Challenges for Research and Innovation Policy

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Introduction

- R&D and Innovation Trends
- The Challenge for R&D and Innovation Policymakers
- Towards Mutual Learning
- The CREST Policy Mix Peer Review Exercise
- A Simple Analytical Framework
- Generic Lessons for Policymakers
- Some Suggestions for the Czech Republic
- Food for Thought

R&D and Innovation Trends

- Increasing globalisation
- Shift towards the evolution of knowledge-based societies
- Greater pressure to base competitiveness on a ‘knowledge’ footing
- Greater understanding of the dynamics of R&D and innovation systems (from simple linear models to complex and interdependent innovation systems)
- The evolution of different generations of innovation policy (first generation ‘Science Push’ policies; second generation ‘R&D-Innovation linkage’ policies; third generation ‘Policy Mix’ approaches)
- But vast differences in terms of the extent of these trends in different settings

The Challenge for R&D and Innovation Policy Makers

- To ensure that the importance of R&D and innovation is recognised and acknowledged
- To understand the nature and dynamics of R&D and innovation systems at international, national and regional levels
- To recognise one's 'starting position'
- To identify suitable points of intervention
- To select an appropriate set of policy instruments
- To implement these instruments successfully
- To monitor, evaluate and learn from experience

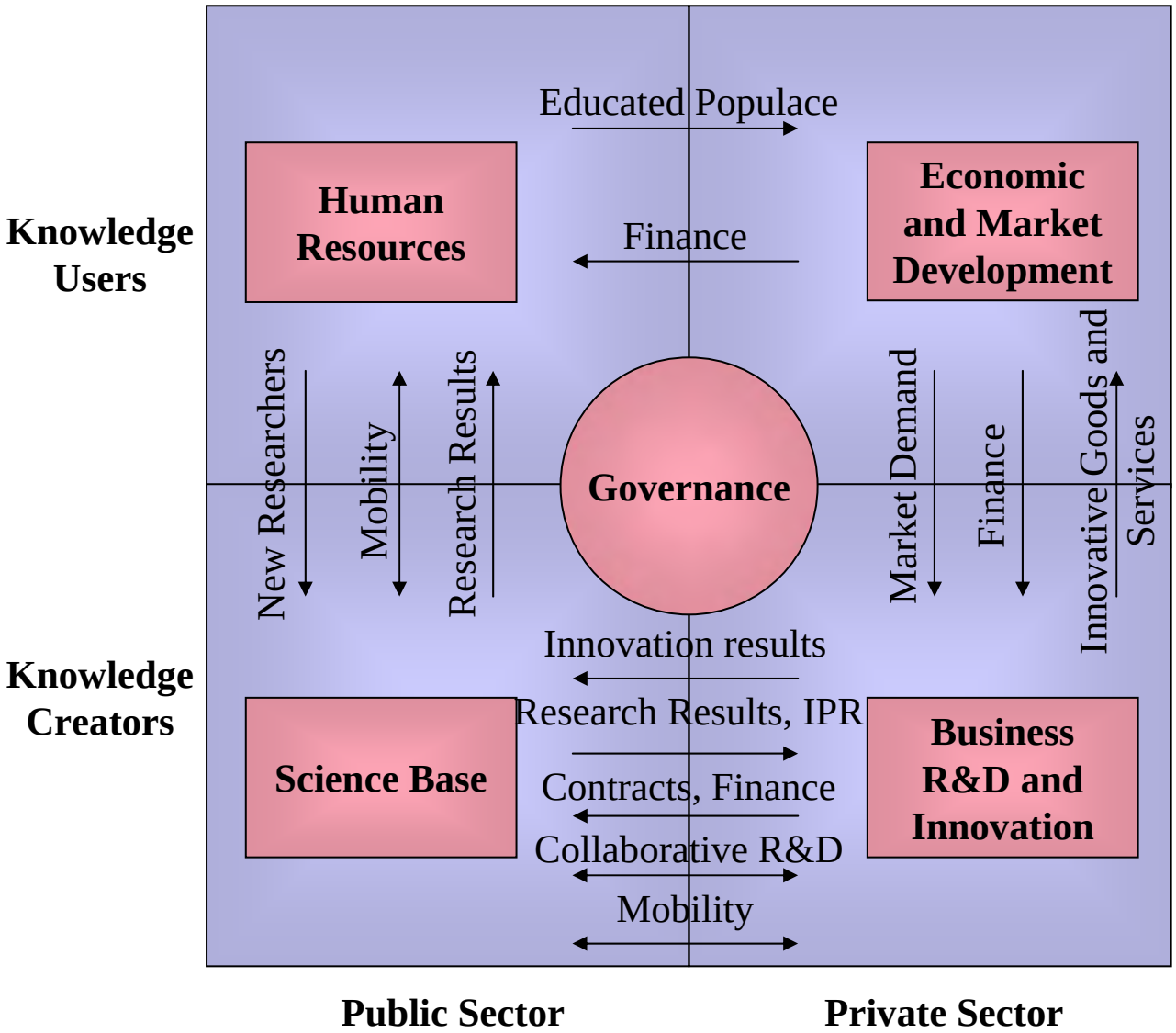
Towards Mutual Learning

- A major challenge for ‘third generation’ policy mix approaches is to ensure that all relevant stakeholders understand these priorities and share a common commitment to the evolution of ‘joined up’ policies which recognise the centrality of innovation
- A first step, therefore, is to initiate mutual learning exercises between groups of relevant stakeholders at different levels (regional, national, international)
- At an international level, the series of Policy Mix Peer Reviews currently organised by CREST are designed to allow policymakers to learn from their peers in other countries

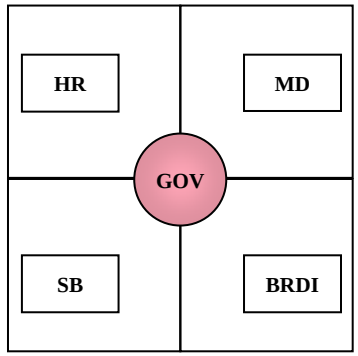
The CREST Policy Mix Peer Review Exercise

- Main objectives
  - To conduct a peer review process capable of acting as an instrument of mutual learning
  - To improve understanding of the policy mixes needed to raise R&D intensity by improving overall innovation system performance
- Countries
  - 2006 - Romania, Spain, Sweden
  - 2007 - Belgium, Estonia, France, Lithuania, Netherlands,UK
  - 2008 - Austria, Bulgaria
- Process
  - Review Countries, Examiner Countries and Independent Consultants
  - Field Visits and Background Reports
  - Peer Review Missions, Country Reports, Peer Review Meetings and Feedback Missions
  - Synthesis Report

Analytical Framework

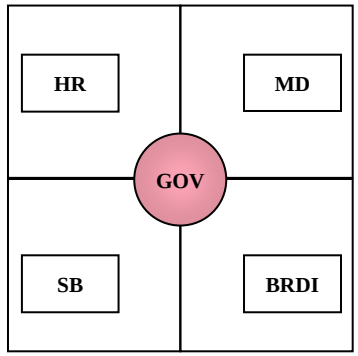


Generic Lessons



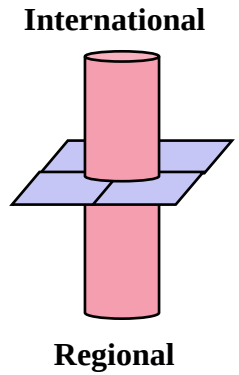
- Governance
  - Improving the coherence of policy mixes requires the adoption of a true ‘systems’ perspective in which all policy mix elements are seen as the legitimate concern of policymakers preoccupied with the health of the R&D and innovation system. All countries are thus urged to adopt such an approach
  - The efficiency and effectiveness of policy coordination mechanisms leaves much to be desired in many countries. There is thus a corresponding need for all countries to critically examine existing mechanisms and experiment with new and better ways of coordinating the formulation and implementation of policies;
  - Inclusive policy formulation processes involving widespread consultations and foresight exercises should be used to imbue a sense of joint ownership in the strategic directions set for R&D and innovation initiatives

Generic Lessons



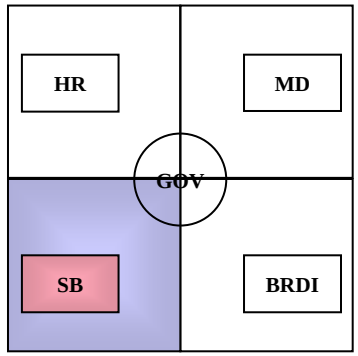
- Strategic Intelligence
  - Building up and maintaining the capacity to use strategic intelligence tools such as foresight, technology assessment, benchmarking and monitoring and evaluation is an imperative for all countries
  - Another imperative is the need to ensure that the results of these exercises, particularly the results of programme evaluations, feed back into the policy formulation process

Generic Lessons



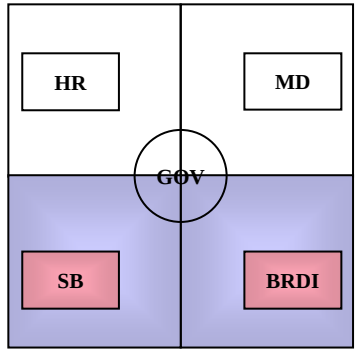
- Regional Issues
  - The regional dimension is critical in many larger economies, particularly those with a federal structure. The main lessons to emerge concern the need to strengthen ‘coordination and coherence’ mechanisms across regions and between regional and national policy spheres in order to tackle ‘generic’ problems and realise the benefits of coordinated actions.
- International Issues
  - All countries should strive to find a balance between under- and over-dependence on EU policies and initiatives in R&D and innovation, ensuring that national priorities are not overwhelmed by EU priorities and that EU initiatives launched in the interests of the common good are not ignored
  - Governments are urged to explore more fully the opportunities and threats posed by developments such as globalisation and open innovation and to consider the policy responses they merit, including the possibility of joint initiatives with other countries

Generic Lessons



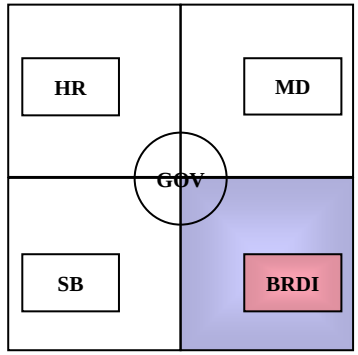
- Science Base
  - Although ‘science-push’ models are discredited, a well-functioning R&D and innovation system still needs a healthy science base. Neglecting it is not an option
  - Funding criteria in the science base should focus on excellence and relevance, especially when resources are scarce and there is a mismatch between scientific capabilities and socio-economic needs
  - Efforts to strengthen science bases and respond to fresh challenges often require the restructuring of scientific infrastructures and institutions. Resistance to such change is commonplace and contingency strategies are needed to overcome it. Greater stakeholder involvement in the policy formulation process is advisable

Generic Lessons



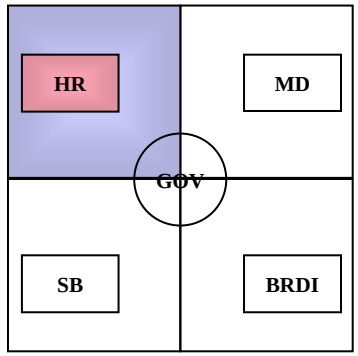
- Science-Innovation Links
  - Policies to improve the interaction of actors in the science base and industry are vital. Measures should involve schemes to improve the interaction of existing actors and structural reforms involving the creation and strengthening of ‘bridging institutions’ or ‘intermediary sectors’

Generic Lessons



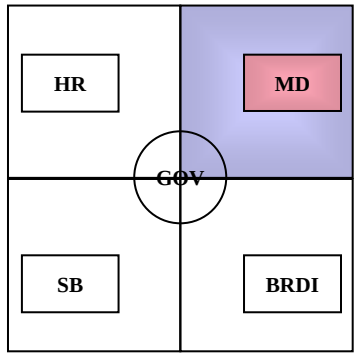
- Industrial R&D and Innovation
  - All countries should consider how best to sensitise existing SMEs to the benefits of accessing and performing R&D and devise schemes and framework conditions promoting R&D intensive start-ups in potential growth areas
  - Efforts to improve the innovation performance of industry need to focus on sophisticated awareness programmes emphasising the benefits of both technological and non-technological innovation; on support schemes for innovative firms; and on the creation of new start-ups, particularly high-tech start-ups
  - A focus on new start-ups is a reflection of the need both to rejuvenate existing industrial structures and to encourage structural shifts to more R&D intensive and high-tech sectors. Whatever the rationale, such a focus is now a policy imperative
  - All countries should recognise that improvements in innovation performance generate a demand for R&D and constitute an effective long-term strategy for raising R&D investment levels

Generic Lessons



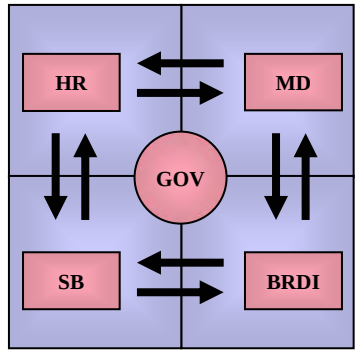
- Human Resources
  - The future supply of the human resources necessary for an R&D and innovation system to function effectively is a concern for all countries, irrespective of the strength of current supplies. All countries need to develop sound strategies to ensure that human resource needs are met in terms of both quantity and quality
  - Common educational needs across all countries appear to exist for more life-long learning, entrepreneurship programmes and a better balance between research and teaching activities across higher education institutions such that they complement rather than detract from each other. Increasingly, the need to have more courses taught in English is also becoming a prerequisite if mobility is to be encouraged
  - Many of the barriers to recruitment and mobility in the higher education sector (salary and pension levels, immigration policies etc.) lie outside the scope of R&D and innovation policy mixes. Policy prescriptions should attempt to lower or remove these barriers across a broad front and not focus too narrowly on single issues and initiatives

Generic Lessons



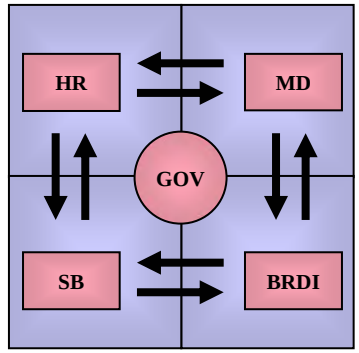
- Market Development
  - All countries should explore the possibilities of R&D and innovation-friendly procurement policies and encourage win-win solutions when formulating and implementing policies in fields such as health, transport and environmental protection

Generic Lessons



- Policy Mix Issues
  - Most countries now employ a broad range of similar instruments. Care should be taken, however, that these are appropriate and customised to the needs of specific countries, and that their modes of deployment are rationalised and not the result of *ad hoc* accretion
  - A balance needs to be struck between the use of direct support instruments (grants, loans etc.) and indirect instruments (tax incentives etc.) after carefully weighing their advantages and disadvantages in specific contexts
  - A balance also needs to be struck between competitive and block funding in the science base. For many countries, raising the proportion of funding awarded via competitive processes would stimulate excellence and overall improvements in system performance

Generic Lessons



- Policy Mix Issues (continued)
  - There is a need for more programmes and initiatives in the R&D and innovation system as a whole to be ‘aligned’ to societal needs and the specific directions set by funding bodies
  - There is an increasing need for countries to focus their efforts when devising policies to improve overall R&D and innovation system performance. The generic lesson for all countries, however, is that the choices involved should be made within the context of long-term strategies that foresee the balanced development of all parts of national R&D and innovation systems
  - Starting points dictate or constrain the options available for development and the likelihood of their success.
  - Always take starting points into consideration when considering future development paths and make sure that development paths are in line with contextual capabilities and needs

Some Suggestions for the Czech Republic

- Governance
  - Ensure centrality of innovation to socio-economic development by involvement of Prime Minister and relevant offices in policy formulation and coordination
  - Involve a broad spectrum of ministries and agencies to ensure that this concept is promoted widely
  - However ministerial and agency responsibilities are segmented, avoid ‘silo development’ by ensuring that communication between these bodies occurs at multiple levels during both policy formulation and implementation

Some Suggestions for the Czech Republic

- R&D Base
  - Avoid rigid or ‘tied’ customer-client relationships between individual ministries and research actors via the creation of a true market for R&D in which various types of research actor (Universities/Research Institutes/Industrial R&D Units) can both compete and collaborate
  - Safeguard ‘basic’ research and promote excellence via the creation of competitive funding structures
  - Safeguard ‘R&D in support of policy via the retention of some dedicated ‘in-house’ capability (e.g. government research labs)
  - Consider multiple options when contemplating the restructuring of the R&D base, but opt for those likely to encourage the interaction of research and innovation actors in terms of both competition and collaboration.

Some Suggestions for the Czech Republic

- R&D-based Innovation
  - Segmented strategies are needed to build and strengthen capability by encouraging firms to ‘do’ and ‘buy’ R&D
    - ‘Venture Capital’ schemes to encourage R&D and innovation-intensive start-ups, spin-offs and SMEs
    - ‘Awareness’ and ‘Bootstrap’ schemes to familiarise non-R&D performers with the benefits of R&D
    - ‘Linkage’ and ‘Mobility’ schemes to enhance the capabilities of existing R&D performers
    - ‘FDI’ schemes to attract innovation dependent firms (preferably with R&D capacity, but certainly with R&D needs)
    - ‘Cluster’ schemes to support the development of value-added chains
  - All strategies are needed, but in reality some will need to be prioritised

Some Suggestions for the Czech Republic

- Non-R&D-based Innovation
  - Support schemes for non-R&D based innovation are sometimes as important or more important than schemes for R&D-based innovation
  - Some of these involve technology adoption and diffusion, but others involve changes in work organisation and the introduction of new business models
  - Given the importance of the service sector in modern economies and future knowledge-based societies, support schemes encouraging innovation in the delivery of services are likely to be crucial

Food for Thought

- “Innovation distinguishes between a leader and a follower.” Steve Jobs
- “Innovation is the ability to see change as an opportunity - not a threat.” Anonymous
- “Vision is not enough, it must be combined with venture. It is not enough to stare up the steps, we must step up the stairs.” Vaclav Havel
- “If you're not failing every now and again, it's a sign you're not doing anything very innovative.” Woody Allen
- “If you're going through hell, keep going.” Winston Churchill