STI Policy Instruments: Procurement and Finance

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Agenda

• Introduction
• Using Public Procurement to promote STI
• Financing STI
Introduction: Types of instrument

• Regulatory instruments are legal tools (laws, rules, directives, etc.) that regulate social and market interactions and are obligatory in nature.

• Economic and financial instruments provide specific pecuniary incentives (or disincentives) that support specific social and economic activities.

• Soft instruments are voluntary and non-coercive. They make recommendations, set standards, promote codes of conduct, or offer voluntary or contractual agreements. Depending on less hierarchical forms of cooperation between the public and private sectors.
Using Public Procurement to promote STI
Rationale and instruments

- As a large user, government’s public procurement can be highly influential on the direction of economic activity

- Two generic approaches:
  - **Public procurement of innovation**: the public sector buys new goods and services that do not exist yet in the market; and
  - **Public procurement for innovation**: the public sector seeks to stimulate innovation without necessarily purchasing new products.

- As a tool to stimulate innovation public procurement can play several roles, including:
  - Stimulating the development of innovative productive capacity;
  - Promoting the generation and adoption of innovative goods and services;
  - Encouraging the development of pre-commercial innovative products and services;
  - Playing a role as a catalyst.

- Procurement under WTO rules
  - The Government Procurement Agreement (GPA) regulates procurement policies for signatories by laying down rules guaranteeing fair and non-discriminatory conditions for internationally competitive
  - GPA requires immediately and unconditionally provide treatment to the products, services and supplies of other parties that is no less favourable than that accorded to domestic products and services
  - The WTO GPA prohibits the use of offsets, also known as domestic content requirements, although there are limited exemptions for developing countries: local content rules cannot be included in contracts by environmental standards can be set
Table 1 OECD estimates of general government procurement as a percentage of GDP and as a share of government expenditures

Source: OECD National Accounts Statistics (database). Data for Australia are based on a combination of Government Finance statistics and Accounts data provided by the Australian Bureau of Statistics.
## Public procurement measures to stimulate innovation

<table>
<thead>
<tr>
<th>Deficiencies addressed</th>
<th>Instrument types</th>
<th>Examples</th>
<th>Evidence</th>
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<tbody>
<tr>
<td>i) Procurement regulations driven by competition at expense of innovation</td>
<td>i) Introduction of innovation-friendly regulations</td>
<td>2005 change in EU directives including functional specifications</td>
<td>Certain mechanisms (such as division into lots) increase SMEs contracting</td>
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<td>ii) Requirements for public tenders unfavourable to SMEs</td>
<td>ii) Simplification of and easier access to tender procedures</td>
<td>Paperless procedures, electronic portals, targets for SME participation</td>
<td>Lack of evidence of impact of targets and set asides for SMEs</td>
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<td>i) Lack of awareness of innovation potential or innovation strategy in organization</td>
<td>i) High-level strategies to embed innovation procurement</td>
<td>UK Innovation Procurement Programmes (IPPs) 2009-2010</td>
<td>No evidence of effects of IPPs (uneven quality, discontinued)</td>
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<td></td>
<td>ii) Training schemes, guidelines and best-practice networks</td>
<td>Netherlands PIANOo support network, European Lead Market Initiative</td>
<td>Small and indirect impact on innovation of support networks (e.g. PIANOo)</td>
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<td>iii) Subsidies for additional costs of public innovation procurement</td>
<td>networks of contracting authorities</td>
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<td>i) Lack of communication between end users, commissioning &amp; public procurement function</td>
<td>i) Pre-commercial procurement of R&amp;D to develop &amp; demonstrate solutions</td>
<td>Finnish agency TEKES meeting 75% of costs in planning stage</td>
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<td>ii) Innovation platforms to bring suppliers &amp; users together; Foresight &amp; market</td>
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<td>ii) Lack of knowledge &amp; organized discourse about wider possibilities of supplier's</td>
<td>study processes; Use of standards &amp; certification of innovations</td>
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<td>i) Risk of lack of take up of suppliers' innovations</td>
<td>i) Calls for tender requiring innovation; guaranteed purchase or certification of</td>
<td>German law enabling innovation demands in tenders; UK Forward Commitment</td>
<td>No evidence of forward commitment procurement (lack of evaluation)</td>
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<td></td>
<td>innovation; guaranteed price/tariff or price premium for innovation</td>
<td>Procurement; Immunity &amp; certification scheme (Republic of Korea); China</td>
<td>Certification and insurance schemes in Republic of Korea leading to higher contracting</td>
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<td></td>
<td>ii) Insurance guarantees</td>
<td>innovation catalogues</td>
<td>among high technology SMEs</td>
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<td>ii) Risk aversion by those responsible for public procurement</td>
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Table 2 Value of procurement markets in key countries under the WTO GPA

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<tbody>
<tr>
<td>Construction Services</td>
<td>USD 125.7 billion</td>
<td>USD 11 billion</td>
<td>USD 287 billion</td>
<td>USD 423.7 billion</td>
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<tr>
<td>Pharmaceutical Products, Health Services and Related Entities</td>
<td>USD 15.1 billion</td>
<td>USD 1.46 billion</td>
<td>USD 120 billion</td>
<td>USD 136.56 billion</td>
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<td>Computer and Related Services</td>
<td>USD 46.5 billion</td>
<td>USD 2.1 billion</td>
<td>USD 1.6 billion</td>
<td>USD 54.83 billion</td>
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<tr>
<td>Telecommunication Services</td>
<td>USD 4.1 billion</td>
<td>USD 531 million</td>
<td>-</td>
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<tr>
<td>Chemical Products</td>
<td>USD 21 billion</td>
<td>USD 7.2 billion</td>
<td>USD 2.24 billion</td>
<td>USD 23.25 billion</td>
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<tr>
<td>Fuels and Petroleum Products</td>
<td>USD 4.5 billion</td>
<td>-</td>
<td>USD 12.3 billion</td>
<td>USD 16.8 billion</td>
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<tr>
<td>Machinery and Associated Products</td>
<td>USD 14 billion</td>
<td>USD 329 million</td>
<td>USD 518 million</td>
<td>USD 14.85 billion</td>
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<tr>
<td>Textile, Clothing and Footwear</td>
<td>USD 4.4 billion</td>
<td>USD 19 million</td>
<td>-</td>
<td>USD 4.42 billion</td>
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<tr>
<td>Plastic and Rubber Products</td>
<td>USD 903 million</td>
<td>USD 3 million</td>
<td>USD 53 million</td>
<td>USD 959 million</td>
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<td>Wood Products</td>
<td>USD 195 million</td>
<td>USD 62 million</td>
<td>-</td>
<td>USD 257 million</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>USD 236.4 billion</strong></td>
<td><strong>USD 15.51 billion</strong></td>
<td><strong>USD 423.71 billion</strong></td>
<td><strong>USD 675.63 billion</strong></td>
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Financing STI
Rationale and Instruments

- Acquiring and managing finance is a key function of any firm and is a major enabler in achieving their business goals. Firms require different types of finance depending on the activity involved or the stage of evolution.
- Innovation often involves significant capital investments and is an uncertain, risky undertaking, which makes it more difficult to mobilize the necessary resources.
- Enterprises fund their activities, including innovation, from private and public sources.

Cash flow and financing as an enterprise develops over time

Main sources of private funding

<table>
<thead>
<tr>
<th>Private funding</th>
<th>Source: UNCTAD</th>
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<tbody>
<tr>
<td>Personal savings and funds from relatives and friends</td>
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<tr>
<td>Personal savings from partners (or employees)</td>
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<td>Microcredit</td>
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<td>Crowdfunding</td>
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<td>Surplus carried forward from previous years</td>
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<td>Funding from business angels</td>
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<td>Venture capital</td>
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<td>Value chain financing</td>
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<td>Loans from commercial banks</td>
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<td>Stock markets</td>
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<td>Bonds</td>
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</table>

Source: Based on United Nations Economic Commission for Europe, 2009

Source: Based on United Nations Economic Commission for Europe, 2009
Public Funding for R&D and innovation

• Direct public funding enables governments to focus on overcoming particular barriers that are blocking innovation or on activities that are liable to be affected by market failures.

• Firms can also be directed to develop particular R&D activities, new R&D areas, industrial sectors that are new or are prioritized by governments.

• Indirect financing operate more closely in line with market logic, mostly through tax incentives, for example for R&D.

• Key considerations for policy on financing innovation
  – Efficiency of public intervention in financing innovation
  – Identifying specific aims for policies and programmes on financing innovation
  – Instrument design and a suitable management framework
  – Combining instruments
  – Monitoring and evaluation
  – Developing the capacity to design and manage financing instruments
## Main sources of public funding for R&D and entrepreneurial innovation

<table>
<thead>
<tr>
<th>A. Direct public funding</th>
<th>1. Public grants/subsidies</th>
<th>Innovation funds and technology funds</th>
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<tbody>
<tr>
<td></td>
<td>2. Debt financing</td>
<td>Subsidized loans</td>
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<td></td>
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<td>Repayable grants</td>
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<td></td>
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<td>Credit guarantees</td>
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<td></td>
<td>3. Capital funding</td>
<td>Seed funding</td>
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<td></td>
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<td>Funds of funds</td>
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<td></td>
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<td>Co-investment funds</td>
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<td></td>
<td>4. Public procurement for R&amp;D and innovation</td>
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<td>5. Innovation vouchers</td>
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<td>6. Innovation awards</td>
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<td>7. Development Bank instruments</td>
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<tr>
<th>B. Indirect public funding</th>
<th>1. Tax incentives</th>
<th>Income tax incentives for enterprises</th>
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<td></td>
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<td>Personal income tax credits</td>
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<td>2. Public spending on R&amp;D</td>
<td>Competing research funds</td>
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<td>Enterprise-academia-government R&amp;D partnerships (PPP)</td>
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<td>3. International development assistance</td>
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Source: UNCTAD, based on (OECD, 2014a; UNCTAD, 2013b).
## Types of R&D tax incentives used in OECD member countries, 2014

<table>
<thead>
<tr>
<th>Design of the R&amp;D tax incentive schemes</th>
<th>Corporate income tax (CIT)</th>
<th>R&amp;D tax allowance</th>
<th>Volume-based</th>
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<tr>
<td></td>
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<td>R&amp;D tax credit</td>
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<td>Incremental</td>
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<td>Hybrid</td>
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<td>Belgium</td>
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<tr>
<td>R&amp;D tax allowance or tax credit</td>
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<td>(excluding each other)</td>
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<td>Accelerated depreciation for R&amp;D</td>
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<td>Payroll withholding and social security taxes</td>
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<td>No carry-back/forward and refundable options</td>
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<td>Patent and intellectual property rights (IPR) expenditures</td>
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<td>Targeting firms</td>
<td>SMEs</td>
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<td>Young firms and start-ups</td>
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<td>Large firms and multinationals</td>
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<td></td>
<td>Excluding large firms</td>
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<td></td>
<td>Firms hiring PhD or researchers</td>
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<tr>
<td>Targeting R&amp;D areas or industries</td>
<td>Energy and environment</td>
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<td>Design and creative industries</td>
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<td>Agriculture</td>
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<td></td>
<td>Collaborative and subcontracted R&amp;D</td>
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<td></td>
<td>Excluding collaborative and subcontracted R&amp;D</td>
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Source: (OECD, 2014a)
Many thanks for your attention!