Success Factors for Effective Regional Innovation Policy

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OECD: Regions and Innovation

- **Series** *OECD Reviews of Regional Innovation* began 2007
  - **Thematic reports** on special topics such as clusters, globalisation, innovation policy
  - **Country/region** reviews at the request of governments
  - **Inputs** to territorial reviews, other OECD work (Innovation Strategy)

- **Different levels of government** seek policy advice:
  - **National governments** that must support a diversity of region types (regional development, S&T, enterprise and industry, higher ed)
  - **Regional authorities** that seek the right policy mix for their region
  - **Upcoming reviews**: Wallonia (Belgium), Southern and Central Denmark
What do we mean by innovation?

“...the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

By definition, all innovation must contain a degree of novelty...an innovation can be new to the firm, new to the market or new to the world.

...Innovation, thus defined, is clearly a much broader notion than R&D and is therefore influenced by a wide range of factors, some of which can be influenced by policy.

Innovation can occur in any sector of the economy, including government services such as health or education....Consideration is being given to extending the methodology [for innovation measurement] to public sector innovation and innovation for social goals.”

Why regions matter for innovation policy

**even more today**

- **A double paradigm shift**
  - Rising relevance of regional dimension in national innovation strategies (systems approaches, critical mass in science, etc.)
  - New regional development policy (mobilising knowledge & assets for growth)

- **An evolving innovation scenario**
  - Increased globalisation (rise and fall of different regions)
  - Societal and environmental challenges (new growth model of 3 “E”s: efficiency, equity, environmental sustainability; sub-national role)
  - Increasing relevance of networks for innovation (in and across regions)

- **Empirical evidence**
  - World is not flat, it has hot spots (half of R&D in 13% of regions, half of patenting in 20% of regions)
  - Variety in regional innovation systems (within and across countries)
  - Innovation modes (spatial dimension relevant in different ways)
What factors should be considered?

To open the black box, consider three elements simultaneously:

1. Institutional context
2. Innovation potential
3. Type of regional strategy
How do regions drive OECD growth?

Contribution to OECD growth (TL2 regions, 1995-2005)

4% of regions account for one third of OECD growth, the other 96% for two-thirds

Different regional profiles across OECD regions

Knowledge Hubs
- Knowledge-intensive city/capital districts
- Knowledge and technology hubs

Industrial Production Zones
- US states with average S&T performance
- Service and natural resource regions in knowledge-intensive countries
- Medium-tech manufacturing and service providers
- Traditional manufacturing regions

Non-S&T driven regions
- Structural inertia or de-industrialising regions
- Primary-sector-intensive regions

Notes: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory covered by this map. Maps may be cropped for ease of display. Eight different types of regional profiles, based on an analysis of 12 indicators in OECD regions with available data, were grouped into these three categories.
Some countries have greater in-country diversity

**Hungary**
- Medium-tech manufacturing and service providers: Central Hungary
- Traditional manufacturing regions: Central Transdanubia, Western Transdanubia
- Structural inertia or de-industrialising regions: Southern Transdanubia, Northern Hungary, Northern Great Plain
- Primary-sector-intensive regions: Southern Great Plain

**Austria**
- Knowledge intensive city/capital districts: Vienna
- Traditional manufacturing regions: Burgenland, Lower Austria, Carinthia, Styria, Upper Austria, Salzburg, Tyrol, Vorarlberg

**Germany**
- Knowledge intensive city/capital districts: Berlin, Bremen, Hamburg
- Knowledge and technology hubs: Baden-Württemberg, Bavaria, Hesse
- Medium-tech manufacturing and service providers: Lower Saxony, North Rhine-Westphalia, Saarland, Schleswig-Holstein, Rhineland-Palatinate, Saxony, Thuringia
- Structural inertia or de-industrialising regions: Brandenburg, Mecklenburg-West Pomerania, Saxony-Anhalt

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OECD peers in traditional manufacturing regions

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Range of performance varies by country

United States

Austria

Portugal
Diversity in innovation potential also related to internal and external system linkages

<table>
<thead>
<tr>
<th></th>
<th>Centralised RIS</th>
<th>Decentralised Dense RIS</th>
<th>Decentralised Sparse RIS</th>
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<tbody>
<tr>
<td>No hinges</td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
<td><img src="image3" alt="Diagram" /></td>
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<td>Single hinge</td>
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<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
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<tr>
<td>Diverse hinges</td>
<td><img src="image7" alt="Diagram" /></td>
<td><img src="image8" alt="Diagram" /></td>
<td><img src="image9" alt="Diagram" /></td>
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</table>
Diversity and intensity of co-invention among top 20% of OECD TL2 regions (by number of total PCT applications), 2005-2007

High intensity, More collaborators

High intensity, Fewer collaborators

An illustration of collaboration patterns - green patents

Hokuriku (Japan), Baden-Wurttemberg (Germany) and California (US), 2005-2007

Institutional context: regions have different STI competences

<table>
<thead>
<tr>
<th>Regional role</th>
<th>Federal countries</th>
<th>Countries with elected regional authorities</th>
<th>Countries with non elected regional level / decentralised State agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant control of STI powers and/or resources</td>
<td>Austria, Belgium, Germany, Australia, Canada, Switzerland, United States, Brazil</td>
<td>Italy, Spain UK (Scotland, Wales, Northern Ireland)</td>
<td></td>
</tr>
<tr>
<td>Some decentralisation of STI powers and/or resources</td>
<td>Mexico</td>
<td>France, Netherlands, Poland, Sweden (pilot regions), Denmark (autonomous regions), Norway</td>
<td>UK (English regions), Sweden (except pilot regions), Korea</td>
</tr>
<tr>
<td>No decentralisation of STI powers</td>
<td></td>
<td>Denmark, Portugal (autonomous regions), Slovak Republic, Turkey, Czech Republic, Chile, Japan</td>
<td>Hungary, Ireland, Portugal (mainland), Greece, Finland, Luxembourg, Iceland, New Zealand, Slovenia</td>
</tr>
</tbody>
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Strategic direction for regions

1. Building on current advantages
   *science push, technology-led, or a mix*

2. Supporting socio-economic transformation
   *reconversion or identification of a new frontier*

3. Catching up
   *towards the creation of knowledge-based capabilities*
There is no one recipe, but there is a menu for regional strategic choices

- **●** main priority; **○** strategic choice; **⊙** low priority

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<th>Supporting socio-economic transformation</th>
<th>Catching up</th>
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<td>Knowledge hubs</td>
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<td>○</td>
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<td>Traditional manufacturing regions</td>
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<td>Non-S&amp;T-driven regions</td>
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<tr>
<td>Structural inertia or de-industrialising regions</td>
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<td>Primary-sector-intensive regions</td>
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<td>●</td>
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Range of tools to implement goals

<table>
<thead>
<tr>
<th>Traditional instruments</th>
<th>Knowledge Generation</th>
<th>Knowledge Diffusion</th>
<th>Knowledge Exploitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology funds</td>
<td></td>
<td>Science parks</td>
<td>Incubators</td>
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<tr>
<td>R&amp;D incentives/supports/</td>
<td></td>
<td>Technology Transfer</td>
<td>Start ups support</td>
</tr>
<tr>
<td>grants</td>
<td></td>
<td>Offices and schemes</td>
<td>innovation services</td>
</tr>
<tr>
<td>Support to scientific</td>
<td></td>
<td>Technology brokers</td>
<td>(business support and</td>
</tr>
<tr>
<td>research and technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>centres</td>
<td></td>
<td>Mobility schemes</td>
<td>coaching)</td>
</tr>
<tr>
<td>Support to infrastructure</td>
<td></td>
<td>Talent attraction</td>
<td>Training and awareness-</td>
</tr>
<tr>
<td>development</td>
<td></td>
<td>schemes</td>
<td>raising for innovation</td>
</tr>
<tr>
<td>Human capital for S&amp;T</td>
<td></td>
<td>Innovation awards</td>
<td></td>
</tr>
</tbody>
</table>

| Emerging Instruments    | Public private partnerships for innovation | Innovation vouchers | Industrial PhDs |
|                        | Research networks/poles                    | Certifications/     | Support to creativity |
|                        |                                            | accreditations      | Innovation          |
|                        |                                            |                     | benchmarking         |

| Experimental instruments| Competitiveness poles |                                      | Regional Industrial  |
|                        | Competence centres    |                                      | Policy               |
|                        | New generation of     |                                      | Innovation-oriented |
|                        | scientific and        |                                      | public procurement   |
|                        | technological parks   |                                      |                      |
|                        | and clusters          |                                      |                      |
|                        | Venture and seed capital |                                |                      |
|                        | Guarantee schemes for financing for innovation | |                      |

|                          | Cross-border research centres | Open source-Open science markets for knowledge | |
|                          |                               |                                                 | Regional Industrial |
|                          |                               |                                                 | Policy               |
|                          |                               |                                                 | Innovation-oriented |
|                          |                               |                                                 | public procurement   |

Multi-level governance of STI policy: OECD Survey results

- Regions play different roles in a multi-level governance context
- Formal and informal roles are both important
- Many regions and national governments are using the “same” policy instruments
- Proliferation of public support programmes (high transactions costs, difficulties for target groups)
- Insufficient levels of incentives for co-ordination in STI policy across and within levels of government
- Use of multiple multi-level governance tools, importance of dialogue and consultation
Some instruments are more frequent at regional level, some at national level, and many at both levels.

Instruments reported in common are not necessarily a duplication. They may be complementary:
- Shared financing
- Different target groups and purposes

Notes: National refers to the number of instruments used at national level. Regional refers to instruments reported at regional level. Common instruments refers to the number of instruments reported at both national and regional level, which includes those instruments reported in the count of national and regional instruments.

Multiple tools are used in any given country (generally 4 or more)

Regular dialogue and consultation rated most important among tools

Note: 22 reporting countries (20 OECD, 2 non-OECD countries).


Note: 24 reporting countries (20 OECD, 4 non-OECD countries), one country reported two top tools.

Regions can, and should, be agents of change

- Develop a vision and a strategic road map to encourage innovation
- Design a smart policy mix (asset-based and multi-sector)
- Establish multi-level, open and networked governance structures:
  - Vertical and horizontal co-ordination
  - Functional regions
  - Stakeholders & private sector involvement
- Foster policy learning through better metrics, evaluation and experimentation
Example: regional innovation agencies

<table>
<thead>
<tr>
<th>Place of agency</th>
<th>Traditional focus</th>
<th>New approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Top-down provider of resources</td>
<td>Facilitator, node in the system</td>
</tr>
<tr>
<td>Rationale for intervention</td>
<td>Market failures</td>
<td>Systems failures, learning failures</td>
</tr>
<tr>
<td>Mission</td>
<td>Redistributing funds</td>
<td>Identifying and reinforcing strengths in the system: a change agent</td>
</tr>
<tr>
<td>Instruments</td>
<td>Isolated</td>
<td>Policy mix</td>
</tr>
<tr>
<td>Accountability and control mechanisms</td>
<td>Administrative and financial</td>
<td>Strategic, goal-oriented, additionality</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Focused on execution</td>
<td>Expanded to strategic decisions</td>
</tr>
</tbody>
</table>

Common pitfalls in regional strategies

- One-size-fits-all approach (regions can’t all be Silicon Valley or a leading biotech hub)
- High-tech bias (ignoring broader approach to innovation)
- Lack of sufficient private sector involvement
- Administrative boundary focus and not functional areas
- Lack of measurement and evaluation of progress