"Research and innovation strategies for smart specialisation"

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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.

"Until the 1980s, technology and innovation were under recognised influences in the explanation of differences in the rates of economic growth between regions in advanced industrial nations..." (Townroe)
Is the territorial/regional dimension important for innovation?

“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)

“The European Parliament...underlines that interventions targeting research and innovation should capitalise on regional assets and capacities and form part of a regional innovation strategy based on smart innovation...highlights the need for place-based policies and considers that cities and regions should pursue smart and sustainable specialisation…”

(EU Parliament resolution, 2011/C 161 E/16)

“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.
Competitiveness Index, 2010
Index - Values range between 0 (low) and 100 (high)
Climbing the development ladder calls for more innovation in the policy mix

Necessary conditions: Physical Infrastructure & Human Capital

Sufficient conditions: Innovation & entrepreneurship

Extremadura ($R_i$)  Baden-Württemberg ($R_e$)

$P_{mix} = f(NC, SF)$ adapted to each regional context: business culture, institutional setting, sectoral/technology specialisation, firm size, inward investments, etc …
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)
How to go about R&I in less favoured regions?

Innovation business environments in less favoured regions are characterised by:

- Need for identifying latent demand for Innovation in local SMEs (vouchers?),
- Need for international benchmarking (audit and compare) of firms and sector's innovation capacities and lack of a dynamic advanced business services sector,
- Poorly developed financial systems: traditional banking practices v.s. risk or seed capital - Finance for innovation as 'long term intangible (industrial) investments with an associated high financial risk' (Muldur 1992),
- Scarcity of technological intermediaries (role of regional universities?) and understanding the potential of innovation in services (tourism) and ICT.
- Lack of an entrepreneurial culture prone to inter-firm cooperation
- Well established public and private lobbies for public support preventing new policy approaches.
- Specialisation in traditional sectors and predominance of small family firms with weak links to the international market.
- Small markets with unsophisticated demand linked to isolation and peripherality.
- Difficulties in attracting talent, skilled labour and integrate know-how.
- Few large (multinational) firms undertaking R&D with poor links with the local economy.
Cohesion Policy funding for R&I 2007-2013

Cohesion Policy innovation support over total aid:
- 4% in 89’-93’
- 7% in 94’-99’
- 11% in 00’-06’
- 25% in 07’-13’
ERDF Investment priorities 2014-20 (Art. 5)

1). Strengthening research, technological development and innovation:
   - enhancing research and innovation infrastructure (R&I) and capacities to develop R&I excellence and promoting centres of competence, in particular those of European interest;
   - promoting business R&I investment, product and service development, technology transfer, social innovation and public service applications, demand stimulation, networking, clusters and open innovation in SMEs through smart specialisation;
   - supporting technological and applied research, pilot lines, early product validation actions, and advanced manufacturing capabilities and first production in Key Enabling Technologies and diffusion of general purpose technologies;

2). Enhancing access to and use and quality of ICT:
   - extending broadband deployment and the roll-out of high-speed networks;
   - developing ICT products and services, e-commerce and enhancing demand for ICT;
   - strengthening ICT applications for e-government, e-learning, e-inclusion and e-health;

3). Enhancing the competitiveness of SMEs:
   - promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms;
   - developing new business models for SMEs in particular for internationalisation;

In more developed and transition regions, at least 80% of ERDF resources at national level should be allocated to supporting the shift towards a low-carbon economy (energy efficiency and renewables) (20%), R&I and SME competitiveness. These amounts are foreseen at 50% and 6% in less developed regions.
## Thematic ex-ante conditionalities (1)

<table>
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<th>Thematic objectives</th>
<th>Ex ante conditionality</th>
<th>Criteria for fulfilment</th>
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| 1. Strengthening research, technological development and innovation (R&D target) (referred to in Article 9(1) ) | 1.1. Research and innovation: The existence of a national or regional research and innovation strategy for smart specialisation in line with the National Reform Program, to leverage private research and innovation expenditure, which complies with the features of well-performing national or regional research and innovation systems. | A national or regional research and innovation strategy for smart specialisation is in place that:  
- is based on a SWOT analysis to concentrate resources on a limited set of research and innovation priorities;  
- outlines measures to stimulate private RTD investment;  
- contains a monitoring and review system.  
- A Member State has adopted a framework outlining available budgetary resources for research and innovation;  
- A Member State has adopted a multi-annual plan for budgeting and prioritization of investments linked to EU priorities (European Strategy Forum on Research Infrastructures -ESFRI). |
ANNEX I of the Innovation Union Flagship Self assessment tool: Features of well performing national and regional research and innovation systems

- Promoting research and innovation is considered as a key policy instrument to enhance competitiveness and job creation, address major societal challenges and improve quality of life and is communicated as such to the public.

- Design and implementation of research and innovation policies is steered at the highest political level and based on a multi-annual strategy. Policies and instruments are targeted at exploiting current or emerging national/regional strengths within an EU context ("smart specialisation")

- Innovation policy is pursued in a broad sense going beyond technological research and its applications.

- There is adequate and predictable public investment in research and innovation focused in particular on stimulating private investment.

- Excellence is a key criterion for research and education policy

- Education and training systems provide the right mix of skills

- Partnerships between higher education institutes, research centres and business, at regional, national and international level, are actively promoted

- Framework conditions promote business investment in R&D, entrepreneurship and innovation

- Public support to research and innovation in businesses is simple, easy to access, and high quality

- The public sector itself is a driver of innovation
**Figure 2: EU Member States’ Innovation Performance**

Note: Average performance is measured using a composite indicator building on data for 24 indicators going from a lowest possible performance of 0 to a maximum possible performance of 1. Average performance in 2011 reflects performance in 2009/2010 due to a lag in data availability.
R&D expenditure in the business sector as % of GDP
Non-R&D innovation expenditure as % of turnover
Innovation Strategies for Smart Specialisation

An economic transformation agenda based on 4Cs:

1. **(Tough) Choices and Critical mass**: 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. **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 – match what you have with what the rest of the world has

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)*
Definition/Fact Sheet

National/regional research and innovation strategies for smart specialisation are integrated, place-based economic transformation agendas that:

1) Focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development;

2) Build on each country's/region’s strengths, competitive advantages and potential for excellence;

3) Support technological as well as practice-based innovation and aim to stimulate private sector investment;

4) Get stakeholders fully involved and encourage innovation and experimentation;

5) Are evidence-based and include sound monitoring and evaluation systems.

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
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 focussed 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 specialisations.
What is Smart Specialisation?

= evidence-based: all assets
= no top-down decision, but
dynamic/entrepreneurial discovery
process inv. key stakeholders
= global perspective on potential
competitive advantage & potential
for cooperation
= source-in knowledge, & technologies
etc. rather than re-inventing the
wheel

= priority setting in times of scarce
resources
= getting better / excel with something
specific
= focus investments on regional
comparative advantage
= accumulation of critical mass
= not necessarily focus on a single sector,
but cross-fertilisations

“…The elements of economic productivity – strong infrastructure, a skilled workforce, and interrelated networks of firms – come together with smart economic strategy on the regional level to drive prosperity”.

(Guidance on developing place-based policies for the USA FY 2012 Budget)
Steps to research and innovation strategies for smart specialisation (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

- A wide view of innovation, not only RTD-oriented
- Assess existing regional assets
- Identify regional competitive advantage
- Identify econ. differentiation potential, avenues for specialised technological diversification
- Support positioning of companies within international value chains and (niche) markets
- ‘Entrepreneurial discovery’ = tap existing business 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.
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.
Monitoring & Evaluation

- Establishes monitoring and (on-going) evaluation procedures at level of strategy and at level of Action Plan/Programme: assesses direct and indirect impact
- Measurable targets and qualitative and quantitative indicators
- No standard menu: evaluations to be tailored to specific content and context of RIS³
- Measure progress and establish a system of regular reporting to all stakeholders concerned
- Evaluation as a learning process leading to economic transformation towards higher value added activities and internationally competitive firms

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
Assessment questions for RIS3

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?
From a generic innovation eco-system to a smart specialisation strategy

Regional Smart Strategy "Stress Test"

Regional input
- Innovation generic support services
  - R&D-I budget
  - R&D-I infrastructure
  - R&D-I human capital
  - Entrepreneurship culture
  - Administration agility
  - Public procurement capacity and capability
  - Triple helix / Pentahelix
  - Incubators
  - Science parks
  - Cluster policy
  - Equity finance scheme
  - IPR support
  - Regional marketing
  - Regional intelligence (foresight,...)
  - Support for the use of enabling technologies
  - Enterprise clubs
  - Business retention scheme
  - Basic support services
- Place-based specific sector drivers
  - Governance
  - Private R&D-I expenditure
  - HEI-SME clubs
  - FDI investments
  - Sectorial, research, training, technical centres
  - TTO effectiveness
  - Proof of concept scheme
  - Number of researchers & students
  - Added value support services
  - Innovative public procurement
  - Sectorial events
  - Skills & talent needs
  - Offer of vocational training
  - Specialised incubator

Regional output
- Place-based evidence results
  - Volume of early stage equity investments (volume in €)
  - Start-ups (number)
  - Sectorial champions/Gazelles (list of)
  - Patents / Licences purchased (number)
  - New jobs created (number)
- Innovation commercialisation results
  - New products / services / solutions put on the market (number)
  - Growth of the enterprise / cluster turnover (figures)
  - Volume of export (trends)
- Innovation commercialisation results
  - Induced services
Policy Delivery Instruments

Green Growth
Digital agenda
Skills
Clusters
Social Innovation
Cultural and creative industries
Financial engineering
Research infrastructures
Innovation PP
Connecting Universities
Key Enabling Technologies
SMEs Support

Methodological support
Smart Specialisation GUIDE
CP Regulations 2013-20
(COM) “The contribution of Regional Policy to smart Growth”
(COM) “The contribution of Regional Policy to sustainable Growth”
Innovation Union Flagship

Policy Rationale

Innovation Union self-assessment tool
Regional Innovation Monitor
OECD 2011 “Regions and Innovation Policy”
IRE-RIS Guide
Directory “No-Nonsense” to build S3
Diagnostic Systèmes d’Innovation (Praguer)

Economic Rationale

“Knowledge for Growth”
FWP Evaluation
Endogenous Growth
Innovation Systems “Innovative milieux”
Evolutionary Economics
Economic Geography

Policy Experimentation
RIS-RITTs 1994-2004
Competitive Advantage – M-Porter
Industrial districts
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
Innovation & Green Growth are interdependent: two sides of same coin!

- Develop regional strategy/approach to foster green growth through innovation

- Key sectors such as energy efficiency and renewables, eco-innovation, resource efficiency, water, transport, eco-construction, bio-based products…

“A green growth strategy is centred on mutually reinforcing aspects of economic and environmental policy. It takes into account the full value of natural capital as a factor of production and its role in growth […] By pushing the frontier outward, innovation can help to decouple growth from natural capital depletion.”

OECD, Towards Green Growth, May 2011
Innovation for Green Growth

Upcoming Guides by DG REGIO on:
- Green Public Procurement in water infrastructure development
- Carbon Evaluation tool of regional programmes: enable regional authorities to assess the CO2 impacts on investments

Upcoming Guide by DG REGIO on “Innovation for Green Growth”
provide practical guidance on HOW regions can build synergies between innovation & green economy to boost growth, jobs and preserve the environment

The “Enworks” programme, North-West England: eco-innovation in practice
Environmental advice, training and support to SMEs to improve resource efficiency and reduce waste. Good practice exchange and development of synergies with ERDF support.
Over 3600 businesses benefited; 190.000 tonnes of CO2 saved; 3.000.000m2 of water saved; over 700 people developed specific skills

www.enworks.com
Clusters for regional growth

- European Cluster Alliance: [http://www.proinno-europe.eu/project/eca](http://www.proinno-europe.eu/project/eca)

Cluster links over Europe (CLoE, Karlsruhe 2005):

- Pilot project of the Regions for Economic Change initiative - Good mixture of developed and less favoured regions.
- Development of an action plan for each of the 11 regions.
- Sustainable impact on the institutional regional actors in the "cluster scene" + the entrepreneurs who want to go international;
- Transnational contacts between clusters continue after the conclusion of this project, 20 clusters + initiation of many activities under FP7 Regions of Knowledge and CIP programmes.
- Budget: €1.808 million (€800,000 ERDF)

«Approximately 20% of all European Cluster Programmes in the EU were financed by Structural Funds… » (Oxford Research 2008, « Cluster Policy in Europe »)
Cluster Cooperation in Northern Central Sweden: a major “testing lab”

- An answer to a demand by local companies and the result of a bottom-up process. Agents between people and organisations to generate ideas and provide potential for new business opportunities.
- The cluster organisations in Northern Central Sweden: Critical success factors by creating an infrastructure for project development and developing interaction between corporate research and universities.
- ERDF: € 1.302.000

“38% of all European employees work in industries that concentrate regionally – in clusters…The focus of cluster programmes needs to shift from capacity building…towards a clear orientation on excellence, focusing on clusters with the ability to upgrade in the face of global competition and ensuring the consistent provision of public knowledge infrastructure…”

(European Cluster Policy Group – Final recommendations – A call for Policy Action 2010)
Innovation-friendly business environment for SMEs

ifex: Initiative for Start-ups and Business Transfer – Baden-Württemberg, DE (European Enterprise Awards Winner in 2006)

- Online portal for start-up and business transfer policies, giving access to 1,400 providers to tailor-made educational and support services to specific target groups (schools, universities, women, ethnic and minority groups).
- A permanent Unit in the State Ministry of Economic Affairs and managing the nation-wide “German Agency for Women’s Start-ups” on behalf of three federal Ministries.

Units for Intellectual Property Promotion (UIPP) PT, ERDF (2001-2007)

- Bringing the National Patent Office closer to companies and universities. Services to researchers, students and to SMEs for pre-diagnosis of IPR needs.
- Training, awareness activities and seminars, IPR advertising and dissemination, technical assistance and advice by specialists.
- Partnerships network between 2 business associations, 10 universities, 7 technological centres and 3 science and technology parks.
- 2001-2007: the number of hi-tech patent applications to EPO per million inhabitants increased from 0.4 to 7.5 in PT (European Innovation Scoreboard).
“Knowledge Vouchers: Tickets to success”, NL
IRE Award for best European Scheme
Limburg Regional Technology Plan 1997- 08’ ERDF pilot
Pioneering an innovative, hands-on approach to knowledge transfer for SMEs.

- SMEs entitled to a number of consultancy or research days, and allow for visiting large, knowledge providers besides the universities (companies, research and educational institutions).

- Huge impact on the province – improving money flows, solving problems and creating opportunities and boosting cross-border cooperation (NL, BE, DE).

« Policies need to distinguish clearly between a few highly innovative and high growth potential firms and the great majority of SMEs, reflecting the different ways in which they innovate. The different needs can be characterised by a distinction between Science, Technology and Innovation mode of innovation on the one hand, focused on R&D and breakthrough innovation and Doing, Using and Interacting mode of innovation on the other, focused on incremental innovation in the « ordinary » SME. Both must be encouraged » (OECD, 2010)
**Stronger focus on financial engineering**

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<th>ACHIEVE MORE, UK:</th>
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<td>A Joint Venture (Rivers Capital Partners &amp; E-Synergy) to invest M€ 20 in 75 to 100 companies over the next 5 years: € 8.5 M from the ERDF JEREMIE programme</td>
</tr>
<tr>
<td>A high leverage effect: an additional M€ 11 from Angel Investors across the UK.</td>
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<tr>
<td>Approach: evaluation of the variety of funding mechanisms used around the world</td>
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<tr>
<td>Results: a tool which ventures quicker (6 -10 weeks) helps in the selection of ventures that deserve funding to get them early market revenues.</td>
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<tr>
<td>Replication: this model will be followed for the European Creative Industries Alliance and the European Mobile and Mobility Industries Alliance</td>
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Lifelong learning and University-enterprise cooperation


## Innovation Assistant Programme, Lower Austria, AT (2002):

- Encouraged SMEs to include a strategic orientation in their business plans with help from newly graduated students (University of Applied Sciences).
- Until March 2007 the programme funded 52 Innovation Assistants. Average cost for each action: 30,000 € (contributed by ERDF and regional funds).
- 60% of the SMEs a permanent post ‘innovation assistant’ was kept;
- 80% of the SMEs developed one or more new products during the project;
- 70% of the SMEs had increasing turnover based on the innovations;
- A significant number of new firms have grown and reached international markets in 2-3 years;

Results were passed on to 10 other regions through ERIK (ERDF funded network).

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<th>Knowledge Economy Skills Scholarships (KESS), Wales, UK</th>
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Managed by Bangor University on behalf of the HE sector in Wales and part funded by ESF, the Knowledge Economy Skills Scholarships programme (KESS) currently has 302 doctoral and masters level research projects in collaboration with companies across the convergence region of Wales. With its focus on developing higher-level skills in the region and boosting the research and development capacity of businesses, KESS is reaching an international audience both through its company links and the quality of research being undertaken. KESS is helping welsh universities, businesses and students compete on a world stage.

[http://www.higherskillswales.co.uk/kess](http://www.higherskillswales.co.uk/kess)
Key Enabling Technologies (KETs)

KETs: Nanotechnology, Micro and Nanoelectronics, Industrial Biotechnology, Photonics, Advanced Materials and Advanced Manufacturing Systems

“Knowledge and capital intensive technologies associated with high R&D intensity, rapid and integrated innovation cycles, high capital expenditure and highly skilled employment. Their influence is pervasive, enabling process, product and service innovation throughout the economy. They are of systemic relevance, multidisciplinary and trans-sectorial, cutting across many technology areas with a trend towards convergence, technological integration and the potential to induce structural change”.

“…the nation requires a coherent innovation policy to ensure U.S. leadership…Private investment must be complemented by public investment. Key opportunities to overcome market failures include investing in the advancement of new technologies with transformative potential, supporting shared infrastructure and accelerating the manufacturing process through targeted support for new methods and approaches”

“Report to the President on ensuring American leadership in advanced manufacturing” President’s Council of Advisors on Science and Technology, June 2011
Research infrastructure/centres of competence

Smart Guide to Innovation-Based Incubators (IBI) published by DG REGIO/ENTER based on 25 years of incubation experience in the Union

- Business and Innovation Centres for new entrepreneurs and SMEs that intend to develop innovative ideas.

- European Business Network started by the Commission in 1984 and continuously supported by nearly 15 years: 100 BICs created between 1984 and 1998.

- Support services to entrepreneurs, helping them to transform into reality their innovative business ideas, and the delivery of tailored services to existing SMEs, aimed at modernising and innovating them.

“To achieve a sustainable social market economy, a smarter greener economy...the EU needs to provide more attractive framework conditions for innovation and creativity...we need technical support to promote the incubation and growth of small innovative firms…”

Berlin, DE: regional revitalisation through creative industries (2008)

- Kreativ Coaching Centre (KCC) in Berlin, established in 2008 and supported by ERDF;
- Helps emerging entrepreneurs in creative industries by providing individual assistance: experienced coaches, qualified in business administration and creative industries, who offer advice and expertise to young and growing companies to solve their problems in a non-bureaucratic, hands-on way.

Debrecen, HU – Creative Industry Incubator

- The university of Debrecen set up a Creative Industries Incubator in 2009
- Hosted in a former Soviet Army Camp (transformed into a top-notch facility offering offices, attractive operation conditions, access to high-tech equipment).
- By February 2010 85% of space was rented out to young and start-up companies as well as spin-offs from the University at well below market rates
- The incubator proved to be highly popular particularly among high-tech ICT for which it provides a steady flow of knowledge and human resources from the university, which is next door.
Design support for SMEs, De Montfort Univ., East Midlands, UK

- Design support: generation of over 40 commercial products and created over 50 new jobs for regional SMEs over the past 5 years.
- Partnerships with regional design consultancies and universities to meet the needs of SMEs.
- An € 800 000 ERDF grant which provided a 7.5 x return on investment with respect to GVA increase and increasing as more products are brought to market.

The SEE project (‘Sharing Experience Europe – Policy, Innovation, Design’ (ERDF INTERREG IV C))

- A network of 11 organisations sharing knowledge for developing new thinking, disseminating good practice and influencing local, regional and national policies for design and innovation.
- Members from UK, BE, DK, EE, FI, FR, IE, IT, PL, SI, ES and their regional governments committed to exploring improvements in the delivery of innovation, entrepreneurship and design through individual or joint policies

“When the arts are integrated with business and science, they can influence solutions and productivity: Creative design provides a way to add a value to products in niche markets. That value is rooted in the aesthetic or emotional appeal of these products to certain markets, which can create a brand loyalty”.

(‘Unveiling the Creative Economy in Arkansas’ 2009, Regional Technology Strategies Inc.)
Digital agenda


**B3 Regions: Regions for Better Broadband connection:** spreading good practices of the expert partners relating to broadband implementation in disadvantaged areas and share experience with Managing Authorities and ICT agencies willing to implement successful broadband strategies with Structural Fund support.

**IMMODI:** Making the most of good practice in e-Government and e-health, which contribute to the development of mountain and rural areas. Selected examples are presented at technical and regional workshops, detailed in a published guide and discussed with Managing Authorities in order to transfer them into the regional development programmes of participating regions.

**PIKE: Promoting Innovation and the Knowledge Economy:** to improve regional and local Innovation & Knowledge Economy policies through the exchange and transfer of examples of e-Government and Wireless Broadband good practice, and through the integration of these into the development policies of participating regions.
High Speed Broadband roll out in Auvergne 2006-9 (10 M€ ERDF)
- One of the most sparsely populated regions in France, launched the first telecommunications public/private partnership in the country.
- EU funding: EUR 10 million ERDF grant to extend high-speed broadband coverage to all households.
- Goal: extend high-speed broadband coverage to 100% of households. Mission Accomplished: Some 99.6% of lines in Auvergne are now eligible for high-speed broadband through DSL technology, while the other 0.4% have a satellite option.

Computer Literacy Basics for a Lithuanian e-Citizen, 2006-8 (EUR 2,694,534)
- Provides computer literacy training, in line with the objectives established by the national Knowledge Society Council, establish Public Internet Access Points
- Key target groups: people living in remote areas with little access to digital services, in particular in rural regions, the elderly and those with disabilities.
- Private and public partnership with local municipalities made to reach directly persons living in district centres and rural areas.
- Over 50,400 adults have completed the LIA courses - helping to boost the overall competitiveness of Lithuania’s economy by upgrading skills.

“Freedom of location increased thanks to ICTs will emphasize the significance of features of place”.

(Talvitie, J. 2003)
Public Procurement for innovation market pull

East of England pre-commercial procurement for health care innovations

- May 2009: first pre-commercial procurement of an innovative process, material, device, product or service to help meet current health priorities in the region;
- ERDF funded initiative: Up to £100,000 was awarded for winning tenders in a first phase with the potential of further financial assistance to develop and evaluate projects in a second phase.
- The aim is to provide procurement opportunities for innovative health care businesses and bring the benefits of new innovations and technologies to patients.

RAPIDE ERDF Fast Track Network of 12 regions from across the EU

Exploring how the public sector can influence innovation. Lead by the Regional Development Agency of South West England (UK), between 2008-2010 selection and adaptation of:

1. Innovation Voucher Schemes
2. Pre-Commercial Procurement projects (PCP)
3. Business Angel Networks
4. Assessment tool for start-ups in incubators
5. Pitching tool (media-based) to bring innovators to investors

« The public sector constitutes an enormous market accounting up to 16% of GDP…public procurement is potentially one of the most powerful levers for effecting behavioural change amongst its private sector suppliers » Kevin Morgan 2010
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