

Innovation support instruments – a policy mix approach

**Klaus Schuch
Centre for Social Innovation**

**2nd Stakeholder's Forum
Enhancing Ukraine's Competitiveness
In R&I on the way to the
Association to Horizon 2020**



Innovation

... several ways to create (private) profit ...

Growth and change are driven by innovation (main argument of innovation economics)

Different “families” of innovation

- Techno-economic innovations
 - Public sector innovations
 - Social innovation
- and more furcation, such as
- workplace innovation
 - rural innovation
 - frugal innovation etc.

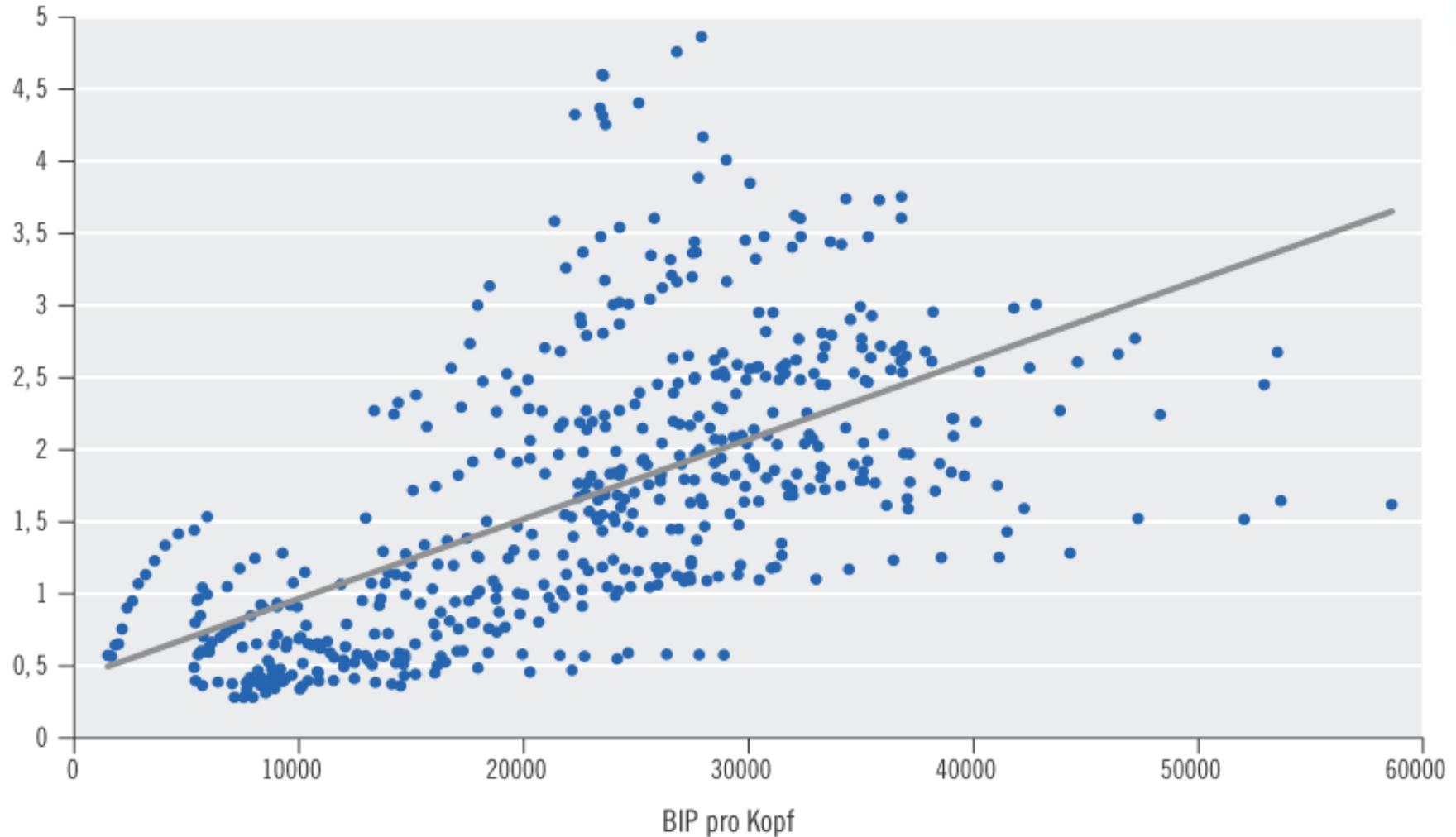
Innovation and R&D

Innovation goes far beyond R&D

“Innovation needs to be understood in a broader sense than R&D i.e. as processes, methods, software, know-how, and collaboration.” (Karen Wilson, OECD).

Economic relevant innovation is product innovation, process innovation, marketing innovation and/or organisational innovation (Oslo Manual, OECD).

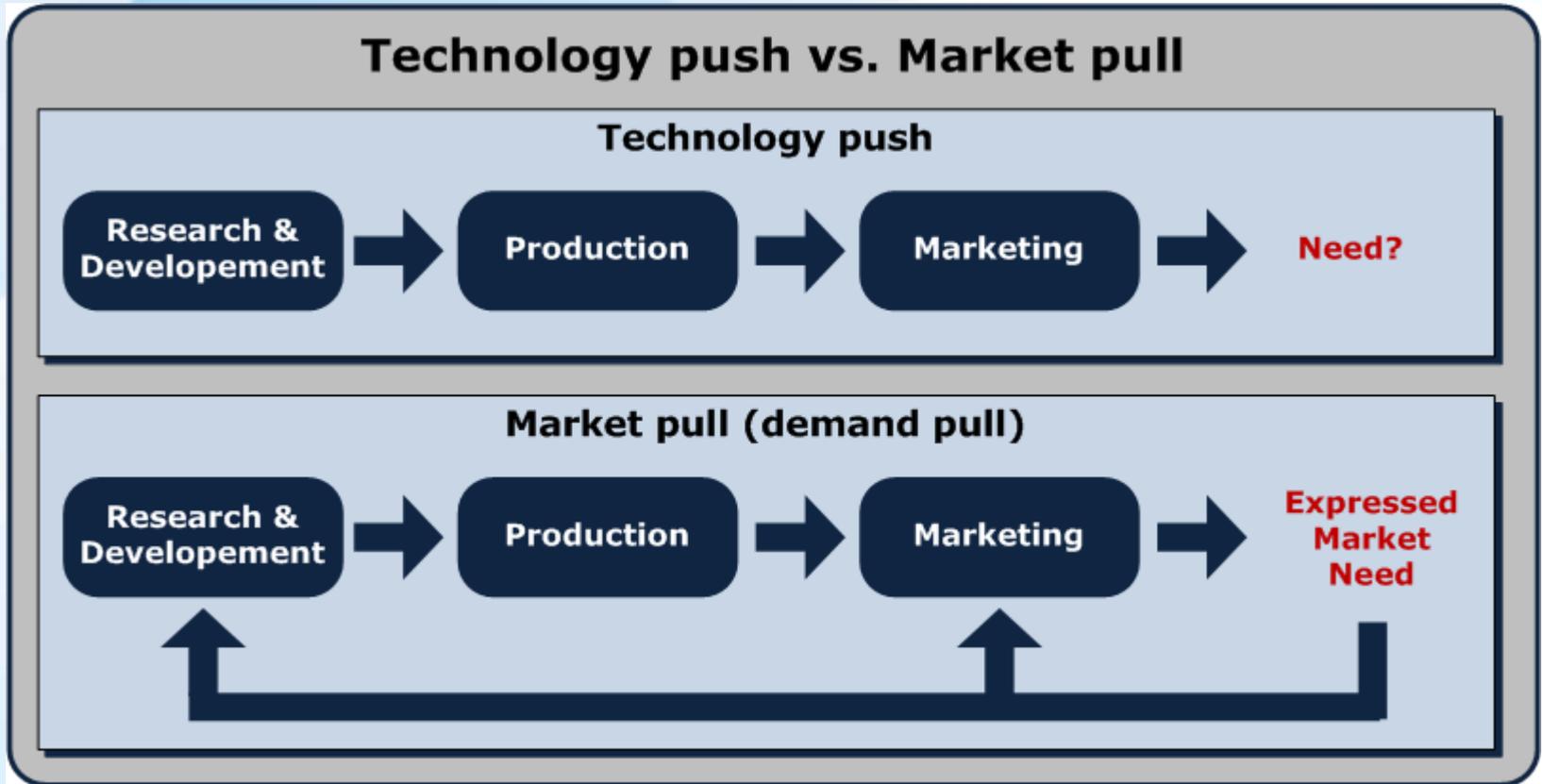
Correlation between GDP and R&D-Quota



* BIP/Kopf in Kaufkraftparitäten (KKP)

Quelle: OECD/MSTI ; Berechnung Joanneum Research

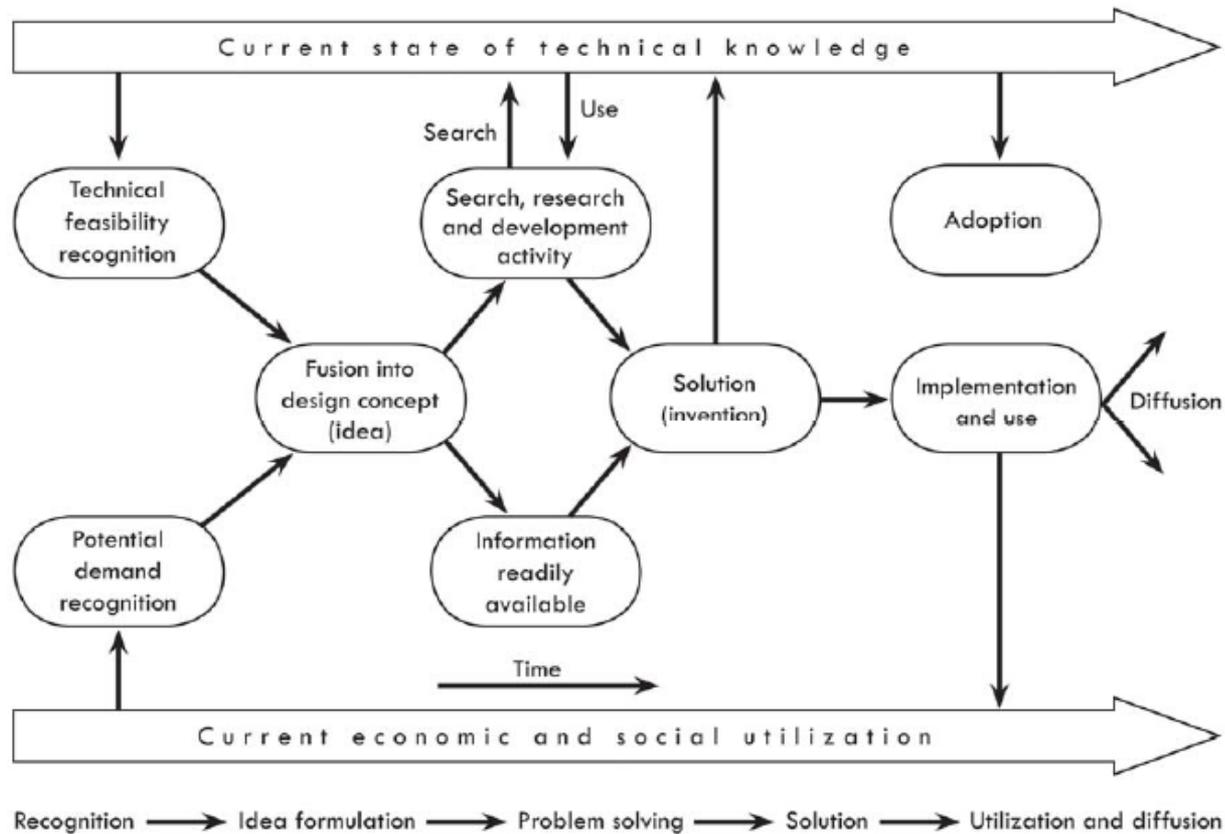
Old linear models



Martin, Michael J.C. (1994). *Managing Innovation and Entrepreneurship in Technology-based Firms*. Wiley-IEEE. p. 44. ISBN 0-471-57219-5.

... more complex interactions

The Myers and Marquis Model
(1969)



Godin, B. and Lane, J. P. (2013). *Pushes and Pulls. The Hi(story) of the Demand Pull Model of Innovation*. Project on intellectual history of innovation. Working Paper No. 13

Innovation Policy: a definition

Innovation policy refers to elements of science, technology and industrial policy that explicitly aim at promoting the development, spread and efficient use of new products, services and processes in markets or inside private and public organisations.

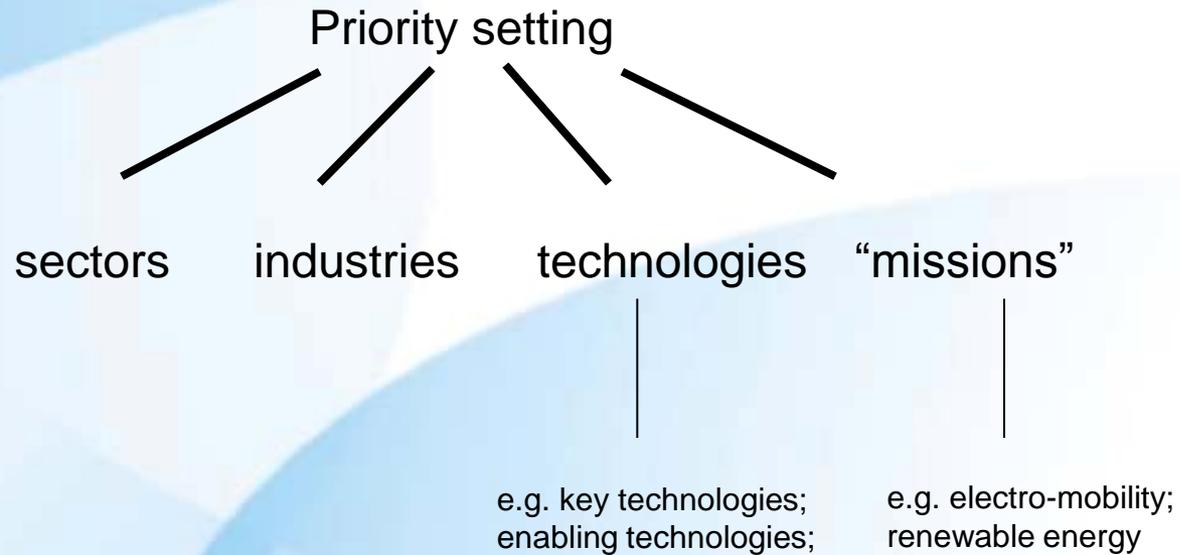
The main focus is on the impact on economic performance and social cohesion. Innovation policy has wider objectives than those of science policy and technology policy. It includes policies which aim at organisational change and the marketing of new products.

Many other policy areas affect innovation ...

Innovation as cross-cutting policy theme



Innovation Policy Priorities



Alternative: innovation system’s approach

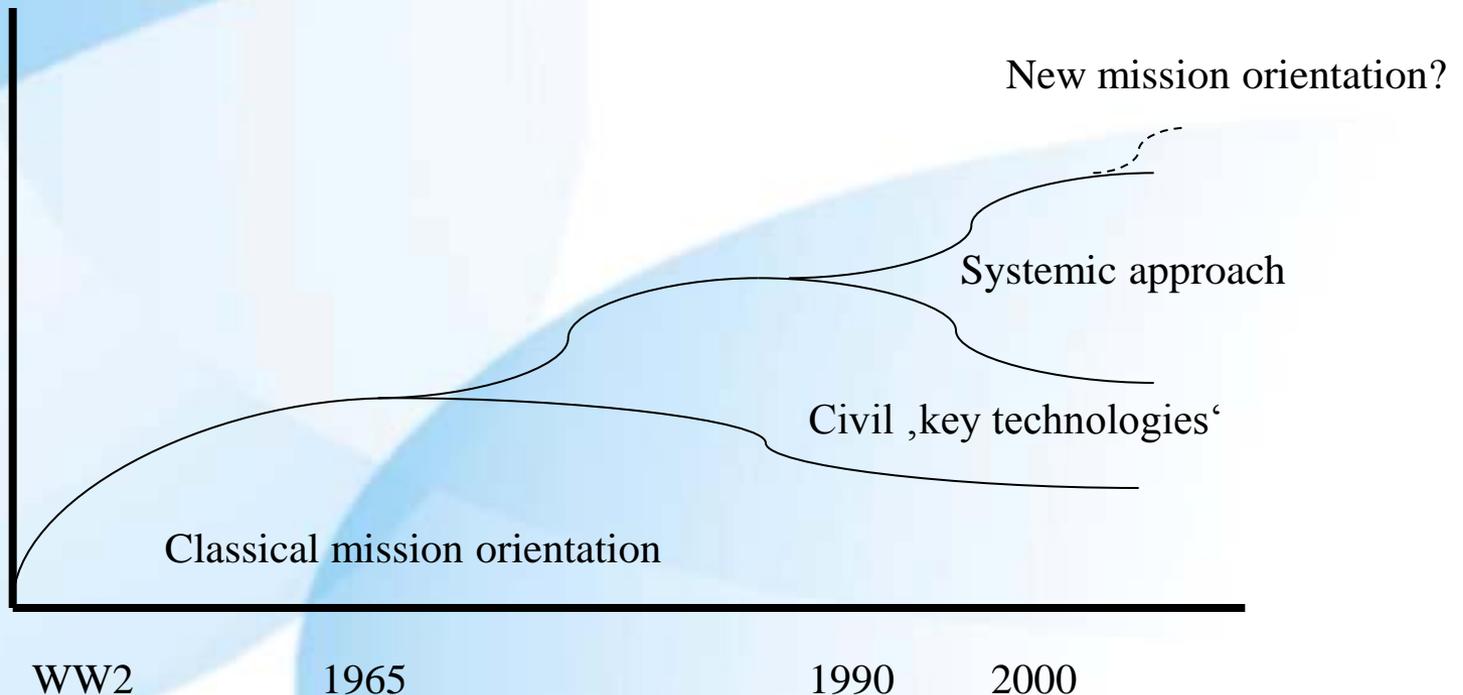
Thematic Policy Priorities

COUNTRIES	AU	BE	BG	CY	CZ	DK	EE	FI	FR	GR	DE	HU	IT	IR	LV	LT	LU	MT	NL	PL	PT	RO	SL	SK	ES	SE	UK	Total
Biotech/bioeconomy/life sciences																												11
Health, wellbeing, agriculture, food																												12
ICT																												15
Energy																												18
Manufacturing, materials																												14
Mobility																												11
Sustainable development																												14
Services, creative industries, cultural h																												12
Key enabling technologies																												10
Others																												9
Ambient intelligence																												
Horticulture																												
Maritime industry																												
Mining																												
Security research																												
Social innovation																												
Wood/forestry																												

Source: Izsak, K. and Griniece, E.: Innovation Policy in 2012 – Challenges, trends and responses. Inno Policy Trendchart Report 2012.

Paradigms in Priority Setting change

Scope and type of public RTD policy activities



Innovation Policy intervention areas (1)

- *Scientific research* (publicly funded labs that can be used by companies [testing, measurement], grants for collaborative industry-led research; joint company-university R&D labs – e.g. ‘Competence Centres’; single industry-led stand-alone projects co-funded by public money)
- *Financial interventions* (grants, loans, subsidies, financial sharing arrangements, export credits, loan guarantees)
- *Taxation* (tax allowances – e.g. research premium, company taxation)
- *Creation and growth of enterprises* (academic spin-offs and start-ups; pre-seed and early-stage funding; risk capital; venture capital)
- *Information management and advisory services* (information networks and centres, consulting services, databases; quality and design advice; strategic economic intelligence)
- *Demand-side interventions* (innovation procurement by government, prototype purchases; pre-commercial procurement of innovation incl. contracted research)

Development in demand-side innovation policies

Strategic approach

FI - DK - DE

Demand-side policies in place

BE - NL - SE - UK

Experimenting

AU - CZ - ES - IR - IT

Included in strategies

EE - GR - HU - LT - LV - MT - PL - PT

No demand-side policy

BG - CY - RO - HR - FR - LU - SK - SI

Notes: BE refers here to Flanders that has experience in demand-side policies, while for instance Wallonie plans to include procurement of innovation in future innovation policy measures.

Innovation Policy intervention areas (2)

- *Technology and knowledge transfer* (TT centres)
- *Cooperation [b2b + PPP]* (cluster; technology platforms; collaborative projects ; joint university-business R&D units; cross-border cooperation programmes b2b)
- *Infrastructure for research and innovation* (large scale test-beds)
- *Business development infrastructures* (science parks; technology centres; innovation centres, impact hubs, business incubators)
- *Education and HRD* (entrepreneurial education; skill gaps centred remedial training; retain and attract international talent)
- *IPR protection* (patents, trademarks, licensing)
- *Regulation and standards* (environmental and health regulations, monopoly regulations; technology standards; industrial standards)
- *Public enterprises* (pioneering use of new technologies, setting up of new industries, innovation by publicly owned enterprises)

Modes of Funding

Grants

Subsidised loans

Support to risk capital

Support to venture capital

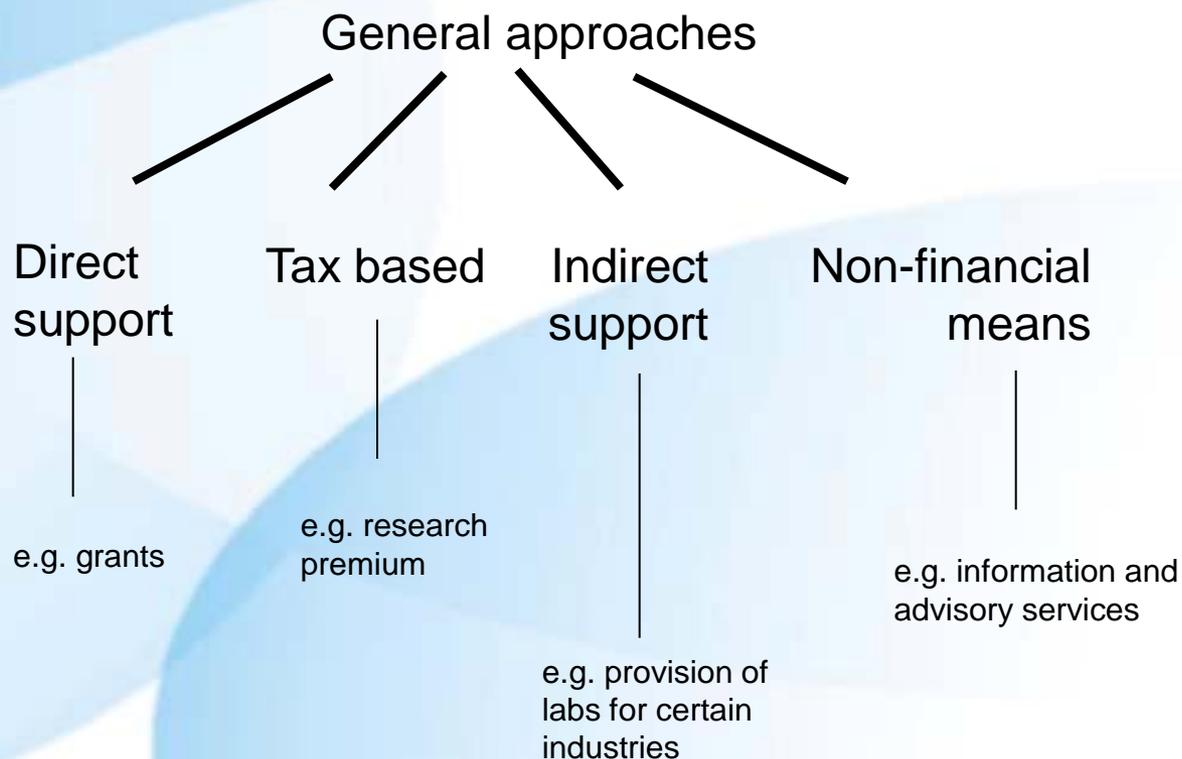
Guarantees

Tax incentives

*Payments (innovation
procurement)*

Awards

General Innovation Support Approaches - Overview



Policy Mix to stimulate R&D investment (1)

Rationale: R&D for more complex innovations – difficult to imitate – nuclei for structural change in the economy and research system

- **Promoting the establishment of new indigenous R&D performing firms** (e.g. academic spin-offs programmes [exploitation spin-offs or competence spin-offs]; innovation and start-up centres; risk capital formation)
- **Stimulating greater R&D investment in R&D performing firms** (e.g. stand-alone R&D project funding for companies; research premium)
- **Stimulating firms that do not perform R&D yet** (innovation voucher schemes; incubators; technology centres; advisory providers)

Policy Mix to stimulate R&D investment (2)

Attracting R&D performing firms from abroad (e.g. targeted programmes for this target group; infrastructures such as the Campus Vienna Biocenter or the Software Park Hagenberg; PPPs like the Institute of Molecular Biotechnology; labs for industrial testing and measurement)

Increasing extramural R&D carried out in cooperation with the public sector (e.g. collaborative programmes; technology transfer offices)

Increasing R&D in the public sector (institutional funding; competitive R&D funding)

Selected Innovation Support Schemes (1)



R&D cooperation projects between academia and industry (collaborative projects; schemes to encourage the business sector to fund research in research institutions – e.g. **subsidised contracted research**) – e.g. **thematic programmes (collaborative research)**, **research premium (intramural and contracted research)** in Austria



Mobility between academia and business (intra-sectoral mobility between academia and business; doctorate programmes in partnership with industry; 'industrial resident schemes' where industry staff enrolls in academia) – e.g. **Talente Programme (Austria)**; **Secondment programme for the Victorian Public Service staff to the private Sector (Australia)**



Organisational innovation (direct funding to enterprises engaged in non-technological innovation activities; e.g. e-business; new business-models; innovation in the field of logistics, marketing, design) – e.g. **Avanza Programme (Spain)**



Set up of business angel networks (early stage capital funds, seed funds) – e.g. **Seed Fund Vera Ltd (Finland)**

Selected Innovation Support Schemes (2)



Cluster development and cluster management support – e.g. Cluster Programme (Sweden)



User-driven innovation initiatives (support provided to encourage innovation driven by end- or intermediate users incl. support to living labs) – Islandic Design Centre



Support to increase consumption of novel products (increasing private demand through subsidies to uptake innovative products) – Thermal renovation measure (Austria)



Support to participation in international R&I programmes – Support to EUREKA participation (Latvia)



Support to social innovation – Social Innovation Fund (USA)

Innovation Policy is not simple

- 1) **Business**, not government, **is the main driver** of innovation
- 2) Innovation depends on **many factors**: business-friendly environment, strong education and science system, good links between knowledge producers and knowledge users;
- 3) **Coordination** across policy domains can be difficult
- 4) Improving innovation requires **a long-term policy commitment**
- 5) Stronger innovation imply **winners and loser**
- 6) Processes and drivers of innovation are undergoing deep changes

Governance Requirements

1. Ensure an effective **policy coordination and stakeholders' participation**
2. Strengthen the **regional dimension** of STI policy
3. **Evidence-based policy making** becomes more and more important (greater actor autonomy => greater need for accountability => use of review and evaluation => generation of strategic policy intelligence)
4. Combine **bottom-up** measures (e.g. „cluster-based policies“) and **top down policies** (e.g. strengthening local knowledge infrastructures)

Relevant policy mixes and instruments

1. Put more emphasis on measures to reinforce the **innovation capabilities of SMEs**
2. Ensure that the support system is well adapted to the specific needs of the **service sectors** (not only manufacturing)
3. Foster the **diffusion** of new technologies, especially enabling technologies
4. Shift towards an **innovation-friendly procurement policy**
5. Raise the **effectiveness of TT organisations at PROs** (need for re-
definition of the role of PROs; refocusing PROs towards „Pasteur’s
quadrant“ = application oriented basic research; part of PRO’s
output is no longer a „public good“; enterprise „education“)
6. Ensure that programmes to foster **industry-science relationships**
are market-pulled or mission-oriented rather than science-pushed

Innovation Policy learning



Evaluation of innovation support instruments



Exchange of experiences and inspiring practices



Industry surveys



Studies



Internships and staff exchange



Foresight





Klaus Schuch
Zentrum für Soziale Innovation
Linke Wienzeile 246
A - 1150 Wien

Tel. ++43.1.4950442
Fax. ++43.1.4950442-32
email: schuch@zsi.at
<http://www.zsi.at>