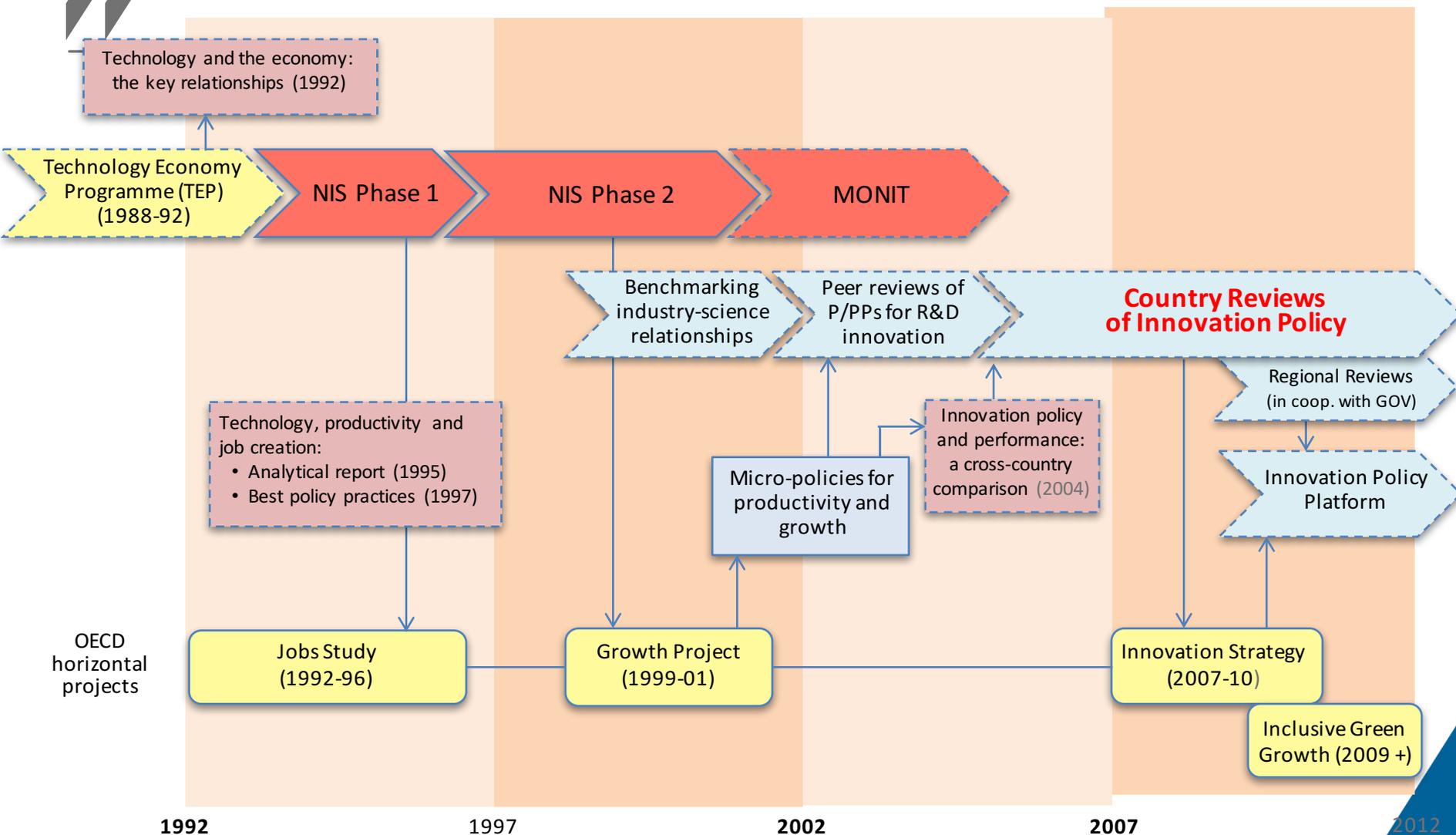


Prolific output, thanks to the leadership, as well as voluntary in-kind and monetary contribution of a number of Member countries (10 OECD books, totaling 2 700 pages)





The OECD/TIP NIS programme



Source: Jean Guinet.

The basics of OECD Reviews of Innovation Policy

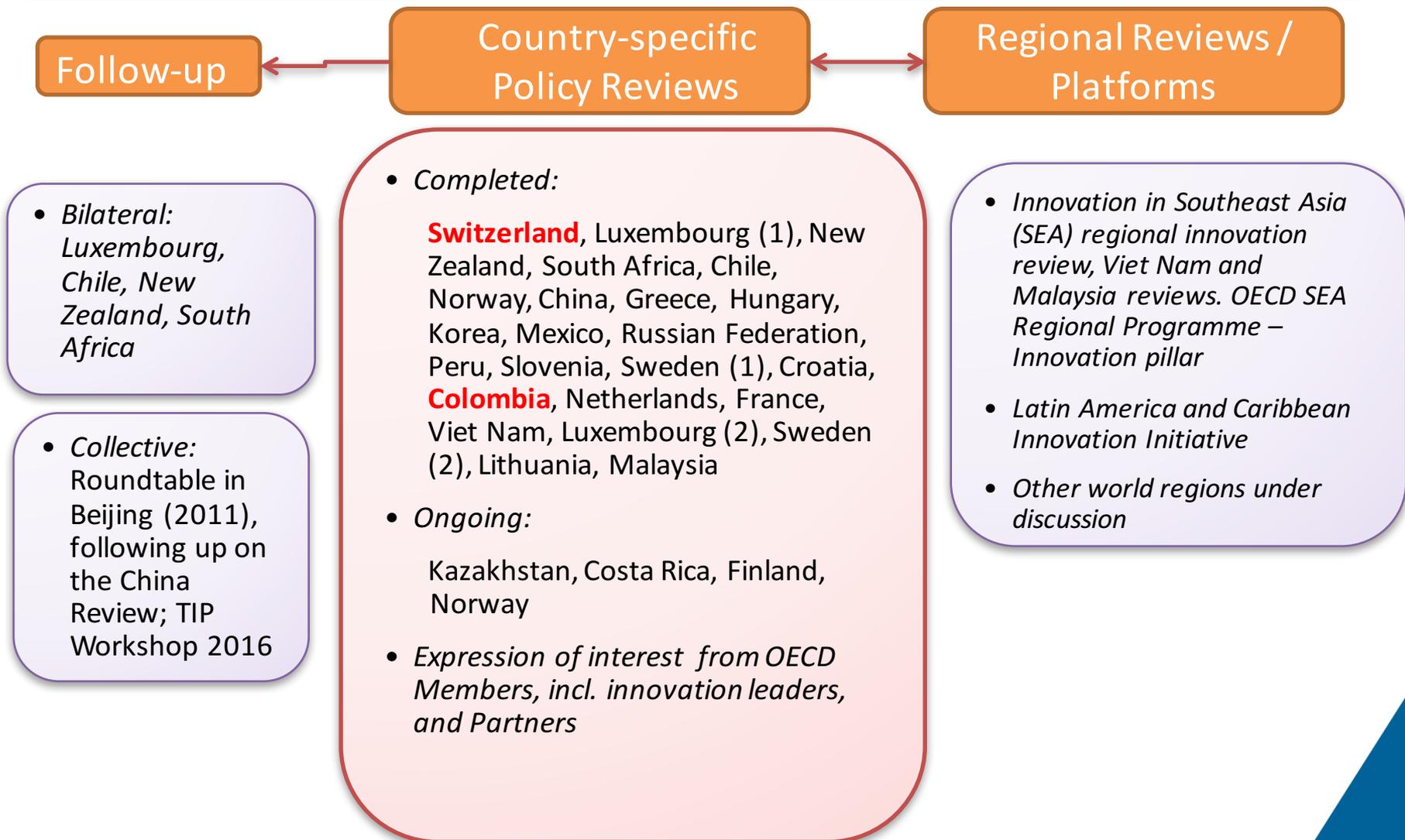


- **Comprehensive analysis of the respective national innovation system - with a focus on the role of government policy**
- **Systemic perspective covering business sector, higher education / public research institutions, government and their interactions**
- Informed by and contributing to STI thematic work
- Standardised process and methodology, but in continuous development and responding to specific needs; variety of co-operation arrangements



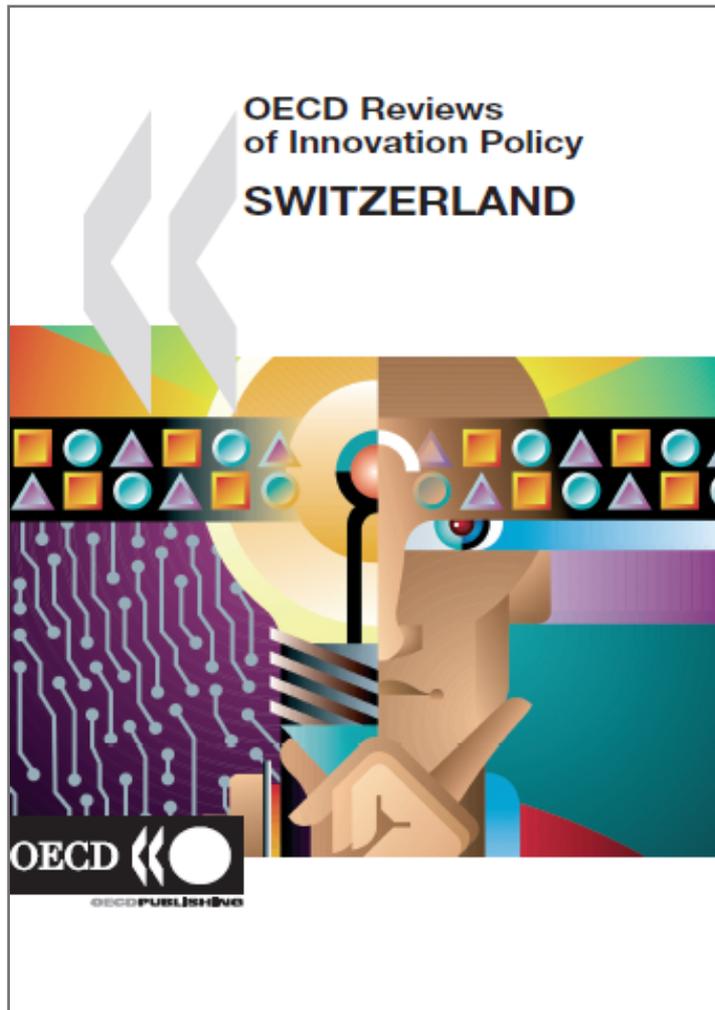


Past, present and upcoming Reviews



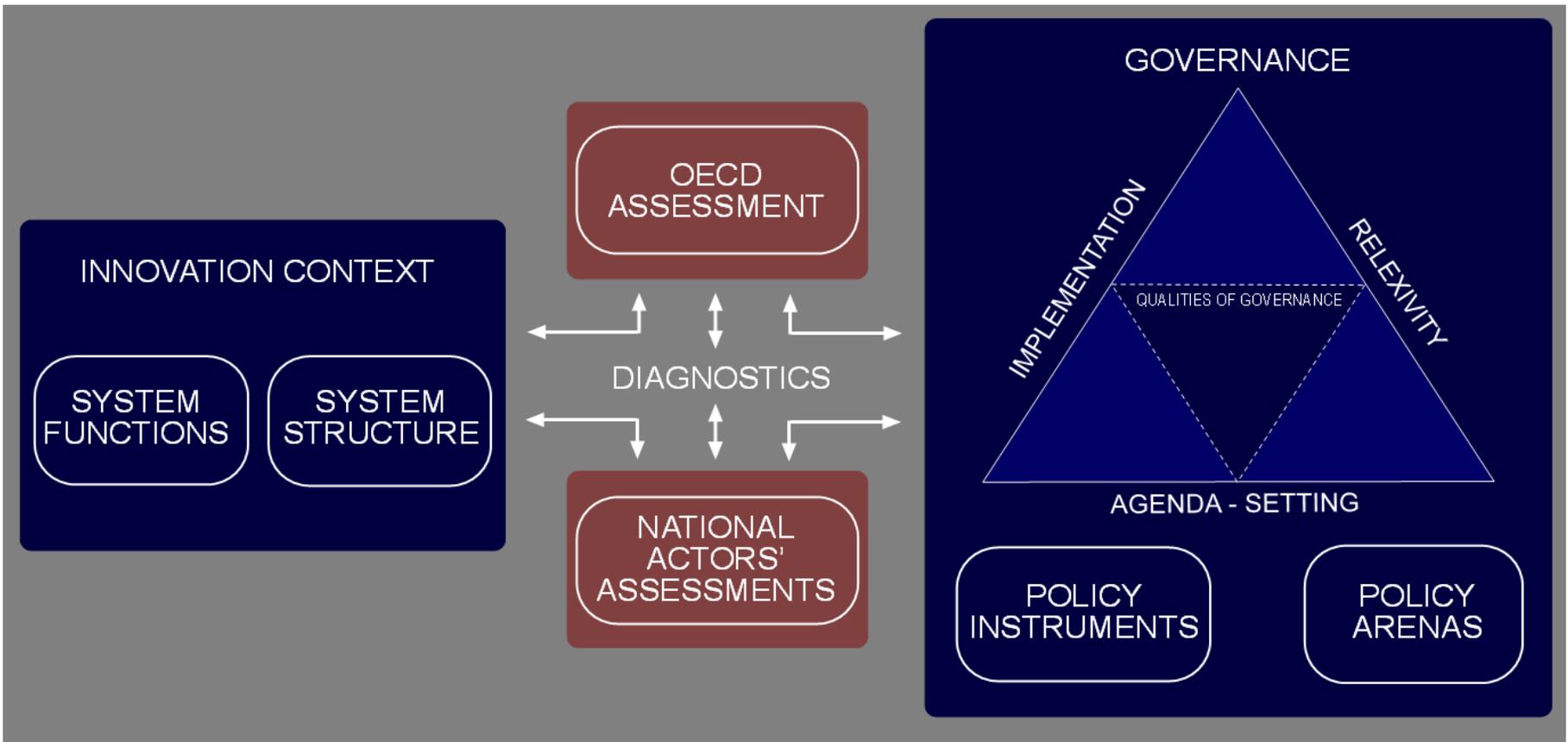


Two Innovation Policy Reviews: Switzerland 2006 and Colombia 2014





Conceptual approach





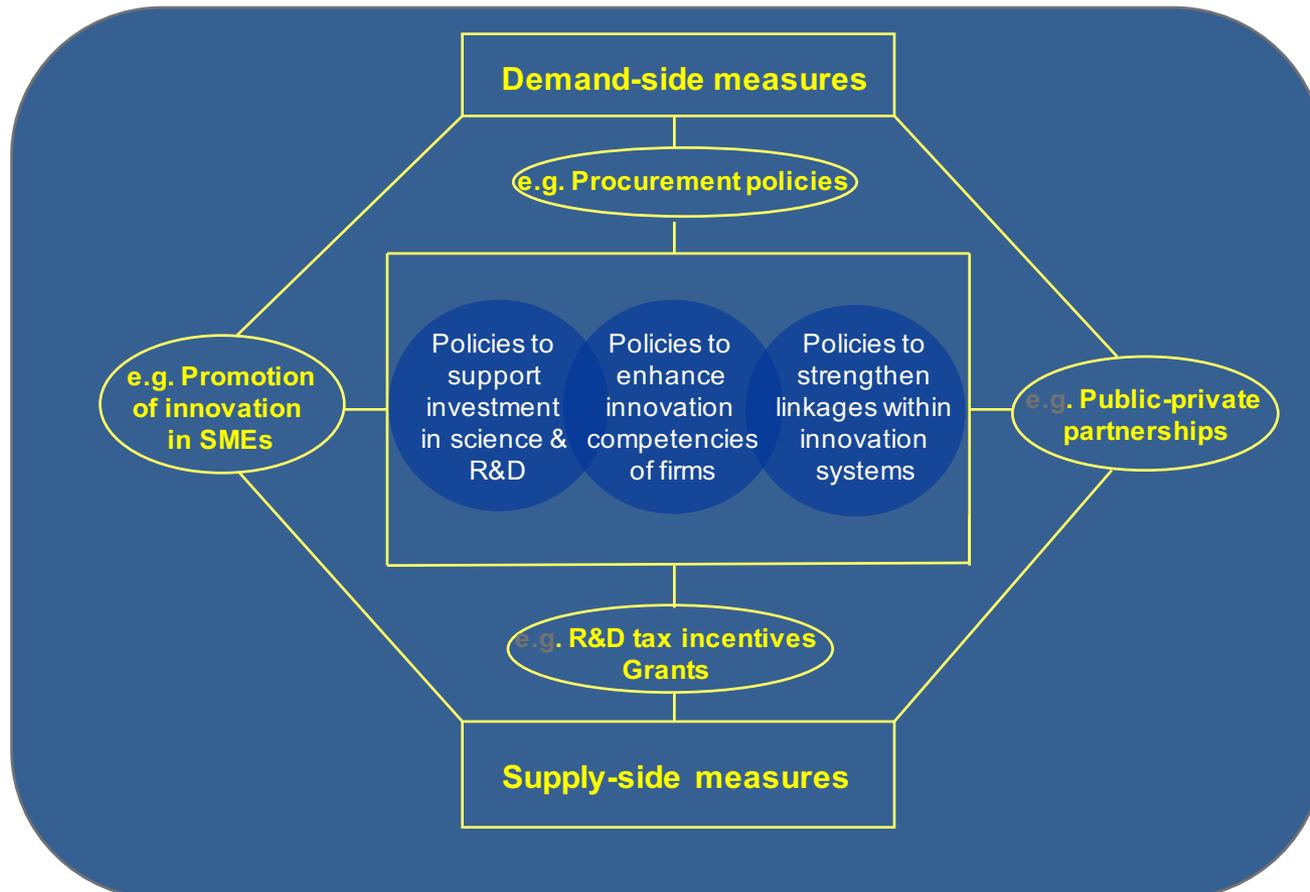
Framework conditions and dedicated innovation policy

Framework conditions for innovation

(Functioning of markets, regulation, corporate governance, education, communication infrastructures, etc.)



Science, technology and innovation policy





Some post-crisis international background

- Innovation is widely acknowledged as important **driver of value creation, economic growth and social welfare**
 - Business is adopting **new strategies** (“open innovation”, global restructuring) and investing in “disruptive technologies”
 - An **increasing number of countries** – at different stages of economic development – attempt to enhance their social and economic development through innovation
 - Strong interest in innovation policy related to:
 - **Mobilising new sources of economic growth** and productivity
 - The need many countries perceive for **diversification** of their economies and “**upgrading in value chains**”
 - The need to tackle **social / global challenges** (including climate change, health and food security)
- => **all of these objectives require a systems approach**

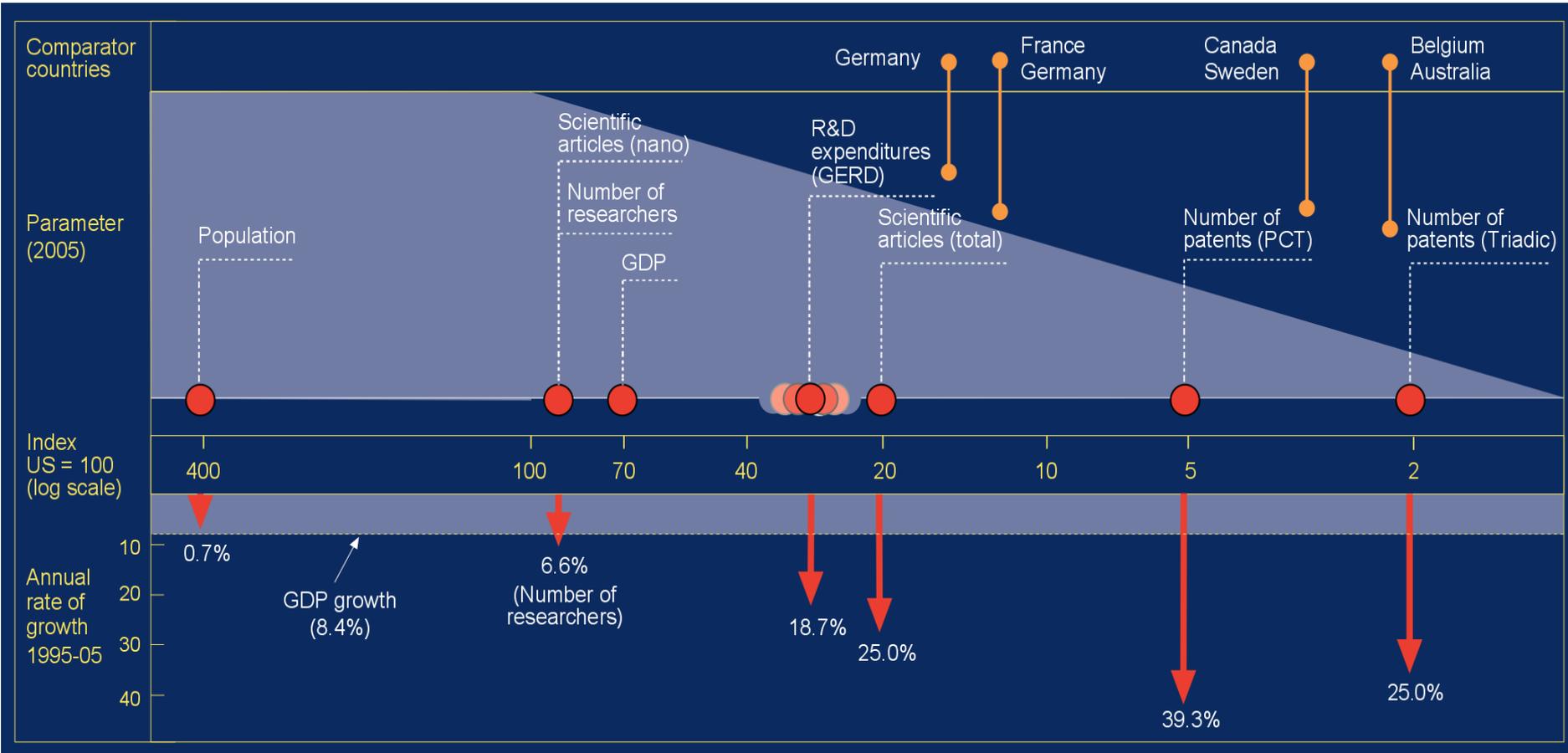


Innovation systems development – an issue in many countries

- Many countries are in search of developing a new or profoundly rebuilt and **reconfigured innovation system** that would allow them to achieve their aspirations
 - China as a case sui generis, other emerging economies
 - Former transition economies, incl. in Europe
 - Various middle income countries, both resource-based and more diversified economies (“middle-income trap”)
- Some high-income economies
- Even in countries where “business as usual” seems to prevail, there is concern related to their potential exposure of disruptive technologies, new international competition etc.
- Asia, in particular, is in many regards a giant laboratory of change, spanning countries of all income categories



Relative size and speed of development of the Chinese innovation system and performance



Source: OECD (2008): OECD Reviews of Innovation Policy: China.

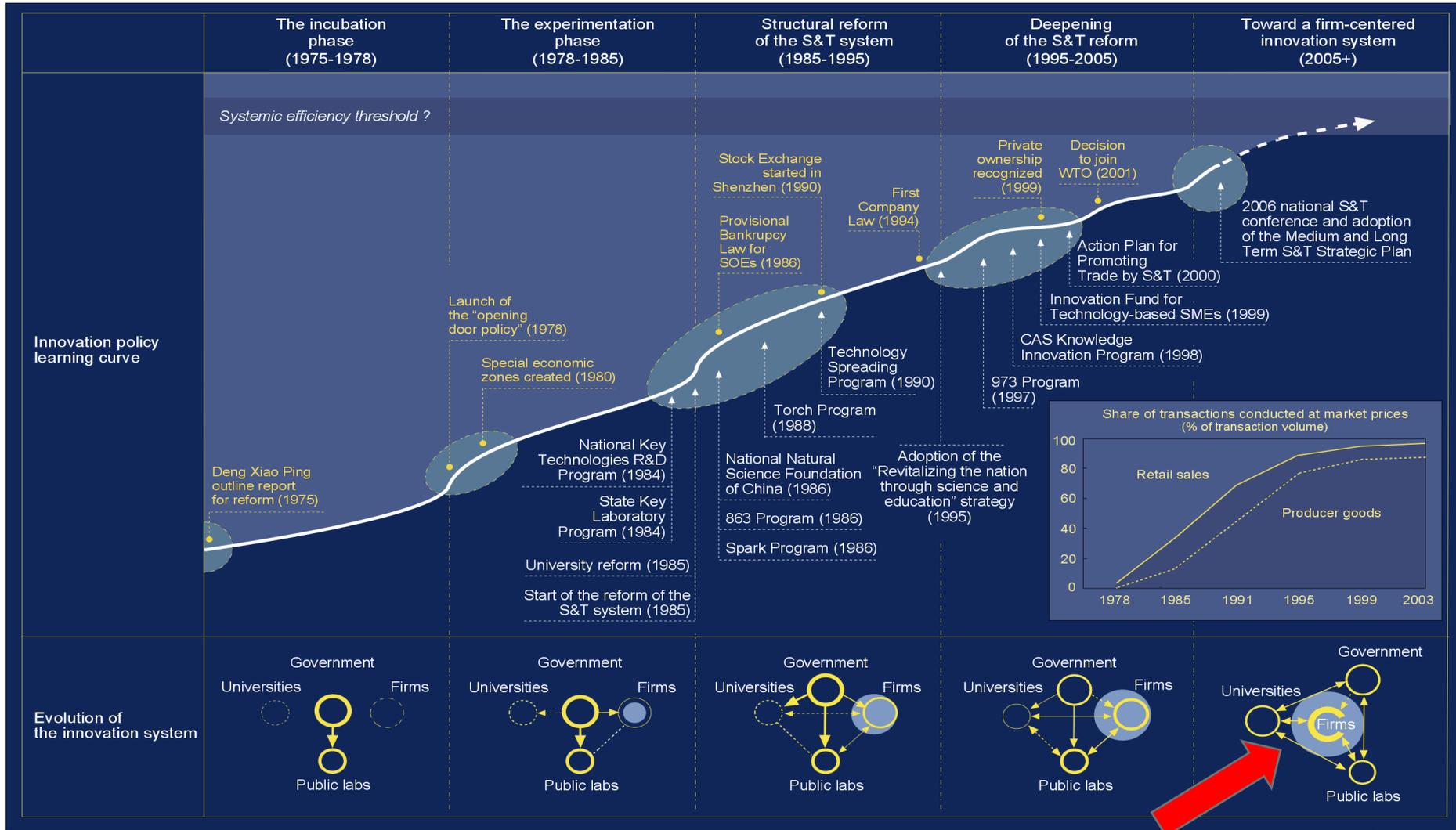


Demands on innovation policy and governance in systems contexts

- Shaping of the **interplay** between policies (e.g., between / among ‘framework policies’ and ‘dedicated’ STI policies)
- Leveraging policy by taking account of **complementarities and trade-offs** between policies (e.g., competition policy / financial incentives for R&D; labour market regulations and immigration policies / incentives for R&D) instead of isolated interventions
- Better **co-ordinating policies** in several dimension: across different policy areas. Institutionally between ministries / agencies; levels of government (international – national – regional, i.e. “multi-level governance”)
- Devising a comprehensive and **adaptive policy mix** for a changing environment (advances in technology, organisation, globalisation)
- **Adapting institutions, decision making** processes and the underlying information base
- **Paradigms / approaches:** “all-of-government”; challenge-driven-driven innovation; systems innovation / transition



China's innovation policy: institutional reform and learning curve





Some factors behind the reconfiguration of the Chinese innovation systems

- **Long-term commitment and investment**
- **Fostering domestic absorptive capacity and innovation capacity in firms.** Developing the necessary skills, knowledge and experience which depend on further human capital creation in firms and by firms through investment
- **Leveraging international transfer** of knowledge and technology while building local innovation
- Increasing the **contribution of universities and public research institutes**
- **Revisiting governance / incentives / funding mechanisms.** Embarking on institutional reforms
- Increasing the contribution of the **education system** to social and economic development
- Providing modern **infrastructure**



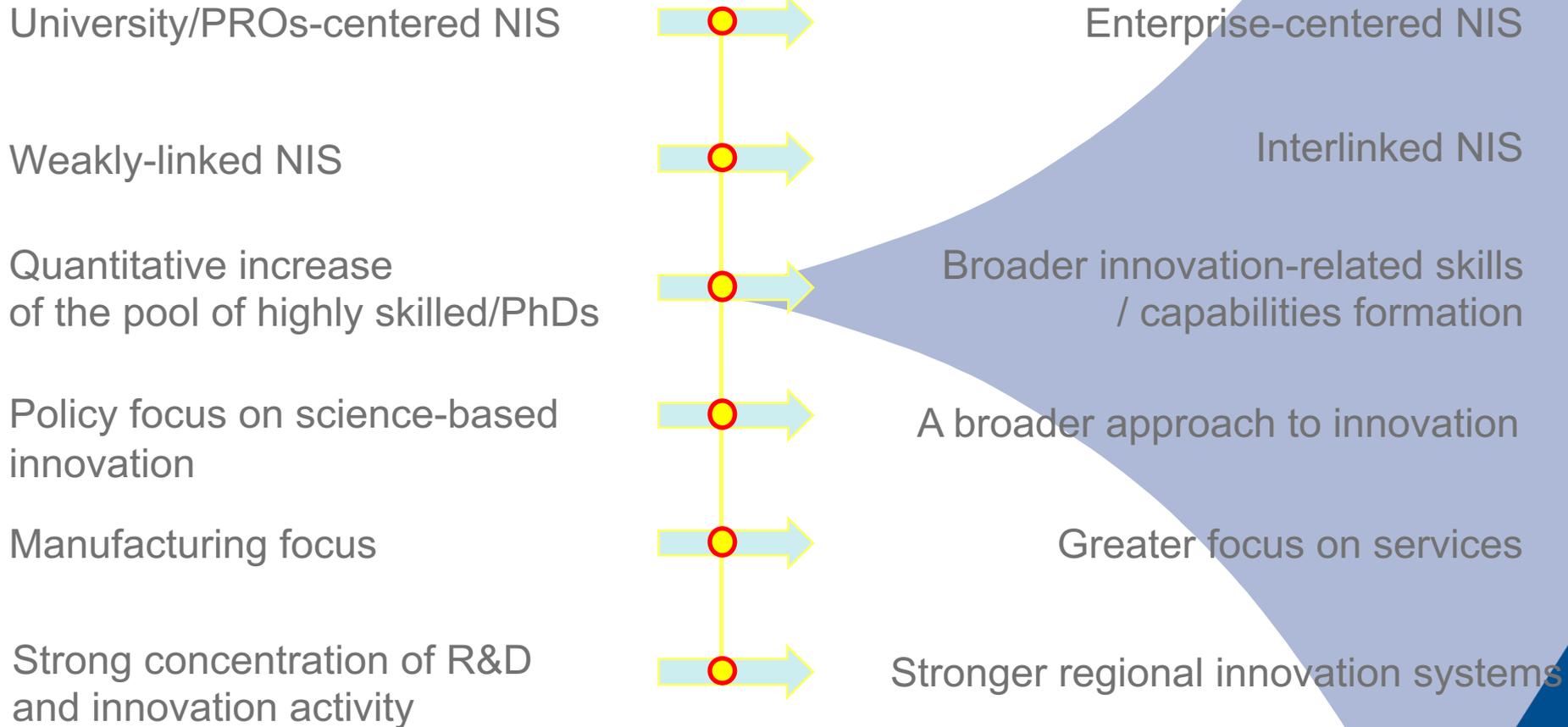
Successful innovation systems – strategic tasks

Successful countries typically perform well in pursuing strategic tasks in a systemic context:

- Providing favourable **framework conditions** for innovation and entrepreneurship, **dynamically reallocating resources** toward the most innovative and productive business enterprises
- **Mobilising additional resources** for R&D and innovation
- **Re-focusing STI policies** with the goal of enabling enterprises to become the main driver of innovation (at least in the longer term in less advanced innovation systems)
- **Developing a broad set of skills** and innovation capabilities in and by a range of business firms and making innovation pervasive in the economy and society
- **Strengthening the contribution of public research institutes and universities** to socioeconomic advances and industry development
- **Developing the STI governance and funding institutions** and policy instruments and their balance/”mix”



In a systems context, policy must handle interrelated strategic transitions





Some common pitfalls

- Underestimation of the importance of framework conditions (competition, regulatory regimes etc.) for innovation and entrepreneurship, and their interrelation with “dedicated” innovation policies
- A narrow concept of innovation and understanding of where innovation capabilities reside and how they are built – which often goes along with an overly strong focus on:
 - ✓ R&D and R&D-based, technological innovation
 - ✓ perceived “high technology”, higher education
- ... resulting in an imbalanced “policy mix”
 - ✓ Lack of policy attention to developing in-house innovation capabilities in business enterprises, and acknowledging the diversity of their needs
 - ✓ Over-reliance on “science push”
- Misperceptions regarding time horizons, constraints - and capabilities



Systems Innovation

Systems innovation is not just the replacement of one technology or innovation with another, like upgrading a gasoline engine with an electric one. It is about transforming an entire system – in this case the car – but also developing mobility solutions across the board.

- OECD Secretary-General Angel Gurría speaking at the OECD Green Growth and Sustainable Development Forum following the COP21 agreement; December 2015

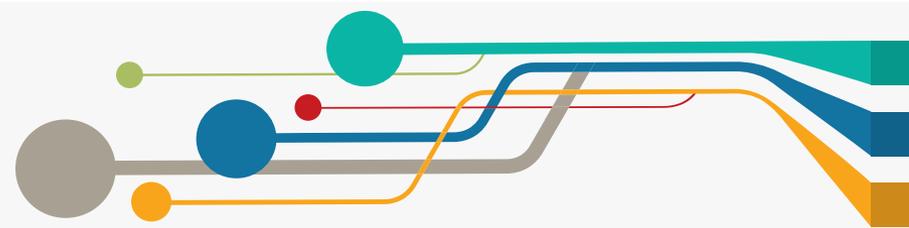


Defining the concept at the OECD

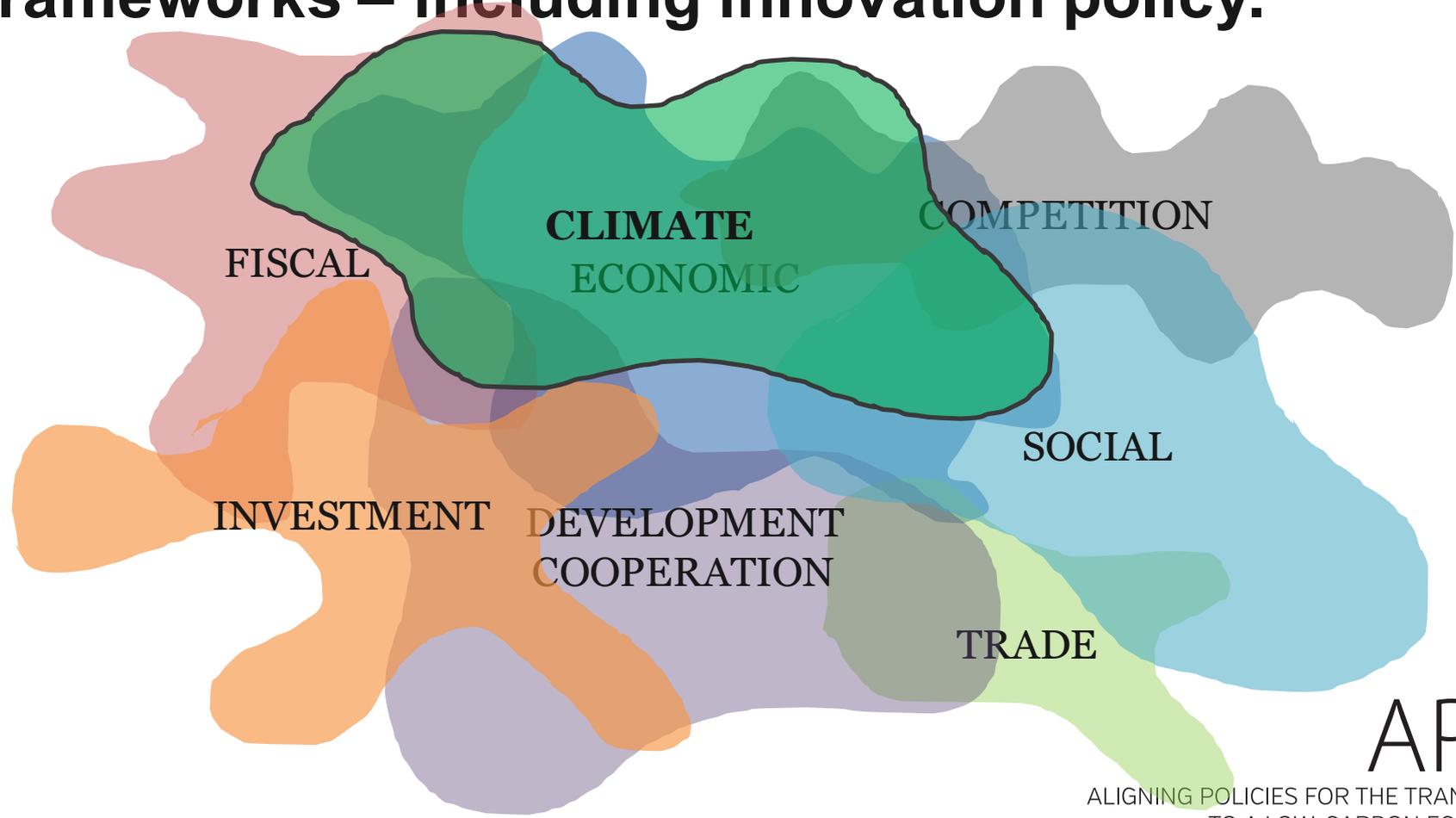
- ***System innovation** is a horizontal policy approach to tackle problems that are systemic in nature; it involves actors inside and outside government and is longer term in its planning*

It involves:

- Innovation in socio-technical systems that fulfill societal functions
- Fundamental social, technical, political and institutional change
- Removal of barriers to radical innovations that are held back due to unsupportive institutions or policy, market and regulatory barriers
- Shared visions and co-operation is needed to redesign socio-technical systems--cannot be dictated by central government but government must play role in co-ordinating and incentivising collaboration



2015 Policy alignment: many misalignments exist between climate objectives and policy frameworks – including innovation policy.



APT

ALIGNING POLICIES FOR THE TRANSITION TO A LOW-CARBON ECONOMY



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Barriers that hinder transitions

- **Framework conditions:** If innovative firms cannot grow and challenged incumbent firms cannot exit, change is held back
- **Research funding:** Challenge-driven research funding, co-operation with industry vs. but scientific excellence as the single most important metric?
- **Business innovation:** Misaligned fiscal support for R&D vs. financing gaps for commercialisation?
- **Horizontal /vertical governance:** Devolution of innovation policies to cities and regions demands greater co-ordination



Policy Implications (1)

- Policy makers' clear understanding of the systemic nature of problem and their role for instituting changes
- Transition management and participatory approaches require time, consistency and stability in policy direction
- Understanding and managing resistance to change is a key task of policy
- Need for new administrative capabilities and new needs for co-ordination across governments and in innovation eco-systems
- New framework conditions to shift incentives in the desired direction (law, regulations) and market signals (prices)



Policy Implications (2)

- Minimise the risks of policy failure associated with picking winners and technological lock-in
- Creation and renewal of infrastructure
- Mobilisation of existing policy frameworks and instruments and creation of new ones – e.g. smart regulations to help innovation, public procurement to stimulate demand
- Long-term policy strategies, with a defined roadmap
- Policy targets with great indicators and standards



Thank you for your attention.
For further information, please contact me

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Web resources

www.oecd.org/sti/innovation/reviews

www.innovationpolicyplatform.org

www.innovationpolicyplatform.org/system-innovation-oecd-project