"Research and innovation Strategies for Smart Specialisation"

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OECD

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Is there a link between innovation and regional growth?

“The general consensus...is that the driving force behind long-term economic growth is science, technology and innovation in its different forms and facets” (OECD 2011: Regions and Innovation Policy)

Source: Mikel Navarro et al, Basque Competitiveness Institute 2010.
Innovation and (exit of) the crisis
How enterprises see innovation?

95% of respondents believe innovation is the main lever for a more competitive national economy

88% of respondents believe innovation is the best way to create jobs in their country

This faith is Global; these results are quite consistent from one country to another

See: GE Global Innovation Barometer 2011: Interview of 1000 senior executives in 12 countries (December 2010 - January 2011)
The rationale for public intervention to promote innovation

“… the most important job for economic policy is to create an institutional environment that supports technological change. “ Paul Romer 1994

"Innovation is a critical factor for growth but a well-functioning market economy cannot generate by itself the optimal levels of R&D" (World Bank, 2011), because of two main market failures:

Partial appropriability (owing to knowledge spillovers - employee mobility and FDI - and positive externalities) and "public good" nature of R&TD+i: innovators cannot capture the full benefits of their investment and social returns from innovation may be far larger than private returns (Jaffe 1998)

Information asymmetries and "funding gap": in the absence of demonstrated cash flows or collateral there are barriers to traditional sources of finance – there is a significant gap between what an innovator knows and what an external agent can gauge – Importance of F³: fools, friends and family
Climbing the development ladder calls for more innovation in the policy mix

Necessary conditions: Physical Infrastructure & Human Capital

Sufficient conditions: Innovation & entrepreneurship

\[ P_{mix} = f (NC, SF) \text{ adapted to each regional context: business culture, institutional setting, sectoral/technology specialisation, firm size, inward investments, etc...} \]
The Science-Market Circuit: 
a regional model of the innovation process

Technology needs by firms 
New ideas about new products and/or improved processes

New products demand 
(different, better or cheaper)

Pre-competitive activities

Knowledge

Basic Research

Univ. Departments
Public Research Institutes
Science Parks

Applied Research

Research without immediate application

Research Centres
Technology Incubator
Technology Park
Contract Research Organisations
RTOs.

"Scientific Sub-system"

"Regional 'Innovative Milieux': innovative environments"

Valorisation

Technological development
Adapting/adoptions

Demand

Demand

Industrial Policy/Regional Policy

Technology Transfer

SMEs

Innovation

SMEs

("Followers/imitators")

Innovation

"Adaptative Research"

Clients

SMEs

Subcontracting Firms

New or improved product or process

Competition Policy
Public Procuring Policy

A fragmented regional economy: Less favoured regions
Only 1/3 of enterprises are satisfied with public support. The type of measures do not correspond to their needs.

What do they need?
- Money, but not only grants, also credits, guarantees, venture capital, etc..
- Clients, markets (domestic, global)
- Partners (development, value chains ...)
- Support for new forms of innovation (user-centred, combinations with services, ...)
- Quicker support and more tailor-made measures
Is the Regional Dimension Important for Innovation Policy?

- “The capacity for developing human capital and interactions between firms, ... is increasingly localised,... networks of both formal and, mainly informal contacts...take place more easily at the regional level... synergies, or an innovative ‘surplus’ can arise from shared cultural, psychological or political perspectives arising from occupancy of a shared space or region” (Lundvall & Borras, 1997).

- “it is able to act on local knowledge, part of which is tacit, concerning the calibre of firms, the formal and informal linkages between firms, the quality of the labour force and the capacity of the institutions... the most appropriate level at which to build social capital...” (Morgan & Nauwelaers, 1997).

“Both global economic growth and social cohesion require increasing the competitiveness of regions, especially where potential is highest. The comparative advantages that drive innovation and investment are as much a regional characteristic as a national one. For regions to succeed, they must harness their own mix of assets, skills and ideas to compete in a global market and develop unused potential.” OECD (Conclusions of the Chair, High level Meeting, Martigny, Switzerland, July 2003)

“Proximity is important in fostering innovation. When different aspects of manufacturing – from R&D to production to customer delivery – are located in the same region, they breed efficiencies in knowledge transfer that allow new technologies to develop and business to innovate. Historically the co-location of manufacturing and product design has been vital” (Report to the President on ensuring American leadership in advanced manufacturing, Executive Office of the President, June 2011).
Innovation is not just R&D. For most companies and the majority of regions their competitiveness are not mainly or primarily dependent on R&D efforts but on knowledge absorption (education and training, advanced business services) and diffusion (technology transfer, ICT, entrepreneurship) largely dependent on internal and external connectivity.

"Innovation is not just science and technology; it is also the creation of a multitude of new products and services in all sectors of the economy, new marketing methods and changes in the ways of organising businesses, in their business practices, workplace organisation and external relations" (OECD 2010).

"Innovations are not just the results of scientific work in a laboratory-like environment...this is the exception rather than the rule...the causality between science and innovation has proven weaker than expected...innovation emerge increasingly in practice-based processes based on the ability to interact and build networks with other innovation agents" (V. Haarmaakopi et al 2008)
Problem:

- Lack of interaction between levels of governance and departments
- Strategies without external perspective – duplication
- Lack of or indifference to critical mass
- Measures only for R&I and capacity building and not for demand stimulation / market access
- Focus on fashionable themes / prestige projects
- Focus on industries and not on emerging sectors and services

See: Regional Innovation Monitor
www.rim-europa.eu
Innovation Strategies for Smart Specialisation

An economic transformation agenda based on 4Cs:

1. *(Tough) Choices*: limited number of priorities on the basis of own strengths and international specialisation – avoid duplication and fragmentation in European R&D Area

2. *Competitive Advantage*: mobilize talent by matching RTD + I capacities and business needs through an entrepreneurial discovery process

3. *(Critical Mass) Clusters and Connectivity*: develop world class clusters and provide arenas for related variety/cross-sectorial links internally in the region and externally, which drive specialised technological diversification

4. *Collaborative Leadership*: efficient innovation systems as a collective endeavour based on public-private partnership (quadruple helix) – experimental platform to give voice to un-usual suspects

«Innovation can not be dictated but it can be cultivated »
*(The Federal Government and the growth of Regional Innovation Clusters, J. Sallet et Al, 2009)*
Fact-sheet:

InfoRegio website:

What is Smart Specialisation?
http://ec.europa.eu/research/era/publication_en.cfm

- ‘Knowledge for Growth’ expert group (DG RTD) launched concept in the framework of ERA;
- Problem: fragmentation/imitation/duplication of public R&D investments;
- Stresses role for all regions in the knowledge economy, if they can identify competitive advantages in specific R &I domains/clusters (not just winning sectors);
- Challenges: Smart specialisation has to embrace the concept of open innovation, not only investment in (basic) research.

“Most advanced regions invest in the invention of general purpose technologies, others invest in the co-invention of applications of the generic technology in one or several important domains of the regional economy”

Dominique Foray 2010
An explanation by Prof. D. Foray

- It is not a planning doctrine that would require a region to specialize in a particular set of industries.
- It is an approach to policy that considers whether those activities already strong or showing promise for a region can benefit from R&D and innovation.
- Regions need to focus on certain domains but being focused is not enough; they need to focus by developing distinctive and original areas of specialization (not by imitating each other).
- Smart specialization is largely about the policy process to select and prioritize fields or areas where a cluster of activities should be developed: let entrepreneurs discovering the right domains of future specializations.

Collège du Management de la Technologie – CDM
Chaire en Economie et Management de l'Innovation – CEMI
Who prepares the RIS3?

The actors in an innovation system: "knowledge triangle" & "triple / quadruple helix"

- Enterprises (SMEs, micro, large, industry & services, creative industries, ...), including key innovators
- Research centres, universities
- Cluster initiatives, business networks ...
- NGOs, consumers / users ...
- Regional development agencies, financial, incubators ...
- National authorities and /or regional (from different departments: economics, research, education, environment, social ...), Managing Authorities ...
RIS3 is a process …
of «entrepreneurial discovery»

What do they need?
With whom to cooperate?
Who are your customers / competitors?
Is there critical mass / excellence?

See: http://www.oecd.org/document/20/0,3746,en_2649_34413_44924372_1_1_1_1,00.html
Steps to RIS3

Step 1: Analysis of regional potential for innovation-driven differentiation

Step 2: RIS 3 design and governance – ensuring participation & ownership

Step 3: Elaboration of an overall vision for the future of the region

Step 4: Selection of priorities for RIS3 + definition of objectives

Step 5: Definition of coherent policy mix, roadmaps and action plan

Step 6: Integration of monitoring and evaluation mechanisms
(1) Analysis

- Involves analysis, experimentation, debate and decision-making
- SWOT: focus on potential for knowledge-based transformation
- Wide view of innovation: embrace social as well as ecological innovation
- Identify econ. differentiation potential, avenues for specialised techn. diversification
- Support positioning of companies within international value chains and (niche) markets
- ‘Entrepreneurial discovery’ = tap existing entrepr. knowledge to identify priority domains
- Use field knowledge of Universities and Tech Centres, incl. through practical exp.
- Combine methods: foresight, surveys (delta), working groups, consultation within clusters, dedicated experts, studies, pilot experimentation, structured interviews, evaluations, scenario making, etc.

TOP TECHNOLOGY REGION (TTR) - Eindhoven Leuven Aachen (ELAt): The Swiss research firm BAK Basel was asked to benchmark and map the economic strengths of this cross-border region. The study identified and confirmed a number of the TTR’s strengths, shown in the BAK Technology Competitive Index. The Index reveals the technological strength of a region based on the scale and growth of the relevant sector, the number of publications and the number of patents. 3 key sectors scoring consistently above average were identified. The aim is now to enhance collaboration and clustering between these sectors.
(2) Process and governance

- Process needs to be interactive, regionally driven and consensus-based: ensure inclusive, open prioritisation and avoid capture by vested interests
- Set up a dedicated Steering Group/Knowledge Leadership Group, a Management Team, Working groups...and flagship projects, collaborative leadership: know what, know who and know how.
- New demand-side perspectives given prominence: not just usual public suspects but businesses in the driving seat
- Involve boundary spanners brokering new connections across sectors, disciplines and institutions in order to explore « related-variety »
- Link national, regional and EU funds: involve stakeholders operating both outside and in the region

**Navarra:** Navarra's modernisation strategy aims to lead the regional structural transition from an industry-based economy to a knowledge-based economy. It was developed through an in-depth SWOT analysis and vision-building process led by 33 high-level international experts. A concrete action plan was developed in consultation with stakeholders, which was subsequently discussed and approved by the Regional Parliament. All in all, more than 5000 persons were involved in the strategy process.
(3) Vision

- A shared, ambitious and realistic long-term vision: galvanise attention, facilitate priority-setting and communication, motivate stakeholders and generates buy-in
- Regional image linked to an economic transformation agenda: This is what we stand for! This is where we have potential! This is where we want to go!
- Linked to evidence-based analysis and focused on setting goals that are within reach: underpinned with real substance, having the fundamentals in place.

**Flanders:** By 2020 Flanders wants to rank among the top five knowledge-intensive regions in Europe. To reach this target, the region has taken steps towards a transformational policy approach. This focuses on value chains, economic clusters, open innovation and ‘grand projects’, which are selective investments in future-oriented domains with a high innovation and growth potential and large societal impact. To reach this target ‘Vlaanderen in Actie’ was setup, a broadly-based initiative consisting of several breakthroughs in the socio-economic domain. ViA is an action plan that entails more than a moderated improvement or some growth percentage points. Namely, it points to an evolution that fundamentally alters the landscape and society of Flanders.
(4) Priorities

- Defines a limited number of innovation and knowledge-based development priorities in line with existing/potential niches for smart specialisation
- Needs to be based on present and future competitive advantage and potential for excellence: defines concrete, achievable objectives/goals
- In addition to technological, sectoral or cross-sectoral priority areas, horizontal priorities need to be defined, e.g. (KETs and their diffusion/application), social innovation, etc.

**Berlin/Brandenburg:** In 1998/99 a RITTS study laid the foundation for an active innovation policy in Berlin. In 2007 it was decided to bundle forces with the surrounding Brandenburg region. Five joint future Fields of Excellence were identified: Biotechnologies and Medical technologies and pharmacy; Energy technologies; ICT and new Media; Optical technologies; Transport system technologies. These are underpinned by 4 cross-sectoral priorities: New materials, Production and automation technology, Cleantech, Security. These fields present the regional strength in regional publicly funded R&D and industrial activity. Innovation support measures concentrate on strengthening private sector R&D and knowledge transfer, especially for SMEs.
(5) Policy-mix/Action Plan

- Defines roadmaps and programme architecture, i.e. instruments, projects (incl. project selection criteria) or pilots feeding priority areas and objectives.
- Defines target groups, objectives/measurable targets, realistic timeframes, results and outcome indicators, etc.
- Identifies sources of funding and presents indicative budget allocations for actions.
- Trend towards holistic policy packages integrating support to knowledge generation, diffusion and exploitation in single packages targeting a variety of regional actors.

**OECD/European Commission guidance:** Publications such as the joint 2011 OECD/European Commission book on “Regions and Innovation Policy” or the 2011 EC Communication “Regional Policy for smart growth in Europe 2020” identify taxonomies of policy instruments and/or offer a catalogue of possible innovation instruments and example from regions that have successfully used them, which should act as an inspiration to regions to design smart and efficient policy mixes.
(6) Monitoring & Evaluation

- Establishes monitoring and (on-going) evaluation process at level of strategy and at level of Action Plan/Programme: assesses direct and indirect impact
- Measurable targets and qualitative and quantitative indicators (outputs and results)
- No standard menu: evaluations to be tailored to specific content and context of RIS³
- Measure progress and establish system of regular reporting, evaluation as learning process leading to economic transformation towards higher value added activities and internationally competitive firms
- To be combined with peer-reviews for impartial, external advise (ex-ante and ongoing)

**Lower Austria:** The Innovation Assessment Methodology Lower Austria is a comprehensive system of different monitoring and evaluation tools for Lower Austria’s innovation policy. Its aim is to gain insight into results and impact of innovation support services with the aim to improve policy instruments, justify budgets spent and promote its success. One of the tools used is the BSC Balanced Scorecard Methodology, a strategic performance management tool, developed and heavily used in the private sector. In LA it is used to define the objectives and target figures for the 6 pillars of Lower Austria’s economic strategy (including innovation) and to break them down on intermediary level as well as on program level.
“Inward looking” (parochial) without taking into account the global economy and ERA

Driven by external consultants: ownership by regional stakeholders?

Excessive focus on "technological" supply and R&D emphasis

A lack of understanding of the regional innovation system as an interaction of interdependent players, policies and institutions

"Study-oriented" approach vs. "applied-oriented" approach: credibility for businessmen?

National/Regional governments might feel threatened by:

- a transparent and inclusive bottom-up process
- analysis showing regional R&TD+i supply does not correspond to business demand;
- new ideas, which cut across traditional power boundaries between Ministries;
- project ideas which are not already in the "drawer" of a given Ministry

Lessons from regional innovation strategies 1993-2000
Questions for RIS3 analysis

1. Is the strategy based on an appropriate stakeholder involvement? How does it support the entrepreneurial discovery process of testing possible new areas?
2. Is the strategy evidence-based? How have areas of strength and future activity been identified?
3. Does the strategy set innovation and knowledge-based development priorities? How have potential areas of future activity been identified? How does it support the upgrading of existing activities?
4. Does the strategy identify appropriate actions? How good is the policy mix?
5. Is the strategy outward-looking and how does it promote critical mass/potential?
6. Does the strategy produce synergies between different policies and funding sources? How does it align/leverage EU/national/regional policies to support upgrading in the identified areas of current and potential future strength?
7. Does the strategy set achievable goals, measure progress? How does it support a process of policy learning and adaptation?
8. Can the strategy be regarded as a regional research and innovation strategy for smart specialisation following the guidance provided by the EU Commission? Which advice can be given to improve the strategy?

To register in the list of experts: http://ec.europa.eu/regional_policy/tender/expression_en.cfm
Thematic guides

- Incubators
- Universities & regional development
- Broadband

Soon available:
- Clusters
- Social Innovation
- Green growth
- Entrepreneurial spirit
- Creativity
- Service innovation
- …

Inspiration for innovation support:
- Oslo Manual (OECD)
- Community framework for State Aid to Research and Innovation
- Analysis of regional innovation [http://www.rim-europa.eu](http://www.rim-europa.eu)
- EURADA • Directory of "No-Nonsense" Activities to Build S³-minded Regions; • All money is not the same [http://www.insme.org/files/3019](http://www.insme.org/files/3019)
Horizontal issues and policy delivery instruments for RIS³

- Green Growth: only sustainable is smart – Eco-innovation & Energy efficiency
- Digital agenda: enabling knowledge flows throughout the territory – connected regions
- Clusters for regional growth: business ecologies that drive innovation
- Innovation-friendly business environments for SMEs: good jobs in internationally competitive firms
- Social Innovation: new organisational forms to tackle societal challenges
- Stronger focus on financial engineering: not only grants
- Lifelong Learning in research and innovation: support knowledge triangle (KICs) and university-enterprise cooperation
- Key Enabling Technologies: systemic potential to induce structural change
- Research infrastructure/centres of competence: support to ESFRI and EU wide diffusion of leading edge R&D results
- Creativity and cultural industries: innovation beyond technology and outside manufacturing
- Public Procurement for market pull: pre-competitive PP to open new innovation friendly market niches
EU/OECD project: Designing smart specialisation strategies for cluster development in global value chains

OECD (TIP group) and (Australia, AT – Lower and Upper Austria, BE - Flanders, FI - Lahti, DE - Brandenburg, NL - Brainport, PL - Makopolska, ES – Andalucia, Basque Country and Murcia, UK – West Midlands, Turkey, South Korea, CZ, EE, SW - Västra and South Africa): aims at identifying good practices in policy development, methodologies and selection criteria for designing and assessing smart specialisation strategies.
- Designed to assist regions and Member States in developing RIS3 strategies
- Managed by a team established at JRC-IPTS in Seville
- Monitored by a Steering Team incl. DG REGIO, RTD, ENTR, EAC, INFSO and SANCO
- Input from a Mirror Group of European high-level experts and network representatives

Information

• Proposals for the Structural Funds 2014-2020:

• RIS3 factsheet:


• RIS3 guide: http://s3platform.jrc.ec.europa.eu/s3pguide

• "Regions for Economic Change" conference and "RegioStars 2012" award ceremony, 15 June, Brussels:
Conclusions: on the conceptual framework

1) **Innovation is not R&D** …and just R&D is not Innovation: promoting innovation-led regional development is not primarily about increasing R&D excellence and R&TD infrastructures (supply push) but first and foremost about a change of culture where efficient innovation systems (demand pull) mobilize the intellectual and entrepreneurial capacities to create an innovation friendly business environments, for SMEs in particular, in all regions and in all sectors (not just high-tech)

thus

**The linear model (from R&D to the market) is much less relevant** for policy design than the systemic or interactive model: not just patents but economic exploitation of talent and new ideas – not just industry and big firms with R&D but also services, competitive research and open innovation

because

**Regional innovation capacities are much more about** personal engagements, institutions, networks, cooperation (social capital) than it is about narrowly focused science and technology efforts: reinforcing triple helix – knowledge triangle, clusters and university-enterprise is key

Why?

**Regional innovation for most regions in the EU is basically about knowledge absorption (education and training, advanced business services) and diffusion (technology transfer, ICT, entrepreneurship) than about knowledge generation (science efforts)**
Conclusions (2): on policy design

2. Innovation has a strong territorial dimension (tacit knowledge-networked economy) and there is 
   no “one size fits all” innovation policy: regional diversity is an asset that advocates for different 
   routes to growth through innovation – smart specialization

3. Regional Innovation Paradox: big need, big money and no capacity

4. It is no longer about what or why but about how and who?

   Opening minds is more difficult than opening roads – need for much strengthen strategic 
   planning capacities of regional/national governments (from design to ongoing learning evaluation) 
   and facilitate a culture of risk taking

5. R&D excellence and Regional innovation are complementary and we need both: exploiting 
   agglomeration and economies of scale is important (ERA) but also diffusion and absorption 
   mechanisms based on regional potential

6. Beyond R&D expenditure and patents: we still do not have the required indicators for properly 
   characterizing regional innovation potential or measure policy impact

7. Matching business demand (as a starting point) with RTD supply is vital

   Microeconomic competitiveness problems can not be efficiently tackled by overdoses of 
   macroeconomic or sector based policies but by integrated, place-based regional policies
Conclusions (3): on the role of the public sector

8. Public sector should provide leadership and vision, rather than control, and catalyze economic development by promoting new ideas and partnerships with the private sector: not “for them but without them”

9. Support schemes must be long lasting, understandable and readily accessible by SMEs

10. **Place-based regional innovation strategies** and action plans integrating multilevel governance (national-regional) and horizontal (inter-ministerial) cooperation are a necessary first step

11. **Grassroots ownership** of innovation strategies are required: consultants are useful but not in the driving seat

12. **Listen** to Regional Development Agencies, Technology Centres, Technology Parks and Incubator managers, Technology Transfer Offices…they are soldiers in the front line

13. Venture capital, business angels, soft loans, guarantees…financial engineering better than grants and tax incentives although need for combination and a wide menu

14. Public procurement (green and innovation driven) is an important tool to consider

15. Innovation policies require risk taking, trial and error and **sound evaluation** on top of deep pockets and long lead times (political consensus a plus)