EUROPEAN COMMISSION

Brussels, 6.10.2010
SEC(2010) 1183

COMMISSION STAFF WORKING DOCUMENT

Document accompanying the Commission Communication on Regional Policy contributing to smart growth in Europe 2020

COM(2010) 553 final

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1. INTRODUCTION

This Commission Working Document tries to provide clear guidance to national and regional governments for optimising the impact of European regional policy funding to inovation with the large amounts still available and align them with the new Europe 2020 vision. In order to do so the Commission wants to raise the awareness of Managing Authorities of new thinking regarding innovation support, including new opportunities and ways of maximising synergies across all Community Funds for innovation.

It complements and gives further insight on the topics raised in the Communication on "Regional Policy contributing to smart growth in Europe 2020" and includes the most relevant concepts and policy tools to support the implementation of the "Innovation Union" flagship initiative, particularly its regional dimension.

In this sense, it describes how synergies are being developed at Community level amongst Commission departments, groups of Member States responsible for various innovation programmes and High Level Groups of experts to build consistency and critical mass for the purpose of delivering innovation on the ground.

Such concerted efforts are equally needed in each Member State to realise the capacity to deliver results and to benefit from the creative and innovative potential that European cooperation can offer.

This Commission Working Document includes further explanations on the concept of smart specialisation strategies, advanced in the Barca Report[1] and in the report 'The role of Community Research Policy in the Knowledge-Based Economy'[2]. Both reports have endorsed a recommendation to European Regional Policy to reinforce its strategic approach and capacity to bring innovation into the regions. This concept, which is also supported by the European Parliament in its resolution of 20 May 2010[3] and has been avanced by many regions, will be translated operationally through appropiate mechanisms as proposed in the Communication.

It also introduces a synthetic indicator aimed at measuring the innovation potential of regional diversity to illustrate the need for regions to use different policy-mixes and to establish territorial cooperation to realise smart growth.

Finally, the last section provides a detailed explanation of how estimates for innovation, business support and ICT investment through the European Regional Development Fund (ERDF) and the European Social Fund (ESF) are estimated.

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1 'An Agenda for a reformed Cohesion Policy' by Professor Fabrizio Barca, June 2009, http://ec.europa.eu/regional_policy/policy/future/seminars/barca_sem_220609_en.htm

2 Produced by the Expert Group on the ERA (European Research Area), chaired by Professor Luc Soete, in November 2009, http://www.kowi.de/Portaldata/2/Resources/fp/Report-Expert-Group-Role-CRP-in-KbE.pdf.

3 European Parliament P7_TA(2010)0189 - Resolution of 20 May 2010 on the implementation of the synergies of research and innovation earmarked Funds in Regulation (EC) No 1080/2006 concerning the European Fund of Regional Development and the Seventh Framework Programme for Research and Development in cities and regions as well as in the Member States and the Union

2. NEW OPPORTUNITIES FOR REGIONAL INNOVATION

2.1. Innovation Clusters for regional growth

2.1.1. The role of clusters in regional growth

Becattini raised the issue of the importance of place-based economic development with the notion of external economies that changed the approach to industrial policy.[4] The prominence of location as a major determinant of competitiveness was further stressed by Porter in his seminal work on the notion of competitive advantage[5] underlining the importance of clusters, so acknowledging that the business environment outside companies plays a vital role for unleashing corporate growth potential and enhancing regional competitiveness. Clusters are 'geographic agglomerations of companies, suppliers, service providers, and associated institutions in a particular field, linked to externalities and complementarities of various types'[6]. The concept of clusters and cluster policies and their role in competitiveness and innovation has been further described in detail in a 2008 Commission Staff Working Document.[7]

As stressed in the Europe 2020 strategy, clusters are an important tool for improving the business environment, especially for SMEs and are explicitly highlighted under the new Flagship Initiative "An industrial policy for the globalisation era". Cluster initiatives can be the bridge towards a modern industrial policy and facilitate the change towards regional competitiveness, based on the upgrading of traditional economic activities through innovation while facilitating the emergence of new products, processes and services which are competitive on the global market. Clusters are an important component of regional smart specialisation strategies,[8] since they offer policymakers the opportunity to better streamline different policies towards the objective of stimulating growth through innovation.[9]

Cluster initiatives offer 'policymakers the possibility of addressing business demand collectively and ensuring a cost-efficient way to address a critical mass of recipients with a substantial policy impact through public-private partnership'.[10] In the US as well as in Europe, cluster initiatives are usually initiated by local and regional stakeholders that know best their own competitive advantage in the region and have privileged contacts with the regional business community and academia.[11] In addition, clusters can provide a fertile combination of

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4 Becattini, G, 1979: "Dal settore industriale al distretto industriale". Rivista di Economica e Politica Industriale, 5 (1)

5 Porter, M., 1998: "Clusters and the New Economics of Competition". Harvard Business Review

6 Porter, M., 1990: "The Competitive Advantage of Nations". New York: The Free Press and London: Macmillan

7 European Commission (2008) "The concept of clusters and cluster policies and their role for competitiveness and innovation: Main Statistical results and lessons learned", Commission Staff Working Document SEC (2008)2637 that was annexed to the Commission Communication COM (2008)652 final of 17.10.2008 entitled "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy in the EU". Both documents are available at http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/

8 "European Cluster Memorandum": 6

9 European Commission SEC 2008 (2637): Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy: 31

10 Landabaso, Mikel, Rosenfeld, Stuart. 2009: "Public policies for industrial districts and clusters" in Becattini Giacomo, Bellandi Marco, De Propris Lisa (eds) 2009, A Handbook of Industrial Districts, Edward Elger, Nottingham: 744

11 Sallet Jonathan, Paisley Ed, Mastermann Justin, 2009: "The Geography of Innovation. The Federal Government and the Growth of Regional Innovation Clusters", Science Progress: 6 and OECD, 2009: "Regions Matter – Economic Recovery, Innovation and Sustainable Growth", Paris: 12

entrepreneurial dynamism and contribute to the building of a knowledge-based economy, in line with the Europe 2020 strategy.[12]

To have an impact on regional growth, clusters should build on local strengths, help to create synergies between businesses, universities and research entities and respond to market opportunities. The facilitation of interaction among stakeholders in a cluster is vital for its innovation impact,[13] since intangible factors[14], such as access to tacit knowledge and opportunities for networking, become more important assets than those associated with proximity of suppliers[15]. The market alone does not always appear to maximise this potential. Therefore, public policy initiatives have a facilitating role to play[16] as acknowledged by company managers working in a cluster-like environment.[17] Bodies, such as cluster organisations that manage cluster initiatives should assess their results, analyse their impacts and bottlenecks and report these to public authorities.

Moreover, clusters offer a fertile environment for SMEs to innovate and develop linkages with large companies and international partners.[18] It is widely acknowledged that cluster initiatives help to 'glue' Multinational Companies (MNCs) and SMEs, and root them to the regions through the favourable "local collective competition goods"[19] created in cluster environments. Clusters can speed the transfer of technology and, when MNCs relocate, to help to keep and develop it in the region. In lagging and rural regions especially, clusters are therefore a useful tool for local development policies.[20] Accordingly, clusters can be an important policy tool for regional development, as long as they foster and build on regional strengths, while maintaining global connections and openness to new knowledge and change.

As part of their on-going efforts to further boost competitiveness, research and innovation in their region, managing authorities for European regional policy should continue to support cluster initiatives, particularly those which have been proved to make efficient use of public support or those clusters which have a real potential to become clusters of excellence and so more competitive in international markets. Key areas that could be supported in this case include internationalisation of cluster firms, commercialisation of R&D results, cooperation activities across sectors, specialised training of the workforce, marketing activities, and integration of new concepts such as open innovation. Cluster organisations play a key role not only by representing and managing the cluster, but also by providing specialised business and innovation support services to the firms in the cluster. Furthermore, they act as a bridge when it comes to transnational cooperation by facilitating transnational cooperation between the firms in the cluster and other innovation actors.

Managing authorities should continue to use clusters as building blocks for new regional strategies to revitalise rural areas and contribute to regional cohesion, and to address emerging areas which have a high economic potential for their regions. However, the selection of new cluster initiatives should be built upon a detailed analysis of existing strengths, assets and

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12 European Commission SEC (2008) 2637

13 OECD, 2007: "Competitive Regional Clusters", OECD Reviews of Regional Innovation: 32

14 IAREG, 2010: "Intangible Assets and Regional Economic Growth", Policy Guide, FP7 Collaborative Research Project 216813.

15 Rosenfeld, Stuart. 2009: "Generating Local Wealth, Opportunity, and Sustainability through Rural Clusters", Volume 1, March 2009: 30

16 OECD, 2009: "Regions Matter – Economic Recovery, Innovation and Sustainable Growth": 14

17 European Commission, SEC (2008) 2637 : 34

18 OECD, 2009: "Regions Matter – Economic Recovery, Innovation and Sustainable Growth": 55

19 Sallet, Paisley, Mastermann, 2009: 10

20 Rosenfeld, Stuart, 2009: "Generating Local Wealth, Opportunity, and Sustainability through Rural Clusters", Volume I, March 2009: 21.

potential of the region. Recent studies such as those developed by the European Cluster Observatory[21] are useful for this purpose.

The importance of clusters for synergetic growth has been stressed by the Community Strategic Guidelines on Cohesion (CSGs) for the period 2007-2013, explicitly encouraging Member States and regions to promote strong clusters, as a means of cooperation among businesses and between businesses and public research / tertiary education institutions – a knowledge triangle in their economic reform strategies.

2.1.2. The need to support clusters

The ERDF Regulation for 2007-2013 includes explicit support to business networks, public-private partnerships and clusters. In this context, from the € 86bn of Cohesion Policy funds allocated to innovation in the EU-27 for the period 2007-2013 considerable amounts will go to supporting cluster initiatives and the related infrastructure. The ERDF has proved to be a good vehicle to support the framework conditions and develop projects that address ´grass roots´ problems and opportunities.[22]

The revised EU Community Framework for State aid for Research and Development and Innovation also recognises the potential usefulness of public support by allowing certain targeted support measures for cluster development[23].

In particular, the Commission recommends that Operational Programmes for innovation should focus on activities where regions have a comparative advantage,[24] on infrastructure such as science parks and incubators[25] as well as networking activities needed to create the links between regional authorities, businesses and universities.

Corallia – The Hellenic Technology Clusters Initiative, a RegioStar 2009 finalist

Corallia, provides support for the development of state-of-the-art, industry-driven innovation clusters, and acts as a hub for industry, research centres and venture capitalists involved in innovation activity.

The project has yielded tangible results through the establishment and operation of the 'mi-Cluster' in Microelectronics and Embedded Systems and has led to a notable increase in annual turnover, exports, patent applications and new jobs. Mi-cluster company-members have strengthened the production value-chain of the ecosystem and have increased involvement in joint research efforts. The cluster actively cooperates with other cluster initiatives in the EU, such as the Foundation Sophia-Antipolis.

ERDF co-funding of EUR 3.289 million;

More information: http://www.corallia.org/el.html

Cohesion Policy also provides an important impetus in supporting transnational and cross-border cooperation between clusters[26] as mutual policy learning helps to advance faster and readjust cluster policies towards new emerging needs and challenges.[27] This is crucial to help them to become the world class clusters that Europe needs.

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21 http://www.clusterobservatory.eu/index.php?id=1&article=25

22 Technopolis Group, 2008: "Analysing ERDF co-financed innovative projects", April 2008: 18

23 Official Journal of the European Union, 30.12.2006: "Community Framework doe State Aid fro Research and Development and Innovation – Aid for innovation Clusters" pp.18.

24 European Commission, SEC (2008) 2637 : 33

25 European Commission, "Smart Guide on Innovation-Based Incubators" http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/innovation_incubator.pdf

26 European Commission, SEC (2008) 2637: 40

27 European Commission, , SEC (2008) 2637: 36

Medicon Valley Alliance, as part of the Øresund science region (RegioStars Winner 2008 in the cluster category)

Following completion of the new bridge linking Sweden and Denmark in 2000, with the financial support of Cohesion Policy, a development opportunity arose in the Øresund region. The Medicon Valley Alliance – a network of firms, universities, hospitals and public authorities and the Øresund Science Region capitalised on existing links between the area's universities and the biomedical sector.

As a result the Øresund region is now one of the leading biomedical regions in Europe and today accounts for 60% of all Scandinavian life science exports. Even more impressive, it is now one of the top 10 EU regions for biotechnology and applied microbiology, immunology and oncology.

More information: http://showcase.homesandcommunities.co.uk/case-study/medicon-valley-alliance-denmarksweden.html

2.1.3. Synergies around clusters

In particular, with the Regions for Economic Change Initiative[28] the Commission assists trans-national networks of regions in their efforts to improve their regional innovation systems, in which cluster policies may play a prominent role. It encompasses communication activities such as a web site, a database of case studies and the RegioStars Awards scheme (with CityStars categories). In 2011, the RegioStars awards will also be conferred to Networking and Cluster initiatives supporting regional growth and SMEs access to markets. The initiative aims to promote mutual policy learning and to highlight examples of good practices in programmes co-funded by EU Cohesion Policy.

In addition, regional policy makers are encouraged to use complementary Community-funding instruments for fostering excellence at regional, national and EU-level with the aim of developing more world-class clusters in the EU, as has been outlined in the Communication "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy",[29] and further analysed in the accompanying Staff Working Document[30]. The big leverage potential of scientific research expenditure by clusters is widely acknowledged both by EU and US academics, better delivering on the promise of more jobs, new businesses and transformative technologies.[31]

Under the Competitiveness and Innovation Framework Programme (CIP), several instruments have been set up to support cluster excellence. The European Cluster Alliance[32] fosters cooperation and mutual learning aimed at developing better cluster policies in the EU. It is an open cooperation platform that currently brings together more than 70 regional and national ministries and innovation agencies in charge of cluster policies. The European Innovation Platform for Clusters[33] facilitates transnational cooperation between cluster organisations in view of developing and testing new or better innovation support tools for cluster firms. Two partnerships have been established: for eco-innovative industries (EcoCluP) and for the biotechnology sector (ABCEurope). The European Cluster Excellence Initiative[34] is developing Europe-wide standards for cluster management in order to accelerate the

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28 http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/index_en.cfm

29 European Commission, COM (2008) 652: "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy"

30 European Commission, SEC (2008) 2637

31 Sallet, Paisley, Mastermann, 2009: 7

32 http://www.proinno-europe.eu/eca

33 http://www.europe-innova.eu/cluster-ip

34 http://www.cluster-excellence.eu/

professionalisation of cluster organisations. Finally, the European Cluster Observatory[35] provides information and analysis on clusters in Europe. In particular, it provides analysis and a mapping of cluster strengths for 38 sectors across EU regions using a common methodology based on employment statistics. Furthermore, an open "European Cluster Cooperation Forum" will be established under the European Cluster Observatory by 2011. Building upon the policy cooperation of the European Cluster Alliance and taking into account the discussions of the informal Competitiveness Council of July 2010, this measure will allow policy makers to share experience on cluster policies and evaluation practices from national and regional initiatives.

Under the 7th Framework Programme for Research and Development (FP7), the "Regions of Knowledge"[36] programme focuses on supporting transnational cooperation between regional research-driven clusters, comprising the 'triple helix' of research entities, businesses and public authorities, with a view to designing Joint Action Plans and fostering future cooperation between EU clusters[37].

At EU level, interaction between different EU initiatives should be strengthened. For instance, public authorities involved in INTERREG and "Regions of Knowledge" projects should be encouraged to become active members of the European Cluster Alliance to benefit from the policy dialogue carried out at EU level. In addition, cluster managers in such projects should be invited to participate in the European Club of Cluster Managers[38] aimed at discussing problems and solutions of mutual interest.

The forthcoming recommendations of the high level European Cluster Policy Group[39] as well as the Group of experts[40] working on "Synergies between FP7, the Structural Funds and CIP" which was recently established under FP7 will provide further suggestions for action on how to better exploit synergies between EU policy instruments so as to increase their impact to develop more world-class clusters in the EU.

2.2. Constructing innovation friendly business environments for SMEs

2.2.1. The crucial importance of entrepreneurship and SMEs and the role of Cohesion Policy

As stressed in the Europe 2020 strategy, entrepreneurship is necessary to ensure "that innovative ideas can be turned into new products and services that create growth, quality jobs and help address European and global societal challenges". Moreover, an environment in which small and medium-sized enterprises (SMEs)[41] can prosper is crucial to achieve the smart, sustainable and inclusive growth that we are aiming for and will be promoted by several of the EU 2020 strategy's flagship initiatives.

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35 www.clusterobservatory.eu

36 http://ec.europa.eu/research/fp7/index_en.cfm?pg=know

37 http://cordis.europa.eu/fp7/capacities/regions-knowledge_en.html

38 Organised as part of the European Cluster Excellence initiative http://www.cluster-excellence.eu/

39 http://www.proinno-europe.eu/project/ecpg

40 ftp://ftp.cordis.europa.eu/pub/fp7/docs/wp/capacities/regions/q_wp_201001_en.pdf

41 Companies classified as SMEs are defined officially by the EU as those with fewer than 250 employees and which are independent from larger companies. Furthermore, their annual turnover may not exceed €50 million, or their annual balance sheet exceed €43 million. SMEs may be divided into three categories according to their size: micro-enterprises have fewer than 10 employees, small enterprises have between 10 and 49 employees, and medium-sized enterprises have between 50 and 249 employees. See http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm

Entrepreneurship is a major driver of innovation, competitiveness and growth. Due to their strong presence in key sectors such as services and knowledge-based activities, smaller enterprises and the entrepreneurs who manage them play a central role in the EU economy.

The EU non-financial business economy counts over 20 million enterprises. More than 99% of those businesses are SMEs. They provide two thirds of the private sector jobs and contribute to more than half of the total value-added created by businesses in the EU. Nine out of ten SMEs are micro enterprises with less than ten employees. Hence, the mainstay of Europe's economy is micro firms, each providing work for two poeple on average.

Between 2002 and 2008, the number of SMEs increased by 2.4 million (13%), while the number of large enterprises only increased by 2,000 (5%). The new Member States show higher birth and death rates of enterprises than the old Member States. Most new firms are created in the service sector and are micro enterprises. The contribution of SMEs to employment growth between 2002 and 2008 (83%) was much larger than could be expected from their share in total employment (67%). However, with the onset of the financial and economic crisis in 2008, there is evidence that the above cited positive developments have, at least temporarily, come to a halt.[42]

In a globalising economy, with large incumbent firms outsourcing and off-shoring production and jobs to low cost locations, SMEs are an important source of job creation in the EU as well as a means to consolidate existing jobs in the regions where they are located. According to a Eurobarometer survey conducted in summer 2009[43] innovative companies were more likely to declare an average annualised growth of more than 20% over the preceding three years (25% as against 14% for non-innovative companies). In other words, innovative companies were more likely to be high-growth companies.

More and more, "soft companies"[44] and universities are providing tailor-made R&D based services through technical consulting and co-development with businesses in close consultation with clients and suppliers.

Member States have committed themselves to implementing alongside the European Commission the Small Business Act for Europe (SBA),[45] which is a unique and comprehensive framework. It includes the “SME Test” at European[46] and national level. Its objective is to verify to what extent regulatory and policy proposals affect small businesses and adapt these measures to make them more SME friendly. The “SME test” is complemented by the “business panels” of the Enterprise Europe Network which convey the opinion of SMEs on forthcoming EU legislation impacting on them.

To make business environment friendlier, both for existing SMEs and for prospective entrepreneurs, the Commission in cooperation with the Member States is facilitating the

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42 SME Performance Review. Annual Report 2009. See http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/pdf/dgentr_annual_report2010_100511.pdf

43 Flash Eurobarometer No 271, "Access to finance", Analytical report, September 2009, http://ec.europa.eu/enterprise/policies/finance/files/survey_access_to_finance_analytical_report_en.pdf

44 "Exploding the Myths of UK Innovation Policy: How ‘Soft Companies’ and R&D Contracts for Customers Drive the Growth of the Hi-Tech Economy", January 2010. David Connell, Jocelyn Probert. Centre for Business Research, University of Cambridge.

45 See http://ec.europa.eu/enterprise/policies/sme/small-business-act/

46 See http://ec.europa.eu/enterprise/policies/sme/small-business-act/sme-test/index_en.htm

identification and exchange of good SME policy measures, as evidenced by the SBA Database of Good practices.[47]

Innovation processes in crafts and SMES[48] are characterised by on-going permanent processes and less technical-driven inventions. In most of them this involves using available technologies in new ways; based on the experience and knowledge of staff, long lasting, costumer and supplier relations and existing networks and clusters.[49] The value added of Cohesion Policy to them is mainly the accessible support it offers, based on proximity, innovation business services and opportunities for technology transfer.

SMEs, and especially micro-enterprises, are heavily dependent on their regional environment where proximity plays a key role, in particular regarding tacit knowledge for innovation. SMEs need policy support in tapping into the necessary outside resources, principally access to knowledge, in the form of advice through innovation support services and tailored counselling, technology or qualified human capital, to face up to the new forms of competition that are developing in the global economy. EU policy support to innovation-friendly business environments is needed through appropriate place-based policies[50] and smart regional specialisation.

Units for Intellectual Property Promotion (UIPP), Portugal

The Portuguese Institute of Industrial Property (INPI) launched an ERDF co-funded project (2001-2007), the UIPP Project, which was aimed at bringing the National Patent Office closer to companies and universities. It provided services to researchers and students as well as to SMEs for pre-diagnosis of IPR needs.

Eligible costs included training, awareness activities and seminars, IPR advertising and dissemination, technical assistance and advice by specialists. UIPP promoted partnerships and established a network between 2 business associations, 10 universities, 7 technological centres and 3 science and technology parks.

Between 2001 and 2007, the number of hi-tech patent applications to the EPO per million inhabitants increased from 0.4 to 7.5 in Portugal (European Innovation Scoreboard).

More information: http://www.innovaccess.eu/documents/20081211brussels/11-Dinis.pdf

http://www.proinno-europe.eu/metrics

SMEs are accordingly at the core of Cohesion Policy, which is aimed primarily at creating jobs and raising productivity by making regions and businesses more competitive. A thriving SME sector is not only essential for growth, job creation and innovation but also for social and economic cohesion. For the period 2007-2013, the Community Strategic Guidelines on Cohesion[51] emphasize the key role of SMEs, notably when it comes to increasing and improving their investment in R&TD, facilitating innovation and promoting entrepreneurship. Cohesion Policy in fact provides the largest financial Community support to SMEs, including through financial engineering instruments such as JEREMIE.

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47 http://ec.europa.eu/enterprise/policies/sme/best-practices/database/SBA/index.cfm?fuseaction=welcome.detail

48 Innovation policy at regional level: Crafts and SME priorities for the new Innovation Strategy – Discussion paper from UEAPME secretariat (3 June 2010).

49 Ibidem.

50 See "An Agenda for a reformed Cohesion Policy – A place-based approach to meeting European Union challenges and expectations", Fabrizio Barca, April 2009, http://ec.europa.eu/regional_policy/policy/future/barca_en.htm

51 See http://ec.europa.eu/regional_policy/sources/docoffic/2007/osc/l_29120061021en00110032.pdf

Support and activities of Cohesion Policy targeted to SMEs are not just about funding but also about innovative governance and strategies. Cohesion Policy can provide an integrated approach to address the needs of SMEs. It covers all phases of business creation and development. This is particularly important when it comes to ensuring that newly created businesses become dynamic and sustainable. Cohesion Policy programmes bring funding closer to the real concerns of SMEs through partnerships.

All actors, including businesses and their organisations should participate in the planning and monitoring process. In global competitive markets, SMEs need to anticipate new developments and Cohesion Policy can help them to adapt to structural and industrial change and to diversify both their product range and client base. Cohesion Policy is used by many Managing Authorities to improve the competitiveness of SMEs, in part through promoting tailor-made packages for networking and cooperation.

This support often provides the initial platform for an increased number of SMEs to access the FP7 or the CIP.

2.2.2. Promoting entrepreneurial attitudes and innovative mindsets

Small businesses depend on entrepreneurs – the individuals who have the ideas and are willing to take the risks necessary to get firms off the ground. According to a Eurobarometer survey on entrepreneurship, conducted in December 2009,[52] the preference for self-employment is lower in Europe than in, for example, the US. 45% of all Europeans would like to be self-employed compared to 55% of Americans. In Slovakia, Belgium, Denmark, the Czech Republic and Sweden only one third of the population or less declares an interest in being an entrepreneur.

The important role of early entrepreneurship education was stressed again in the Europe 2020 strategy, pointing out that Member States will need to focus school curricula on creativity, innovation and entrepreneurship. In some Member States, entrepreneurship is already included in the national curricula for secondary school and is an objective in their education systems.

The Commission has outlined a set of recommendations aimed at enhancing the role of education in creating a more entrepreneurial culture in European societies.[53] Starting from an early age, education should stimulate young people's awareness of entrepreneurship as an option for their future, and help them to be more creative and self-confident in whatever they undertake. At a later stage, universities and technical institutes should integrate entrepreneurship as an important part of the curriculum.

In 2007, the Commission published the "Oslo Agenda for Entrepreneurship Education in Europe"[54] conceived as a menu from which all stakeholders can pick actions at the appropriate level. Efforts currently focus on increasing coordination between different actors so as to develop more systematic strategies at national and regional level. A progression model has been designed to help Member States and stakeholders to develop policy in the area of entrepreneurship education.[55]

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52 Flash Eurobarometer No 283 "Entrepreneurship in the EU and beyond", Analytical report, http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/eurobarometer/index_en.htm

53 Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning, COM(2006) 33 final, 13.2.2006.

54 http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/policy-framework/index_en.htm

55 Recommendation of the European Parliament and of the Council, of 18 December 2006, on key competences for lifelong learning, Official Journal L 394 of 30.12.2006

A sense of initiative and entrepreneurship is also defined as one of the eight key competences in the European Framework for Key Competences for Lifelong Learning.[56] It involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. These are obviously important competences even for people who finally do not opt to set up their own businesses, which will, for example, allow them to develop innovative ideas in the companies or organisations in which they are employed. The 2010 Joint Education Report[57] indicated that there is an increasing number of examples of promoting entrepreneurship through partnerships with enterprises or the development of student-run mini-businesses.

'Developing Entrepreneurship Studies' – Estonia

This project was run, with financial support from the European Social Fund, by the Foundation 'Innove' and partners (six vocational schools and the Estonian Chamber of Commerce and Industry) between September 2005 and August 2008.

It resulted in the development of three new entrepreneurship modules which can be adapted to different vocational education and trining curricula:

- a 40-hour basic module, targeting students in vocational schools following basic education;

- a 40-hour entrepreneurship module for students in post-secondary vocational education;

- an 80-hour Optional module: Evaluation of Business Performance and Managing Entrepreneurial Challenges for students in vocational secondary education.

In addition, CIP funded campaigns such as the European SME Week[58] have been launched by the Commission to promote the image of entrepreneurship. The European Enterprise Awards[59] have also been organised since 2006 to identify and reward excellence among public authorities in promoting entrepreneurship and small business at national, regional and local level. Every year, more than 300 initiatives in each of the participating countries (the Member States and Norway) compete in the national rounds of the competition. A high-level European jury selects the best entries. It is a fact that almost half of the intiatives that have been shortlisted for the awards so far have been co-financed by Cohesion Policy funds.

ifex: Initiative for Start-ups and Business Transfer – Baden-Württemberg, Germany, a European Enterprise Awards Winner in 2006.

Via its online portal, ifex is a one-stop agency for information on start-up and business transfer policies, giving access to a large network of over 1,400 support service providers. It provides tailor-made educational and support services to specific target groups, including schools, universities, women, ethnic and minority groups.

Due to the success of the project, ifex became a permanent Unit in the State Ministry of Economic Affairs and also manages the nation-wide "German Agency for Women's Start-ups" on behalf of three federal Ministries.

ifex has demonstrated over the past 12 years how to build an innovative and successful regional support infrastructure, in cooperation with all regional support service providers and in spite of shrinking public budgets. Its support measures have already been successfully transferred to other German and European regions with impressive results.

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56 Ibidem.

57 http://ec.europa.eu/education/lifelong-learning-policy/doc1532_en.htm

58 http://ec.europa.eu/enterprise/policies/entrepreneurship/sme-week/index_en.htm

59 http://ec.europa.eu/enterprise/policies/sme/best-practices/european-enterprise-awards/index_en.htm

Since 2009, the exchange programme for entrepreneurs, Erasmus for Young Entrepreneurs[60] is aimed at fostering the entreprenurial spirit in the EU, creating new enterprises and helping to internationalise the existing ones, via the exchange of experience and knowledge between experienced and new entrepreneurs. By May 2010, 2,200 entrepreneurs had been registered and 190 exchanges completed.

2.2.3. Improving the business environment: Starting, running and growing an innovative business

New knowledge and new ideas are created every day across Europe. Transferring them into real innovation - a new economic activity that creates jobs and wealth - is facilitated by supporting those that have been inspired by new ideas and knowledge.

Promoting business incubators and growth of small innovative businesses is singled out in the Europe 2020 strategy as a way of creating growth through knowledge. Given the huge diversity of regions across the EU and the great complexity of innovation processes Regional Policy has an important role here. Based on the lessons learned from over the past 25 years, in particular through the BIC Network,[61] the Commission has published a Smart Guide on Innovation-Based Incubators.[62] An innovation-based incubator is a business development centre for new entrepreneurs and SMEs that intend to develop innovative ideas.The aim of the guide is to give local stakeholders in a region, including the Managing Authorities of Cohesion Policy funds, an insight into the scope for innovation-based incubators and the steps needed to set up successful ones.

Innovatum Technology Park – Västra Götaland Region, Sweden

The ERDF-supported Innovatum Technology Park is a development centre packed with research projects and inspirational activities. It consists of a science centre, a project arena and an incubator, which is conducive for innovative ideas in its three areas of focus: production technology, clean technology and creative industry. Innovatum provides a network of professional advisors, access to external financing and guidance on managing a business to entrepreneurs. Since 2003, more than 40 companies have developed and several of them are now working with international brands in global markets.

Incubator Technology Centre – Wrocław, Dolnośląskie, Poland

The gap between high levels of scientific potential and low levels of innovation in business is being bridged in the Lower Silesia region of Poland by the Incubator Technology Centre, which provides a place for businesses to interact with the academic community in the form of the University of Wrocław, the Wrocław University of Technology, and the Wrocław University of Environmental and Life Sciences.

ERDF contribution: EUR 3 917 000

The Enterprise Europe Network[63] partners provide business partnering services for technology development and knowledge transfer as well as for market access abroad, they

60 http://www.erasmus-entrepreneurs.eu/

61 The European Business and Innovation Centres (BICs) are support organisations for entrepreneurs and innovative SMEs. The first BICs were created in 1984, co-funded by the ERDF as 'Innovative Actions'. The today more than 200 BICs are coordinated and supported by the European Business and Innovation Centre Network (EBN), http://www.ebn.be/.

62 The Smart Guide to Innovation-Based Incubators (IBI)", http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/innovation_incubator.pdf/.

63 http://www.enterprise-europe-network.ec.europa.eu/index_en.htm

provide information, feedback and tailor made advice for business, including on innovation and technology transfer, and it practically encourage SMEs to participate in EU funding programmes. An increasing number of centres back up other innovation support providers, including private consulting SMEs and public-private initiatives, in raising the quality of their services by encouraging the take-up of results from European pilot actions. This vast pool of expertise brings together 577 business support organisations (including chambers of commerce and industry, technology transfer centres, research institutes and regional development agencies) from 45 countries, and helps SMEs on a daily basis to seize the unparalleled business opportunities in the Single Market.

While the creation of a company is always a challenge, the decision taken by an entrepreneur to go crossborder is even more so. The first difficulty is to find relevant and helpful information presented in a user friendly way. The Commission, with the support of the national administrations, has launched the "Your Europe portal"[64] an online practical guide explaining each step of the process and the specific rules and procedures to be followed for doing business in another Member State.

XPER- REGIO: European Enterprise Award in 2007

21 Lower Bavarian Municipalities got together in a strategic alliance to support entrepreneurship in small rural areas with EUR 3 million support from the ERDF, which led to total private and public expenditure of EUR 13.2 million in the region. The result was the creation of 170 new firms and 400 jobs.

2.2.4. More focus on financial engineering support

The studies conducted for the ex-post evaluation[65] of Cohesion Policy show that there is a role for non-repayable grants as well as for the various forms of financial engineering, including loans and venture capital. Currently, grants are by far the most common financial instrument for business support. Loans are widespread but account for a small proportion of total assistance, venture capital is confined to a few regions (mainly in the UK or in Germany). They also show that there is a role for both "direct" financial grants and "indirect" support in kind (for example networking, clustering, innovation systems) and a tailored package of combined support can be more efficient than support through a instrument.

Small businesses often have difficulties financing their growth and innovations. The Commission is working with the Member States to stimulate the provision of loans and venture capital for SMEs. Getting an innovative firm off the ground and expanding it requires money, but financing SMEs is a risky proposition. To solve this, Europe needs more investors and banks willing to take the risk, and European entrepreneurs need a better understanding of the concerns of investors and banks in order to be able to provide assurances about the soundness of their proposal. The Commission has organised a series of workshops[66] and developed self-assessment on-line tools for business plans and investor readiness.[67]

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64 http://ec.europa.eu/youreurope

65 Over 67,000 SMEs received support under the 'Supporting business development programme, leading to the creation of nearly 200,000' jobs and 'Investing in research and innovation lerd to almost 38,000 R&D projects receiving support with the creation of over 13,000 new long term research jobs' http://ec.europa.eu/regional_policy/policy/impact/index_en.htm.

66 http://ec.europa.eu/enterprise/newsroom/cf/itemlongdetail.cfm?item_id=2069&tpa_id=127&lang=en

67 http://ec.europa.eu/enterprise/policies/innovation/support/eu-support-for-innovation/index_en.htm#h2-support-services-for-innovators

Financial engineering in Cohesion Policy offers Member States, through their national and regional Managing Authorities, the opportunity to use part of their Cohesion Policy allocation of funding to indirectly finance SMEs, through financial intermediaries. The intermediaries leverage public money with their own funding to support SMEs through equity, loans and guarantees. Resources invested in SMEs and repaid by them need to be reinvested by Member States or by the regions, again for the benefit of SMEs. In this way it is possible to create, by the end of 2015, a sustainable legacy of several billion EUR to be invested in a revolving manner for the benefit of SMEs and start ups.

JEREMIE, Joint European Resources for Micro-to medium Enterprises,[68] is the joint initiative of the Commission with the European Investment Fund (EIF) designed to increase the use of financial engineering instruments within the framework of cohesion policy, to improve access to finance for SMEs expansion and investment in innovation, as well as for financing new business creation. JEREMIE Holding Fund agreements signed so far, in 15 Member States (EL, FR, ES, IT, UK, PL, RO, BG, HU, SK, LV, LT, CY, MT, SL), either at national or regional level, provide for a total amount of some EUR 3.1 billion (2/3 is managed by national or regional financial institutions acting as holding funds; remaining 1/3 by EIF). The JEREMIE Networking Platform[69] was launched in March 2009 as a tool for Managing Authorities and other institutions to promote the exchange of information, experience and good practice about the initiative and financial engineering for SMEs in general, and to facilitate the practical implementation of JEREMIE.

There are also many financial engineering instruments for SMEs implemented without holding funds in other regions, e.g. Scotland (UK), Toscana, Emilia Romagna, Lazio, Veneto, Molise, Sardegna, Piemonte (IT).

Through the financial instruments of CIP, the Commission is making it easier for SMEs to get loans from banks, by providing guarantees. It is also facilitating venture capital investment in SMEs. These financial instruments are managed by the European Investment Fund (EIF) and the funds are allocated through banks and other financial institutions. More than EUR 1 billion has been earmarked for this purpose for the period 2007-2013. This amount will enable financial institutions to provide about EUR 30 billion of new funding to SMEs, as each euro spent from the EU budget enables private investors to provide EUR 6 of risk capital or a bank to provide EUR 50 worth of loans. These funds will therefore benefit an estimated 400 000 SMEs in the EU. The financial instruments cover the different needs of SMEs, whether start-up or established companies. The High Growth and Innovative SME Facility provides risk capital for innovative SMEs in their early stages and in their expansion phase. The SME Guarantee Facility provides loan guarantees to encourage banks to make more debt finance available to SMEs, including microcredit and mezzanine finance, by reducing the exposure of banks to risk.

The Risk-Sharing Finance Facility (RSFF)[70] was developed at the explicit request of the EU Council of December 2005 asking the European Commission (EC) and the European Investment Bank (EIB) to propose a financing facility, with risk-sharing elements, for the support of additional investments in Research, Development and Innovation (RDI) in the order of EUR 10 billion for the period 2007-2013. The RSFF is an innovative debt-financing instrument jointly set up by the EC and the EIB which provides loans and guarantees for private companies or public institutions with a higher financial risk profile.

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68 http://www.eif.europa.eu/what_we_do/jeremie/index.htm

69 http://ec.europa.eu/regional_policy/funds/2007/jjj/jeremie_network_en.htm

70 http://www.eib.org/products/loans/special/rsff/index.htm?lang=en

The RSFF targets a variety of beneficiaries such as European RDI-intensive entities (including SMEs) and research infrastructures, irrespective of their size and ownership, which contribute to the objectives of the EC 7th Framework Programme for Research, Technological Development and Demonstration activities (FP7) and to the objectives of the EIB i2i programme, therefore allowing financial support from the generation of knowledge until commercial innovation activities. The financing may be provided either to entities active in the field of RDI or to individual RDI-related projects, often at a demonstration stage.

Launched in June 2007, more than EUR 7 billion of loans have already been approved by May 2010 under the RSFF scheme, covering 20 Members States and 2 FP7 Associated Countries. In the first part of 2010, an Independent Experts Group (IEG) has assessed the first three years of RSFF implementation, concluding on the fact that the RSFF is a uniquely innovative demand-driven instrument, successfully introduced in the research funding of the EU within FP7 and having dramatically expanded the financing for RDI.

Given the similarity between different types of EU financial instruments for SME-financing with guarantees (loans) and venture capital the Commission has initiated inter-departmental coordination meetings in order to ensure an efficient use of scarce public funds through such instruments. The impact of EU funds can be maximised by concentrating on the strengths of each of these and improving the awareness at regional and national level about their existence. As an example, among others, the RSFF interim-evaluation IEG recommends for the future programming period (post 2013), as a complement to the existing RSFF facilities, the development of new forms of public private Risk-Sharing Financial Facility to meet RDI needs in regional development areas: a RSFF programme for research and innovation with a dedicated SME & Midcap windows drawing upon the experience of the existing JEREMIE financial programme.

2.2.5. Synergies around SMEs support

Research and development belong to the core business of many small innovative enterprises, notably those providing knowledge-intensive services. The majority of SMEs, however, often lack the financial resources, the capacity and the in-house expertise to develop R&D strategies and to do research. It is difficult for them to find a competent partner or advice to develop their ideas and to access programmes which co-fund research and innovation activities. Even though the 7th Framework Programme for Research, Technological Development and Demonstration (FP7) with an overall budget of EUR 50 billion for the period 2007-2013 is not primarily targeted at SMEs, their participation has been strongly encouraged: SMEs are entitled to a higher funding rate of 75% for research activities while it is 50% for large enterprises. The themes of the Cooperation Programme include a budget target of 15 % participation of SMEs, which is equivalent to some EUR 5 billion. SMEs and SME associations which need to outsource research are supported through the programme "Research for the Benefit of SMEs" with an overall budget of EUR 1.3 billion.

SMEs in research projects serve as an important conduit for positive externalities in the form of knowledge spill-overs[71], making the social return on R&D investment larger than the private return, so providing an opportunity for efficient public action. They are often the interface between research and the market transforming new ideas and developments into successful business because they are flexible enough to react to changing circumstances and to seize new opportunities faster than larger companies. According to a recent study on the

[71] The impact of publicly funded research on innovation: An analysis of European Framework Programmes for Research and Development. Robert Fisher, Wolfgang Polt, Nicolas Vonortas. PRO INNO Europe Paper No. 7.2009

European Research Framework Programmes,[72] SMEs benefit the most in terms of gaining products and services out of their FP involvement. The participation of SMEs in EU projects allows them to access complementary knowledge, extend their networks, acquire new customers and become more visible at international level.

The impact study on SME participation in the thematic programmes of FP5/6[73] confirms that their participation in the Framework Programmes has had a positive impact on the R&D projects concerned as well as on the SMEs themselves, especially on their R&D and technology. Based on this evidence, the impact study suggests developing a proper SME strategy for the Framework Programme.

SMEs need R&D&I support programmes that are conceived from their perspective and tailored to their needs, including simple and straight-forward rules for participation and financing. A coherent and effective support package should encompass the whole innovation cycle from the conception of an idea through research and development to exploitation and commercialisation. It should target both technical and non-technical research and innovation, including service innovation, and have a clear orientation towards the market. National and regional support measures co-financed by Cohesion Policy funds could further assist SMEs in internationalising their knowledge network by, among other things, providing support and advice to access European research and innovation programmes.

The funding of innovation vouchers or exploratory awards can help SMEs in exploring innovation and or international R&D projects. Such micro-grants can be ideal instruments to accelerate the take-up of technological and organisational innovation.

After the R&D phase, there is often a need for further grant support, e.g. for demonstration activities to prove the viability of a new idea, before financing instruments like venture capital get involved and companies can commercially exploit the research results. Mutually complementary and better coordinated support schemes at regional, national and European level have the potential to foster the whole innovation cycle in SMEs while ensuring better use of scarce resources and opening new opportunities to facilitate transnational R&D activities. According to a recent study on SMEs and Internationalisation[74] at company level, innovation and internationalisation go hand in hand, one reinforcing the other.

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72 Ibidem.

73 Impact assessment of the participation of SMEs in the Thematic Programmes of the Fifth and Sixth Framework Programmes for RTD – DG Research, April 2010, to be published presumably in June 2010.

74 Internationalisation of European SMEs, Final Report – DG Enterprise and Industry, December 2009, to be published presumably in May 2010

Estonia's small enterprises have received innovation vouchers from Enterprise Estonia for implementing 149 innovation projects.

The total amount of grants financed from ERDF is now close to 8.75 million kroons.

The Innovation Voucher Grant programme that opened in February 2010 is the simplest way for enterprises to launch co-operation with research institutions for the purpose of implementing innovative ideas.

A significant number of new co-operation projects between the private sector and universities have emerged

Enterprises have begun to view universities as partners capable of providing the services that SMEs need.

More information:
http://hei.eas.ee/index.php?option=com_content&view=article&id=636:enterprise-estonia-gave-innovation-vouchers-for-149-small-enterprises-last-year-&catid=41:news

Companies face specific challenges relating to introducing service innovations. As a large share of innovation support in the EU is still provided with a strong focus on technology development and transfer or organised in R&D projects, most service companies as well as manufacturing companies innovating through the services provided around their products, find little assistance from the traditional innovation support services. It is therefore necessary to adapt innovation policies to address these challenges. The EPISIS INNO-Net[75] facilitates transnational cooperation between policy-makers and innovation agencies with regard to service innovation with the aim of testing new policy approaches in this area. In adddition, the European Knowledge Intensive Services Innovation Platform[76] experiments with better tools and instruments to support service innovation in specific industrial areas such as renewable energy, sustainable construction, ICT, mobile services, satellite enabled services, creative industries and audiovisual services.

The INNO-Partnering Forum,[77] an initiative under PRO INNO Europe, has been launched to identify, develop and exploit synergies between public innovation funding agencies in Europe and to propose new approaches to improve the quality, efficiency and effectiveness of SME innovation support in Europe. All agencies can be associated in this learning process through open calls to pilot activities.

In this context, it should also be mentioned that the Commission has published a "Handbook on Community State Aid Rules for SMEs", including temporary state aid measures to support access to finance in the current financial and economic crisis, which should be useful for the Managing Authorities of Cohesion Policy Funds.[78]

2.3. Embedding lifelong learning in research and innovation

2.3.1. Universities that contribute to regional growth

Higher education institutions and research centres need to work together with enterprises to bring innovation to the market. In the past decade many universities in Europe have formally incorporated regional economic development into their mission statements.

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75 http://www.proinno-europe.eu/episis

76 http://www.europe-innova.eu/web/guest/innovation-in-services/kis-innovation-platform/about

77 http://www.proinno-europe.eu/project/inno-partnering-forum

78 http://ec.europa.eu/competition/state_aid/studies_reports/sme_handbook.pdf

A number of them are increasingly developing an important role in the commercialisation of research by expanding the entrepreneurial mindset and soft skills, such as creativity in graduates and by involving businesses communities in innovation. They develop, for example, creative design for important products and services; they support services for intellectual property rights (IPR) or are available to assist businesses through 'innovation vouchers'.[79] In this way they are strongly embedded in regional development, helping to create partnerships for regional growth.

Combined Universities in Cornwall (CUC)

CUC is an ERDF supported partnership of regional universities and colleges working together to cooperate with SMEs in line with the region's decision to invest in higher education as a driver of economic regeneration. The CUC graduate placement scheme, 'Unlocking Cornish Potential', for example, provides shorter project placements and uses grants of up to GBP 6,000 to reduce the risk of employing a graduate. The ESF also supports a small team which markets the scheme to business. Some 70 % of the 485 graduates placed since 2004 have been offered permanent jobs at the end of their placement.

The EU Forum for **University Business Dialogue**[80] has recently stressed the importance of effective cooperation between universities and business for regional development and has called for a stronger involvement of regional authorities in this partnership. To achieve closer cooperation, university programmes should involve more strongly students in activities linked to innovative businesses (incubators, start-ups, spin-offs).

Better and closer cooperation between university and business is a key element in the modernisation agenda of higher education and in making higher education more open to the needs of society. More intense cooperation stimulates exchange and sharing of knowledge among both the business and academic communities. Exposure to real problems and solutions through relevant curriculum and placements enriches student learning and prepares them for future employment, to cope with a changing environment and to face future challenges.

University-business cooperation is crucial for the success of the knowledge triangle and to boost Europe's innovation capacity. The main goal of fostering more effective links between university and enterprise is directed at challenges with social relevance, which would in turn enhance the efficiency of public investment in higher education and research.

Twente (NL), a University embedded in its regional economy

The University of Twente is a good example of a university embedded in its regional economy taking a joined-up approach to knowledge transfer. The university has a knowledge park and business accelerators communicating the knowledge it possesses to the business community. After supporting entrepreneurship, for over 10 years, the university developed the TOP programme (Temporary Entrepreneurial Positions), University Student Enterprises and a growth programme for owner managers have also been developed. Included in these modules are training and networking activities.

The University of Twente has actively participated in the ERDF Programme of Innovative Action for the region supported by Cohesion policy.

More information: http://www.universiteittwente.nl/en

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79 'Availability and Focus on Innovation Voucher Schemes in European Regions', EC November 2009 http://www.europe-innova.eu/c/document_library/get_file?folderId=122731&name=DLFE-6403.pdf

80 COM(2009) 158 and SEC(2009) 425: A new partnership for the modernisation of universities: the EU Forum for University Business Dialogue

Knowledge transfer between universities and industry, however, raises the question of intellectual property rights. To support universities and to provide a more coherent framework for knowledge transfer activities the Commission has adopted a Recommendation on the management of intellectual property in knowledge transfer activities and a Code of Practice for universities and other public research organisations.[81] The "Responsible Partnering" initiative also provides a guide[82] to better practice in this area.

Education, training, lifelong learning and mobility, as indicated in the Europe 2020's Flagship Initiative "Youth on the Move", are vital to developing capacity of regions to innovate.

To reinforce the knowledge base and promote excellence, the EU needs to foster world-class education systems and curricula, a sufficient number of internationally-recognised universities and research institutes, a highly skilled population whose skill sets are constantly up-dated, geographical and inter-sector mobility, excellent research infrastructure and policies that recognise and support social and non-technological innovation.

National and regional authorities should consider, in particular, how regional policy can contribute to modernising higher education institutions as well as supporting lifelong learning plans to ensure a high level of up-to-date skills within SMEs.

2.3.2. The European Institute of Innovation and Technology (EIT)

The EIT[83] is the first initiative aimed at boosting EU competitiveness by fully integrating higher education, research and business (the Knowledge Triangle) to generate and promote innovation of a world-class level. It is emerging as an identified brand of European excellence in knowledge and innovation. Its role as a pioneer goes beyond education and encompasses other important areas such as new models of governance for innovation (leadership, business-orientated management and results-driven), funding (inter alia via the establishment of the EIT Foundation) and simplification (e.g. the use of lump sums and flat rates on the way to establishing an outcome-based system).

The EIT is intented to deliver world-leading innovation through new types of creative collaboration and interaction between actors in the knowledge triangle, with entrepreneurship and the education of entrepreneurs as key drivers and linking factors between the various sides of the triangle.

The core of EIT activities is the development of Knowledge and Innovation Communities (KICs) to tackle major societal challenges (e.g. climate change, energy). KICs attempt to integrate the entire "innovation chain", from education and research to entrepreneurship and commercialisation, with a constant focus on excellence, strong ("CEO"-style) leadership and management, delivery and impact.

The work of each KIC is intended to be regionally embedded in 4-6 innovation hotspots or "co-location centres", each in different locations across the EU, which will link top-ranked universities, globally renowned research institutes and world-leading companies, interacting with each other in the different places. The principal characteristic of KICs – and the co-location centres of which they are composed – is to be highly integrated, legally and financially structured transnational public-private entities.

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81 C(2008) 1329

82 http://www.responsible-partnering.org/; developed by leading associations from academia and industry (EUA, EARTO, EIRMA and ProTon Europe)

83 Regulation (EC)294/2008, 11.03.2008; http://eit.europa.eu/

Accordingly, the EIT has an important role to play in the EU Innovation landscape, by encouraging a step change in mentality across the Union, functioning as a model and "living example" of the knowledge triangle to strengthen the EU's innovation capacity and the impact of innovation on the economy and society.

Managing and regional authorities can explore the funding opportunities in KICs which are autonomous partnerships bringing together higher education institutions, research organisations, companies and other stakeholders in the innovation process.

At present, three KICs have been selected, in three priority areas: sustainable energy, climate change and ICT, with co-location centres in each case in different Member States. The Climate-KIC has identified regional partners and designated them as Regional Innovation and Implementation Communities (RICs) able to coordinate funding streams at city and regional levels.

The Climate KIC explores potential regional partners and funding opportunities under the EIT

The Regional Innovation and Implementation Communities (RIC), led by the Hungarian Bioenergy Competence Centre OBEKK, forms a network of six major European regions (with a combined population of over 26 million), which share a clear and demonstrable commitment to tackling climate change. They comprise Central Hungary, Lower Silesia (Poland), Midlands (UK), Hessen (Germany), Emilia Romagna (Italy) and Valencia (Spain).

RIC has access to a range of funding sources, including the Structural Fund and national or regional R&D financing, and is able to coordinate these sources at city and regional levels. The resources concerned will be available for the Climate-KIC from the start of the programme. The RIC will initially focus on carbon emission reduction by participating in implementation programmes, demonstration projects and strategic support programmes. It will exchange and disseminate the knowledge obtained.

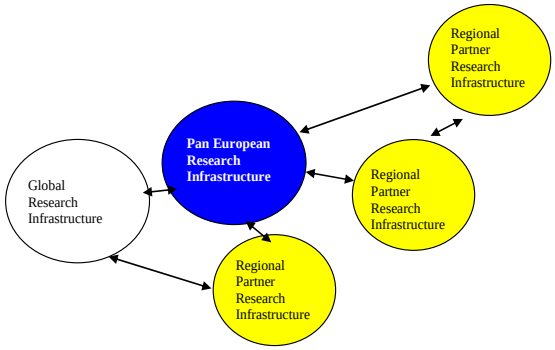
More information: http://eit.europa.eu/kics1/climate-kic.html

The OECD has stressed the role of public support for involving higher education institutions in regional development by promoting clusters and mobility of people between universities and businesses at local level to improve human capital, the pool of knowledge and the attractiveness of the area for business.[84]

Cohesion policy provided support for knowledge partnership between universities and industry, under many forms, as well as for territorial cooperation, particularly between regions in different countries, focussing on innovation and including the establishment of networks between universities, research institutions and SMEs.

[84] Higher Education and regions, OECD Policy brief (September 2007)

2.3.3. Developing regional and attractive research infrastructures and centres of competence



Research infrastructure needs to provide world-class facilities and services to researchers. It is at the centre of a knowledge-based innovation system linking research organisations, universities, industry, investors and public authorities. There are three ways of helping the EU and regions utilise their potential fully: (i) develop world-class research infrastructure on the basis of existing scientific excellence in regions, use the potential of the Structural Funds, (ii) involve less research intensive countries in networks of distributed research facilities, and (iii) develop Regional Partner Facilities (RPF).

Typically these RPF would be associated through various schemes with large facilities, and by means of such links could share many of the benefits, including in particular dissemination to the local economy or collaboration with local industry. The specific 'partnership' role of RPF would include participation in preparing experiments, training young scientists and the broad promotion of the science undertaken at the large facility. The three ways listed above would also have an important, more general, role contributing to the circulation of 'brains' and reducing the risk of brain drain while at the same time providing much needed balance to the distribution of European research infrastructure.

The PALS Research Centre

The Pals research centre is the only laser laboratory in the Czech Republic and, indeed, in all the "new" EU Member States, which operates a kJ-class terawatt high-power laser. As an open civilian infrastructure, it serves not only the Prague region and the Czech Republic as a whole, but also neighbouring countries such as Poland and Hungary. Close links exist with other European high-power lasers through the LASERLAB-EUROPE network and it is at present closely involved in the preparation phase of ELI (ESFRI project) which will be part financed by the ERDF

2.4. Creativity and cultural industries

Opportunities for regional development go beyond technological innovation. Indeed, creativity can lead to new products and services in all kinds of businesses, ranging from traditional sectors closely linked to local development, such as food, textiles, crafts and tourism, to more cutting edge sectors such as ICT and product and industrial design. Innovation can be based not only on technological knowledge but also on market and societal knowledge and can lead to new development strategies, business organisations and management and training models as well as new societal solutions.

The regional level is the one best suited to promoting creativity and innovation. Regions are large enough to matter and small enough to care for the people working and living there. Metropolitan centres are naturally in an advantageous position to attract creative industries. But creative industries are also a catalyst for structural change in many industrial and rural

areas with the potential not only to rejuvenate their economies but also to changing their public image.

Creativity and innovation require networking both within the region and with other regions in the same country as well as outside. Grouping different regions and exploring different approaches can increase the effectiveness of a network. One factor of success in networking to increase creativity and innovation is to connect a wide variety of public and private partners from different sectors, regions and communities.

2.4.1. Cultural and creative industries (CCIs)

During the recent "Towards a Pan-European initiative in support of innovative creative industries in Europe" event, organised by the European Commission, experts adopted the so-called Amsterdam declaration urging regions, Member States and the Commission to follow a more strategic approach to innovative creative industries[85] "*Cultural and creative industries are at the crossroad between culture, creativity and innovation. They offer a huge potential to contribute to the transformation of European society, responding to major social, demographical and environmental challenges and leading to a more sustainable and smarter economy within the EU 2020 strategy. Yet, the combined cultural and economic potential of these dynamic industries still remains largely underestimated and untapped*".

Recent studies show that CCIs tend to be highly innovative companies with much economic potential[86] and are one of the most dynamic emerging sectors in world trade[87]. Moreover, examples suggest that they play an important role in many regions, offering scope for cluster policies to further "strengthen the strengths"[88]. The CCIs therefore appear to be increasingly important for the development of the knowledge economy; they are both knowledge and labour intensive and they have a large potential for generating employment and export growth.

CCIs are an essential part of the move from societies with a strong focus on specific hardware production to those producing less tangible output. They provide content for the further development of ICT, spur impulses for innovation and are instrumental in shaping social and cultural trends and consumer demand in the emerging 'experience economy'. Creative innovation services are often inputs to innovative activities by enterprises in the wider economy.

CCIs can also help to combat a wide range of social problems, from crime prevention to the fight against social exclusion, from expanding social capital to regenerating communities and improving public services.

As highlighted in the recent Commission Green Paper "Unlocking the potential of cultural and creative industries" these industries "*often contribute to boosting local economies in decline, contributing to the emergence of new economic activities, creating new and sustainable jobs and enhancing the attractiveness of European regions and cities*".[89]

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85 The Amsterdam declaration, adopted on 5 February 2010. http://www.europe-innova.eu/creative-industries

86 See in particular Commission Staff Working Document "Challenges for EU support to innovation in services – fostering new markets and jobs through innovation", SEC (2009)1195 final, September 2009

87 See in particular UNCTAD (2008) "Creative Economy – the Challenge of Assessing the Creative Economy – towards informed policy-making"

88 Staff Working Document "Challenges for EU support to innovation in services – fostering new markets and jobs through innovation", SEC(2009)1195 final, September 2009

89 COM(2010) 183, of 27 April 2010.

Also recently, the Council has invited the Member States and the Commission to adopt a strategic approach to culture in local and regional development policies, including through stimulating a favourable environment for the development of CCIs, especially SMEs[90]. Specific lines of action were highlighted such as encouraging a favourable regulatory environment for cultural and creative SMEs, strengthening entrepreneurship through favouring the creation of CCI incubators, exploring ways of promoting new business models and consolidating creative clusters and business research centres, improving the access of cultural and creative SMEs to (digital and physical) channels of distribution, and promoting better links between CCIs and financial services.

"ImMediaTe" and "BCreative" projects in the European Knowledge Intensive Services Innovation Platform[91]

ImMediaTe[92] is aimed at providing tools and services to assist the growth of digital media SMEs operating in creative industries. The project mobilises sector-specific financial resources and has developed innovation vouchers. It also organises a series of thematic events, market and investment forums focusing on presenting key trends and market opportunities for businesses in the digital media sector as well as pitch sessions for selected companies allowing them to meet international financial investors. Ad hoc coaching on media literacy, including management, marketing and IPRs, as well as financial and business support services are provided to SMEs across Europe.

BCreative[93] brings together various innovation support measures for SMEs to link knowledge creation, incubation, finance and clusters. BCreative provides support to SMEs across Europe to better exploit their research results and helps them look for investors and potential business partners. The project has developed innovation vouchers and has set up a European online platform for creative businesses, bringing together relevant stakeholders and providing a toolkit to European companies to help them to venture capital and entrepreneurial skills as well as enabling them to exchange information on intellectual property and legal issues.

Culturally-based investment has led to the diversification of local economies in decline, spurred local growth and regeneration and enhanced social cohesion across cities and regions.

Berlin: regional revitalisation through creative industries

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

Moreover, the presence of CCIs and vibrant cultural communities are also seen by more and more cities and regions as 'soft' location factors that can help them boost their competitiveness by establishing a favourable environment for innovation and attracting highly-skilled people as well as companies.

90 Council conclusions of 10 May 2010 on the contribution of culture to local and regional development.
91 http://www.europe-innova.eu/kis-innovation-platform
92 http://www.europe-innova.eu/ImMediaTe
93 http://www.europe-innova.eu/BCreative

Interactive Institute Sonic Studio (Piteå, Sweden)

A significant success of the Studio is DigiWall, an interactive system combining a climbing wall, computer games and music applications in healthcare for therapeutic healing, adapting the application to the physical state of the patient. The studio collaborates with both traditional and more modern firms.

This project has contributed to regional development by boosting research in a novel interdisciplinary research area, which has attracted senior researchers to the peripheral region concerned. The studio has also created new employment opportunities, both in newly established enterprises and in existing ones.

Attaining ERDF funding has been a significant quality label for attracting other kinds of financial support

To reinforce the contribution of CCIs to regional innovation systems, it is necessary to develop synergies at different levels of governance. Success requires partnership between public authorities in different policy areas (higher education and research, culture, economy, industries and employment) and relevant representatives from civil society (businesses, social partners, citizens associations and NGOs).

The Commission encourages Member States and regions to reap the benefits of CCIs by including them explicitly in their strategies for innovation and entrepreneurship, in cooperation with relevant stakeholders from civil society. Moreover, EU Cultural policy needs to steer the implementation of Culture and Media programmes in a way which increases the capacity of the cultural sector to act as a catalyst for creativity and innovation at regional level through mobility, peer learning, peer coaching and cooperation.

Creative Clusters in low density urban area (Obidos, Portugal, as lead partner, together with other partners from Spain, Italy, Hungary, Romania, Finland and UK)

The starting assumption of this ERDF ***URBACT network*** *is that creativity can act as a driving force for the economic development of small urban centres as well as big cities.*

Its objective is to promote exchange of experience and best practice and to make policy recommendations and suggest action plans relating to creative clusters in low density urban areas.

The European capitals of culture offer an opportunity for the cities bearing the title and their surrounding areas to formulate a longer term strategy of urban and cultural development.

Liverpool, European Capital of Culture 2008, and the HerO network "Heritage as Opportunity" (ERDF URBACT project with a Fast Track Network label: Regensburg, Germany, as lead partner and other partners from Austria, Italy, Lithuania, Romania, UK, Poland, France and Malta)

A deprived area 25 years ago, Liverpool became European Capital of Culture in 2008. The key words of its success were participation, repositioning, regeneration and sustainability. The city organised national and international events, strongly focussed and engaging local people. Intercultural dialogue required much creativity. Starting from cultural assets such as its maritime heritage, music and football, Liverpool became a brand for UK tourism itself. It is now one of the most popular cities in the UK for international visitors, after London and Edinburgh.

The research team "Impacts 08" has developed a model for evaluating the multiple impact of culture-led regeneration programmes that can be applied to events across the UK and internationally.

The city is keen to share its experience with other cities. It is member of the HerO network "Heritage as Opportunity", funded by the URBACT programme, a network of 10 cities with the aim of developing innovative management strategies balancing in a sustainable way the different needs of the local population, tourists, conservationists and local business. Heritage management is more than preserving the past, it is about being creative and capitalising on the potential of cultural heritage assets for economic, social and cultural activities.

At project level, the main expected outputs of the HerO network are the compilation of interesting cases, the development of integrated management plans and as policy recommendations and practical guidance. At local level, support groups and action plans will be established.

The Fast Track label given to the HerO network under the initiative "Regions for Economic Change" provides opportunities and benefits. The Commission not only provides grants but participates in the discussions with the Managing Authorities to define strategies leading to concrete action in operational programmes

The Commission will launch initiatives in 2011 to bring together the main actors at regional, national and European levels with the aim of making more strategic use of current and planned measures in support of cultural and creative industries.[94]

2.4.2. Design for user-centred innovation

Although often associated with aesthetics and the 'looks' of products only, the application of design is in reality much broader. User needs, aspirations and abilities are the starting point and focus of design activities, integrating, for example, environmental, safety and accessibility considerations into products, services and systems. Design is increasingly recognised as a means for user-centred innovation, which however, is not sufficiently reflected in most national and regional innovation policies[95]. Integrating a design aspect at an early stage in innovation projects can stimulate market take-up and the commercial success of innovations.

South East England: stimulating eco-design in SMEs

Design & Innovation for Business Sustainability (DIBS), led by WSX Enterprise and supported by the ERDF: is a programme stimulating SMEs to incorporate sustainable design into their products and services, cutting resource costs and attracting environmentally-aware customers.

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94 As part of the "Innovation Union" flagship initiative, specific actions will be undertaken to strengthen the role of cultural and creative industries as a catalyst for innovation and structural change.

95 "Design as a driver of user-centred innovation" (SEC(2009)501 final).

Design support for SMEs, De Montfort University, East Midlands, UK[96]

Through intensive design support, the De Montfort S programmes have generated over 40 commercial products and created over 50 new jobs for regional SMEs over the past 5 years.

The programmes facilitated the translation of research outcomes and knowledge into new commercial products and services. Partnerships with regional design consultancies and other universities provided the in-depth specialist support required to meet the innovation needs of SMEs.

The project received € 800 000 of ERDF co-funding and provided a 7.5 x return on investment with respect to GVA increase, which will increase as more products are brought to market.

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

This Network of 11 organisations shares knowledge and experience in order to develop new thinking, disseminate good practice and influence local, regional and national policies for design and innovation. The partners come from the UK, Belgium, Denmark, Estonia, Finland, France, Ireland, Italy, Poland, Slovenia and Spain. All are currently involved in their own regional innovation policy and their regional governments have committed to exploring improvements in the provision and delivery of innovation, entrepreneurship and design through individual or joint policies

2.5. Digital Agenda

2.5.1. Why does the EU need a Digital Agenda?

The availability of fast internet access and sophisticated on-line services on the World Wide Web is changing the very nature of innovation.

Some 250 million internet users in the EU and almost 2 billion worldwide are engendering new business models, stimulating innovation in product development and service delivery, forcing the formulation of new marketing strategies, increasing social inclusion and political participation, enabling a better realisation of cultural production, changing social habits and reshaping social and economic models. The Internet is fuelling innovation and change on a massive and historically unprecedented scale.

From now on, the rate of innovation will also depend on the quantity and quality of the connections in this huge communication network. Reducing gaps in access and the use of high speed communication networks and internet-based services may help to feed a new type of innovation beyond the restrictive environment of research laboratories and university campuses.

The Digital Agenda calls for leveraging more private investment, better coordination and pooling of resources, joint research infrastructure and innovation clusters, the development of open platforms for new applications and services, and 'lighter and faster' access to research funds. The Commission will notably:

- Leverage more private investment through the strategic use of pre-commercial procurement and public-private partnerships by maintaining a 20% yearly increase in the ICT R&D budgetin FP7.

[96] http://www.dmu.ac.uk/

- Reinforce the coordination and pooling of resources with Member States and industry, and put greater focus on demand- and user-driven partnerships in EU support for ICT research and innovation.
- Ensure sufficient financial support for joint ICT research infrastructure and innovation clusters,- and further develop e-infrastructures
- Together with key national, regional and local partners, engage, through CIP financing, in large scale pilot projectsto test and develop innovative and inter-operable solutions in areas of public interest.

2.5.2. Research and Innovation in ICT: a key action

The Communication "A Strategy for ICT R&D and Innovation in Europe: Raising the Game" highlighted the need to:

- Support European leadership in ICT as a key enabling technology of the future.
- Support knowledge hubs with universities, research institutes and infrastructure maintaining strong links with industry.
- Support the importance of combining 'demand pull' from innovative markets with 'supply push' from new ICT and infrastructure to achieve both public service goals and business growth.

ICT research is the single largest budget item under the current EU Research Framework Programme (FP7). ICT in FP7 focuses on key areas where the EU has competitive advantages and established strengths, like communication and service infrastructure, electronics and photonics, digital content, and cognitive systems and robotics, as well as in challenging application areas such as healthcare, social inclusion, transport, energy and the environment.

In the ICT Policy Support Programme (PSP), one of the three areas of the EU's Competitiveness & Innovation Programme (CIP) supports the piloting of inter-operable pan-European digital services, notably for public services. The ICT PSP is aimed at stimulating innovation and competitiveness and accelerating the development of a sustainable, competitive, innovative and inclusive information society.

There is a need to reinforce combined efforts and exploit synergies with related Community R&D and Innovation policies to provide increased support for the strategic content of the ICT R&D policies and programmes. Here the public sector should take a more proactive role as a technologically-demanding buyer which, through pre-commercial procurement and/or procurement of innovation, stimulates the development of innovative solutions for the socio-economic challenges which the EU faces. In addition to improving the quality and effectiveness of public services, this can help create opportunities for companies to assume international leadership in new markets.

2.5.3. Findings of the 2009 Strategic Report in relation to the digital priorities

The Strategic Report,[97] adopted in March 2010, concluded that investment in the digital economy - rolling out broadband and exploiting ICT use in the public and business sectors - is proceeding relatively slowly and unevenly, even if it is possible to identify examples of good practice.

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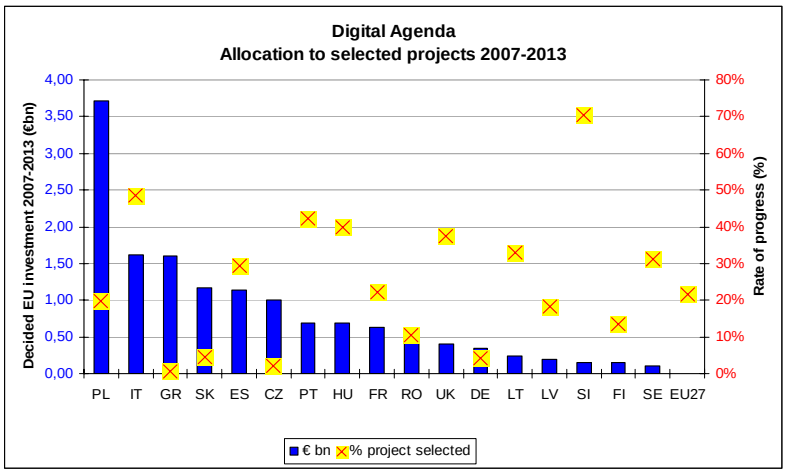
[97] COM(2010)110 of 31.03.2010 http://ec.europa.eu/regional_policy/policy/reporting/cs_reports_en.htm

The following graph illustrates the rate of progress across Member States in implementing ICT projects linked to the Digital Agenda:



It is crucial that Member States improve the implementation of programmes with increased transparency, networking and the exchange of good practice and policy learning on cohesion policy priorities to make an early contribution to pursuing the Europe 2020 strategy, its flagship initiatives and its quantified targets.

Capitalising on good ideas

Beyond the significant financial investment foreseen for the 2007-2013 period, Cohesion policy also contributes to the promotion of ICT via supporting the exchange of good practice and innovative ideas between regions. Currently, three ICT related fast-track networks, included in the Regions for Economic Change initiative, are in operation across the EU, with the aim of promoting innovation and the knowledge economy at regional and local level by transferring innovative ICT-related ideas into mainstream Cohesion policy programmes:

B3 Regions: Regions for Better Broadband connection[98]

B3 Regions s aimed at improving the effectiveness of regional development policies as regards the Information Society, by spreading the examples of good practice of the expert partners relating to broadband implementation in disadvantaged areas. The aims are:

1. To share experience of implementing broadband and related issues (such as demand aggregation and state aid regulation).

2. To spread the benefits achieved in the consortium to external stakeholders and, in particular, to Managing Authorities and ICT agencies willing to implement successful broadband strategies with Structural Fund support.

PIKE: Promoting Innovation and the Knowledge Economy[99]

The aim of the project is 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

98 http://www.b3regions.eu/

99 http://www.pike-project.eu/

IMMODI:

This project is aimed at making the most of the results and examples of good practice developed by the partners as regards of e-Government and e-health, which contribute to the development of mountain and rural areas. Selected examples will be presented at technical and regional workshops, detailed in a published guide and discussed with Managing Authorities in order to transfer them into the development programmes of participating regions

Regio Stars Awards: original and innovative projects which can inspire other regions

High Speed Broadband roll out in Auvergne

High-speed broadband access is a decisive factor of competitiveness for region, in terms of both attracting new residents and firms and persuading existing ones not to leave. Auvergne, one of the most sparsely populated regions in France, launched the first telecommunications public/private partnership in the country, with the help of a EUR 10 million ERDF grant, to extend high-speed broadband coverage to all households.

Computer Literacy Basics for a Lithuanian e-Citizen

(Funding: :EUR 2,694,534 of which EUR 1,996,650 from the (ESF)

Promoting computer literacy is key to reducing the digital divide which exists in Lithuania. The objective of the project was to increase the accessibility of the Internet and e-services by providing information and computer literacy training to adults, establishing Public Internet Access Points (PIAPs) and stimulating the growth of e-services countrywide. Key target groups included those living in remote areas with little access to digital services, in particular in rural regions, the elderly and those with disabilities. The aim was to equip 300,000 Lithuanian residents with computer literacy skills, in line with the objectives established by the national Knowledge Society Council. The project was conducted countrywide between 2006 and 2008. Over 50,400 adults (with an average age of 43, 61% of whom came from small towns and rural areas) have since completed the LIA courses - helping to boost the overall competitiveness of Lithuania's economy by upgrading skills. LIA is a good example of private and public partnership, especially with local municipalities, which make it possible to reach directly people persons living in district centres and rural areas.

A new business model for ambulatory monitoring of patients suffering from congestive heart failure, Brandenburg

Total cost: EUR 242,402 of which EUR 86,172 from the (ERDF)

The project combined the expertise of various regional partners to provide an innovative ICT based business model for long term, ambulatory management of patients suffering from congestive heart failure in underdeveloped areas. One of the priorities was to encourage regional SMEs to develop business models using ICT applications that create new services or optimise the workflow of existing services in the health care industry. A further aims was to investigate a new tele-monitoring device capable of measuring and transmitting multiple vital-indicators to a tele-medical centre to analyse the data. The concern aim was to reduce the number of hospital admissions per patient, the number of days spent in hospital when admitted and the associated health care costs, while at the same time increasing the standard of health care and the quality of life for patients.

2.6. Demand-pull for innovation: Public Procurement

Public procurement is recognised as a key driver of innovation particularly in areas where the public sector is a major purchaser. The Innovation Union proposes that Member States and regions set aside specific budgets for procurement of innovative solutions.

An important approach is through pre-commercial procurement where public authorities provide contracts to develop new solutions for specific challenges where existing products or services available on the market are inadequate[100]. Another approach is for public tenders to set performance criteria or evaluation criteria which stimulate innovation in the market.

A number of trans-national networks have been supported by the European Commission under the Lead Market Initiative[101] and other policies, such as territorial cooperation, to develop this approach.

The Innovation Union flagship initiative proposes further EU support for procurement of innovation, including through the use of the Structural Funds. A particular focus will be on European Innovation Partnerships that are intended to provide a framework for major supply-side and demand-side measures – including procurement – to address specific societal challenges.

East of England pre-commercial procurement for health care innovations.

In May 2009 the East of England Development Agency together with the UK National Health Services East of England and UK Technology Strategy Board launched a pre-commercial procurement of an innovative process, material, device, product or service which will help to meet current health priorities in the region. This initiative was by theERDF. 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.[102] The aim is to provide procurement opportunities for innovative health care businesses and bring the benefits of new innovations and technologies to patients.

***RAPIDE** is a Fast Track Network of the Regions for Economic Change Initiative funded by INTERREG IVC.*

The project is focused on supporting the implementation of good practice relating to the role of the public sector in stimulating innovation in partner regions, for example through: procurement, investment decisions (gap funding, regeneration etc.), initiatives that assist and advise businesses and academia-business partnerships and policy development and adoption[103].

3. INCREASING SYNERGIES BETWEEN POLICY INSTRUMENTS

This chapter outlines possible ways of increasing synergy between EU funding programmes, in particular between those which are managed by the Commission and those which are implemented by national and regional authorities under the shared management approach of Cohesion Policy.

3.1. Main EU funding instruments

The main EU funding instruments considered in this section are:

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100 The legal framework and good practice on pre-commercial procurement are provided in the Commission Communication "Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe", COM(2007)799.

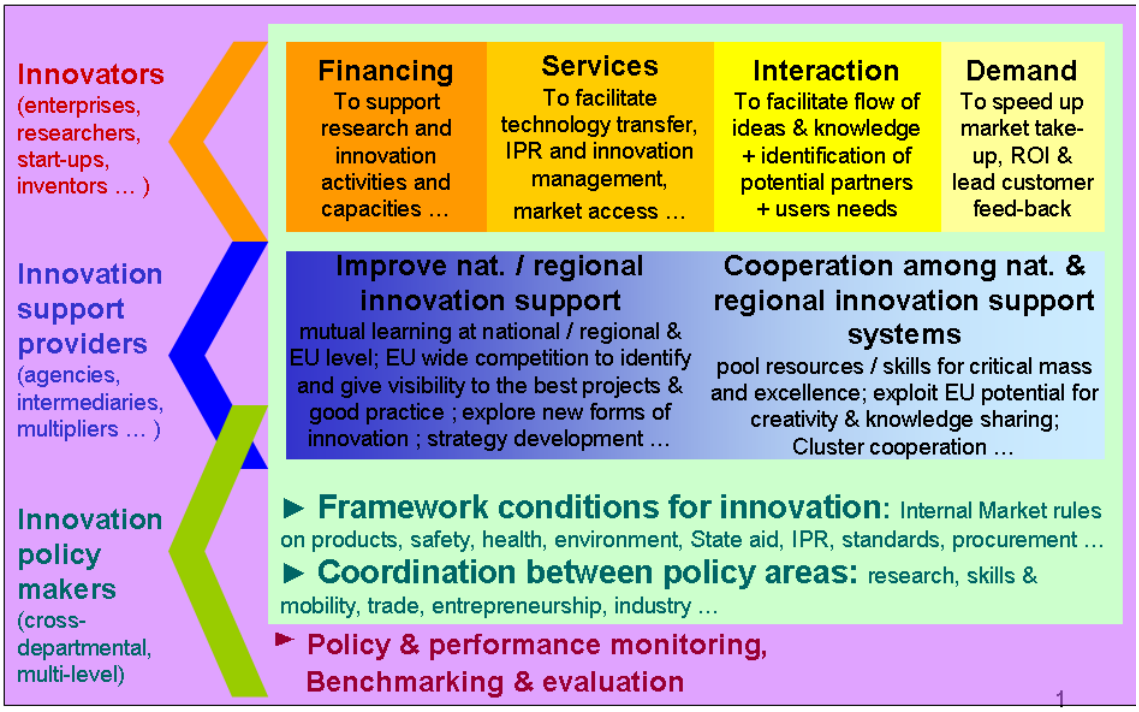
101 See Lead Market Initiative website at http://ec.europa.eu/enterprise/policies/innovation/policy/lead-market-initiative/index_en.htm

102 More info on: http://www.eeda.org.uk/4091.asp

103 www.rapidenetwork.eu

- the EU 7th Research Framework Programme (FP7), in particular the "Capacities" programme that includes “Regions of Knowledge (RoK)”, “Research Potential in Convergence and Outermost regions (RegPot)”, "Research Infrastructures (RIs)", in connection with the European Strategic Forum for Research Infrastructures (ESFRI), and "Research for the benefit of SMEs";
- the Competitiveness and Innovation Framework Programme (CIP), in particular its "Enterprise and Innovation Programme" with financial instruments, innovation and business support services, networking projects between innovation policy-makers and support providers and eco-innovation projects;
- the Structural Funds (SF), namely the European Regional Development Fund (ERDF), including INTERREG IVC and URBACT II, and the European Social Fund (ESF), which support Cohesion Policy.

The importance of research and innovation is reflected in the budget allocations to these funding instruments: the 7th Research Framework Programme (FP7) has a budget of some € 50 billion; the Competitiveness and Innovation Framework Programme (CIP), has a budget of € 3.6 billion, part of which supports innovation, and the Structural Funds have a budget of € 85 billion dedicated to innovation, of which nearly € 50 billion are allocated for core research and innovation.



3.2. Policy framework (synergies of design)

According to the General Regulation on Cohesion Policy[104] the Commission and the Member States shall ensure that the assistance from the funds is complementary to other financial

[104] See Article 9 of Council Regulation (EC) No 1083/2006, of 11.7.2006, OJ L210 of 31.7.2006

instruments and the Commission decisions adopting FP7 and the CIP contain similar provisions[105].

Achieving the necessary "synergies" between the instruments is a major challenge, given that they generally have different intervention logics, thematic priorities, timing and funding rules. Moreover, their implementation usually involves different administrative levels and authorities.

With a view to encouraging synergies, the Commission, in 2007, adopted the Communication "Competitive European Regions through Research and Innovation"[106], which built on earlier work of the European Parliament, the European Research Advisory Board[107] and the Scientific and Technical Research Committee of the EU (CREST)[108]. The key message of the Communication was the need for the Member States and regions to improve the arrangements for co-ordinated preparation and use of the EU funding instruments for research and innovation.

The Communication also acknowledged in its conclusions the important role of the European Commission in promoting synergies. Since its adoption, therefore, a number of practical steps have been taken by the Commission in that direction.

A "Practical Guide to EU funding opportunities for research & innovation"[109] has been produced that provides potential beneficiaries with straightforward and simple information on EU research and innovation funding. The guide includes a short description of the possible support offered by the three instruments, a checklist of questions and a scorecard to be completed in order to highlight the most appropriate funding source.

In addition, the guide explains the rules for combining the funding instruments and stresses the role of national and regional authorities in exploiting the potential for synergies and fostering a co-ordinated access to the EU funds. This involves fostering greater cooperation at regional level between the organisations involved in the management or implementation of the different EU funding instruments, such as: the Managing Authorities for the programmes of the Structural Funds; the National Contact Points (NCPs) for each area of FP7 and the Enterprise Europe Network (EEN) for the CIP.

In complement to the Practical Guide, a Commission Staff Working Document containing actual examples of synergies in the use of the different sources of EU research and innovation funding in the Member States is being finalised.

Also, steps are being taken to better inform national and regional authorities on the beneficiaries of EU research and innovation funding located in their regions. This information is already provided to the national authorities and the aim is to distribute it more widely at the regional level.

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105 Decision No 1639/2006/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 October 2006 establishing a Competitiveness and Innovation Framework Programme (2007 to 2013); Decision No 1982/2006/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)

106 COM(2007) 474, 16.8.2007

107 Now the European Research Area Board (ERAB)

108 Now the European Research Area Committee (ERAC)

109 Practical guide to EU funding opportunities for research and innovation (2009): http://cordis.europa.eu/eu-funding-guide/home_en.html

Although much progress has been made, there is still room to further strengthen and deepen synergies between the funding sources. Following a recommendation from the Council[110] an ERAC (former CREST) working group has examined synergies not just between the FP7, the CIP and the Structural Funds but more widely in the "knowledge triangle" including education and life-long learning. The conclusions of this work will feed into the deliberations an expert group on synergies, established under the 2010 work programme of the FP7 regional actions, which will closely examine the development of synergies during the current programming period and the prospects for the next period, post 2013.

Finally, the importance of synergies between funding sources for research and innovation was examined in the Week of Innovating Regions in Europe (WIRE) conference organised under the Spanish Presidency of the EU in March 2010 and will also be considered in a further WIRE conference under the Hungarian Presidency in the first semester of 2011.

Ireland: Resourcing Information and Technology Transfer in the Border, Midland and Western Region - a Regional Programme of Innovative Actions (2006-2008)

The programme was aimed at strengthening small business interaction with the higher education sector and helping owner managers develop their businesses through tailored mentoring and management assistance.

Through the provision of research vouchers, 23 small firms across the region were able to access specialist research and knowledge services from colleges which allowed them to progress to the next stage of their business growth plans.

The business mentoring initiative for winners targeted small firms which had emerged from the Campus/Incubation environment as well as SMEs with high value added export potential. Small specialist firms received strategic business planning, management and marketing supports under the scheme.

These initiatives are being mainstreamed by the Irish Government and the EU FP7 has been identified as a possible vehicle to further stimulate the positive results obtained

ERDF funding: EUR 1,108,233

More information: www.bmwassembly.ie

Spain, a thematic network on R&D&I funded by SF, better coordination with FP7

The Spanish National Strategic Reference Framework has established a coordination committee and thematic networks for ensuring complementarity between the Structural Funds and other national and community financial instruments; as well as fostering exchange of good practice and lessons learned among managing authorities and main stakeholders.

The research, development and innovation (R&D&I) network is being supported under the "Technical Assistance" priority of the Operational Programme "Technological Fund". CDTI (the Spanish Centre for the Development of Industrial Technology) is currently managing an operation called: "Support to the Spanish leadership of European and International projects" (ERDF support: around EUR 150 million) which consists of three main parts:

- *Demonstration Projects derived from previous FP projects led by Spanish partners.*
- *Support for the participation of Spanish companies in the Joint Technologies Initiatives (JTI) fostered by FP7.*
- *Support to international projects, mainly those in the EUREKA programme.*

[110] Competitiveness Council Conclusions of 3 December 2009 on guidance for future priorities.

3.3. Practical examples of synergies (synergies in action)

3.3.1. Research infrastructures and Research Potential

The Commission has started encouraging the Managing Authorities to consider the possibility of using the Structural Funds to provide complementary funding for two actions under FP7 which are of particular importance for the regions but which suffer major funding constraints. These are the Research Infrastructures identified by the European Strategy Forum on Research Infrastructures (ESFRI) [111] and the Research Potential action[112].

The Research Potential action is included in the Capacities Programme of FP7 and focuses explicitly on Convergence and Outermost regions. It aims at strengthening the capacities of researchers in these regions to successfully participate in research activities at EU level. Projects are assessed in terms of scientific quality, management and impact, including regional development, by panels of experts. Due to a lack of resources, many projects assessed as good under this initiative cannot be supported by FP7.

ESFRI gives national authorities the opportunity to jointly explore the needs for new research infrastructures and to identify projects of pan-European relevance. The ESFRI projects are selected by a Committee (delegates of the Member States) on the basis of a first analysis undertaken by a technical working group (scientific experts). Therefore, the ESFRI projects are, therefore, clearly relevant for EU research. FP7 can fund the preparatory phase of the projects (e.g. feasibility studies) but cannot support their construction. This can be done through the existing national and EU funding instruments, including the Risk Sharing Finance Facility (RSFF),[113] a joint initiative of the Commission and of the European Investment Bank.

Possibilities for funding Research Potential and ESFRI projects are being explored by a number of national authorities responsible for scientific research and some Managing Authorities of ERDF programmes. The projects need to meet requirements of scientific excellence and impact on the regional economy. For some ESFRI projects, industrial partners have already been identified and letters of interest from companies received, demonstrating the potential impact on the economy (partnership with innovative industries, large companies, SMEs and start-ups; links with innovative incubators for the creation of spin-offs).

ELI project (Extreme Light Research Infrastructure)

The ELI project has been selected by the ESFRI Committee as being of pan-European interest. The preparatory phase of this laser facility, involving 40 research and academic institutions from 13 Member States and supported by FP7 Capacities, has led to the selection of three sites providing complementary technologies, situated in the Czech Republic (near Prague), Hungary (Szeged) and Romania (near Bucharest).

Possibilities for funding under Cohesion policy the construction of new research infrastructure on the three sites (total costs exceeding EUR 700 million) are being explored by the national authorities responsible for scientific research and management of the Structural Funds programmes with a view to meeting requirements relating to scientific excellence and the impact on the regional economy. Industrial partners have been identified and letters of interest from companies have been received.

More information: http://www.extreme-light-infrastructure.eu/index.php

111 http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri

112 http://cordis.europa.eu/fp7/capacities/convergence-regions_en.html

113 http://www.eib.org/products/loans/special/rsff/index.htm?lang=en

In the future, the Commission could envisage exploring funding opportunities for other good projects identified under EU Research policy. For instance, in the context of the sub-programme "Cooperation" of FP7, European Technology Platforms (ETP)[114] can act as a catalyst for research projects on some specific themes, involving businesses and promoting knowledge partnership for innovation.

3.3.2. Synchronised support for innovation projects and take-up of research results

The CIP co-financing of pilot and market replication projects, in particular in the fields of eco-innovation and ICT, as well as the technology transfer and business partnering services of the Enterprise Europe Network, can help rolling out innovations that were developed with Structural Fund support in the Internal Market. The CIP financial instruments can facilitate the economic success of firms that developed business innovation ideas emanating from Structural Fund supported research projects.

Research results obtained by SMEs through the "Research for the benefit of SMEs" projects of FP7, can lead to commercial innovation ideas that may benefit from SF support for their development, demonstration and implementation.

3.3.3. Science and technology parks

The most commonly used definition of a science park in Europe is that of the International Association of Science Parks (IASP)[115] 'A Science Park is a business support and technology transfer initiative that:

- encourages and supports the start up and incubation of innovation led, high growth, knowledge based businesses;
- provides an environment where larger and international businesses can develop specific and close interactions with a particular centre of knowledge creation for their mutual benefit;
- has formal and operational links with centres of knowledge creation such as universities, higher education institutes and research organisations'.

Science and industrial parks facilitate the establishment of links between higher education, research and businesses. They are catalysts for technology transfer activities.

In the report,[116] the European Economic and Social Committee (EESC) refers to "Technology, Industrial, Innovation and Science Parks (TIIS)" as fulfilling the requirement to bring together universities, other research institutions and enterprises in all Member States and so help to bridge the technology gap between regions. The EESC stresses that TIIS are contributing to European industrial change, enhancing innovation-, clustering- and Business-to-Business activities, and supporting SMEs and regional job creation. EESC also highlights the fact that TIIS play a prominent role in efforts to facilitate and stimulate innovation and regional development, given that they enhance competitiveness, while helping to reduce unemployment and the gap between divergent levels of regional development.

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114 More information: http://cordis.europa.eu/technology-platforms/home_en.html

115 "Regional Research Intensive Clusters and Science Parks", EU Commission, DG RTD, September 2007

116 EESC document CCMI/025 (14/12/2005) and CCMI/072 14/07/2010.

Science Park Potsdam Golm, Germany (Finalist RegioStars Award 2009)[117]

Since the mid-1990s, the Science Park at Golm on the outskirts of Potsdam has developed into the largest and most important science and research centre in Brandenburg. Originally the site of Potsdam University, Golm now hosts three Max Planck Institutes, two Fraunhofer Gesellschaft Institutes, a business incubation centre(GO:IN) and many innovative enterprises.

GO:IN, which opened in 200,7, provides ideal start-up conditions for new entrepreneurs with services such as conference rooms, joint marketing and coaching. In 2008, it housed 28 enterprises.

ERDF contribution: EUR 74.3 million

More than 1.300 scientists are working at the science park and the various university institutes have a total of 7.000 students. Many joint research projects have been funded under FP5, 6 and 7.

More information: http://www.wisspark.de/

In addition to fostering innovation for enterprises, the ERDF and ESF also support action to promote innovation in public authorities including, for instance, experimentation with new forms of innovation, integration of innovation into social systems and urban planning and so on. Examples of good practice and measures that were developed and tested under CIP, FP7 and INTERREG projects could be taken-up and implemented by managing authorities in their Operational Programmes.

3.3.4. Innovation, research systems and cluster initiatives

There is a need to develop synergies between pilot projects funded under the different policy instruments (RoK, RegPot, Europe INNOVA and PRO INNO Europe®[118], FTN and other INTERREG and URBACT projects). To pursue this objective, it is crucial to foster a greater cooperation at regional level between the above mentioned organisations involved in the implementation of the different EU funding instruments.

[117] Investing in our regions, 150 examples of projects co-funded by European Regional Policy, EC, 2010.

[118] See www.europe-innova.eu and www.proinno-europe.eu

CLOE (Fast Track Network INTERREG IVC) to Clusterpast (FP7-Regions of Knowledge project, lead partner Lyon, France), to the European Cluster Observatory (CIP project) and to the mainstream programmes of the Structural Funds

The CLOE network "Clusters Linked Over Europe" was one the first Fast Track Networks under the "Regions for Economic Change" initiative, created to speed up the transfer of good practice from pilot projects to large scale Structural Fund Operational Programmes. CLOE has become the hub for over 25 local networks across Europe. CLOE and has produced a Cluster Management Guide for regional authorities and cluster managers, identifying good practice, and methods, tools and processes for setting up and managing clusters in regions.

The Clusterplast network, created by some CLOE partners, is an inter-cluster initiative funded under the Regions of Knowledge action (FP7) to target the future challenges for the polymer converting industry. It was set up under a Joint Action Plan (JAP) designed to promote synergy between local and regional authorities, businesses and research organisations from the 6 European regions involved. The JAP will support technology-led development in the regions, encouraging innovation through collaboration between RTD centres and companies, stimulating new enterprises, attracting new investment through various varied initiatives and coordinating activities to ensure consistent use of public and private funding.

One output from the Clusterplast project will be the provision of a large information set for the European Cluster Observatory (CIP project). A majority of the common activities defined in the Clusterplast JAP could be eligible under the mainstream programmes of the Structural Funds.

More information: http://www.clusterforum.org/, http://www.clusterobservatory.eu/, http://www.clusterplast.eu/

3.3.5. Improvement and internationalisation of innovation support services

The 500 regional partners or more involved in the Enterprise Europe Network, have been recently encouraged to extend their business services to other stakeholders operating in EU regions. Traditionally, network partners are oriented towards the direct delivery of services to SMEs. From 2011 onwards they will also provide support to cluster organisations, IP advisors and public enterprises to encourage them to take up new innovation support schemes that have been developed through pilot activities in Europe INNOVA and INTERREG projects.

The Europe INNOVA valorisation project and a new role for the Enterprise Europe Network

The Europe INNOVA platform is aimed at developing better innovation support measures and making them available to professionals. In the past, the use of new measures has often been limited to the projects developing them. Since 2009, the TAKE IT UP project has provided support for all Europe INNOVA projects in better testing new measures in more regions and in documenting their results in an easily accessible manner. The work of TAKE IT UP is supported by an expert group that includes representatives from partner organisations of the Enterprise Europe Network.

The promotion of measures developed through Europe INNOVA, like the training courses on IP management, the European innovation management benchmarking platform (imp³rove) and others, can have a quick and tangible impact and can lead on from joint policy analysis to better support for innovation in regions. Innovation support measures need to be adapted to the characteristics of the regions concerned and to build on local strengths. Incentives also need to be provided for the development of new or improved innovation support measures in

order to accelerate the development and wider use of good practice, so contributing to more effective use of public funding.[119]

4. TOWARDS SMART SPECIALISATION STRATEGIES

4.1. Why do we need smart specialisation?

Regional innovation policies have often demonstrated a lack of efficiency in identifying priorities for individual regions and forms of practical collaboration between regions. It is widely argued that this is one aspect that regional strategies have been unable to solve, leading to a wasteful use of public resources and hampering, or delaying, the realisation of the potential benefits for society. This is an even more critical issue in the present crisis in view of the scarcity of public and private financial resources available.

A more promising strategy appears to be for regions to construct a strategic vision of their future that identifies how they should position themselves in the knowledge economy. Formulating such a strategy means finding out which R&D and innovation activities can best be developed competitively in the region concerned and then implementing the policies necessary to pursue this vision. Such a discovery process is at the heart of - a smart specialisation strategy.

In this context, regions need to find their 'market niches' and to increase efforts to absorb knowledge targeted at the economic activities that have the potential to produce quick results in global markets and to address the social challenges they face, as well as that of globalisation. In sum, they have to bet on smart growth.

Investment in R&D, human capital and innovation is crucial for all regions. But they start with different endowments of these assets. There are potentially large gains from strategies that exploit an original, globally competitive specialisation niche and strengthen it over time. In order to have a meaningful impact, R&D and innovation resources must reach a critical mass and need to be supported as much by targeted interventions in human resources and knowledge infrastructure as in the provision of suitable framework conditions for businesses. By focusing on areas of comparative advantage and key enabling technologies or social challenges, smart specialisation strategies[120] can ensure a more efficient and effective use of funds and human resources and potentially leverage larger amounts of private investment.

The exploitation of economies of scale has been a major motivation for pooling resources and for EU approaches to RTD policy, as evidenced by numerous infrastructure initiatives, the increasingly large-scale measures supported by the FP (Networks of Excellence, Integrated Projects) and the European Technology Platforms, the EIT and other recent initiatives. However, priority-setting is still largely undertaken with national or regional considerations in mind, often failing to reap the full benefits of the opportunities offered by an enlarged European Research Area (ERA).

In order to have an appreciable economic impact, RTD efforts must reach some 'critical mass' threshold. Priority setting is important, since individual regions or countries may be unable to reach such a critical mass and so realise a competitive advantage in a specific area (e.g. nano-

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119 Commission Staff Working Document SEC(2009)1197 on "Making public support for innovation in the EU more effective – Lessons learned from a public consultation for action at Community level", see www.proinno-europe.eu/sites/default/files/page/10/07/making_public_support_for_innovation.pdf

120 Foray, D., David, P. and Hall, B. (2009), "Smart Specialisation: The Concept", Knowledge Economists Policy Brief No. 9, http://ec.europa.eu/invest-in-research/pdf/download_en/kfg_policy_brief_no9.pdf?11111

or bio-technology) or industrial sector. In addition, priority setting needs to be pursued consistently over long periods of time. Several expert groups have observed that many regions and countries disperse their efforts across too many areas, and identify this as a key failing of the EU vis-à-vis its major global partners and competitors.

Smart specialisation has been conceived as a regional and national strategy to overcome such problems. Smart specialisation strategies entail a process of entrepreneurial discovery, identifying globally distinct niches and steering the RTDI and business innovation efforts of all stakeholders towards those areas. The concept has been conceived by Prof. D. Foray and Prof. B. van Ark in the context of the Knowledge for Growth Expert group established by the Commission. The notion was subsequently adopted in the Barca Report[121] commissioned by DG Regional Policy as well the Expert Group "The role of community research policy in the knowledge-based economy"[122]. Both expert groups propose smart specialisation as a way forward for future Cohesion policy.

4.2. What is smart specialisation?

In a nutshell, *smart specialisation*[123] is about placing greater emphasis on innovation and focusing scarce human and financial RTDI resources in a few globally competitive areas in order to boost economic growth and prosperity.

It should be understood that smart specialisation provides a strategy and a global role for every regional economy – irrespective of whether they are driven more by manufacturing and new technologies, services and services innovation, or both. While *leader regions* might invest in the invention of a generic technology, *less advanced regions* are often better advised to invest in the development of the applications of a generic technology or service innovation in one or several important areas of the regional economy or in developing cross-sectoral approaches. Some examples are biotechnology applied to the exploitation of maritime resources; nanotechnology applied to various agricultural and food sectors such as the production of wine, cheese and olive oil; services enabled by information technology applied to the management and maintenance of the archaeological and historical heritage.

Effective investment and a policy framework for the knowledge based society need to be fed by strategic intelligence that stimulates the competitiveness of regions through the identification of priorities in high-value added activities. Smart specialisation is an alternative to a policy that spreads investment thinly across several areas and sectors irrespective of a region's industrial structure and knowledge capacity (in terms of human capital, universities, research organisations and so on.). It entails a fuller tailoring of research and innovation policy to the regional context based on a realistic assessment of what can be achieved with limited resources. Smart specialisation can, moreover, be a key element in developing multi-level governance for strategic and integrated innovation policies[124]. In this sense, policies to leverage investment for innovation have to be better linked to other policy domains and to regional development and to be built on a better understanding of regional strengths in relation to those of other regions[125]. Smart specialisation is expected to create more diversity among regions than a regime in which every region imitates others. An absence of smart

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121 http://ec.europa.eu/regional_policy/policy/future/barca_en.htm

122 http://www.earto.eu/fileadmin/content/07_News__public_/KBE_Final_ReportRev-3.pdf

123 Foray, D., David, P. and Hall, B. (2009), "Smart Specialisation: The Concept", Knowledge Economists Policy Brief No. 9, http://ec.europa.eu/invest-in-research/pdf/download_en/kfg_policy_brief_no9.pdf?

124 Background note on "Accelerating the transformation of Europe through innovation" for the Joint informal meeting of Ministers for research and Industry, Brussels 15th of July 2010

125 Belgian Presidency input to informal competitiveness council, July 2010.

specialisation would almost certainly result in duplication, increasing uniformity and a lack of imagination and vision in setting R&D priorities, which in turn would diminish the potential for complementarities within the EU knowledge base. This could only produce poor results in terms of the contribution of R&D and innovation to EU economic growth: most regions would remain unattractive to investors and would not be able to compete with others to attract knowledge resources.

Smart specialisation is also linked to the concept of world-class clusters[126], which offer the possibility of fostering excellence at all levels and of strengthening specific competitive advantages. A particular focus in this regard needs to be placed on supporting the development of more world-class clusters in new industries in order to avoid a misallocation of scarce resources.

It is clear that scientific and innovation effort in a few locations and the neglect of the rest of the continent is not what Europe 2020 is about. Instead it calls for smart specialisation as a way of reconciling strong centripetal forces towards the development of strong agglomeration effects with a relatively balanced geographical distribution of innovation capacity across the EU. It entails regions developing an original strategic vision in terms of science, technology and innovation and implementing the policies necessary to bring it about.

Identifying an original and economically profitable niche for each region in terms of key enabling technologies[127] (e.g. ICT bio- or nano-technology), innovation in services or to meet social challenges (e.g. energy scarcity or the environment) would make the most of existing diversity across EU regions while at the same time facilitating the emergence of pan-European areas of specialisation which are competitive at a global level.

Smart specialisation can help all regions make the most of EU resources (such as from the Framework Programme and the Structural Funds), strengthen research and innovation capacity and mobilise latent potential. It can lead to a more coherent distribution of resources in this area across the EU, by avoiding unnecessary duplication and increasing the potential for complementarity between a number of innovation-related measures. Smart specialisation can, therefore, be a catalyst for interregional cooperation.

Specialisation in the production process, in terms of the concentration of activity within a certain area, generates scale economies, including, at least in certain contexts, in the case of knowledge production.[128]

The agglomeration of innovation capacity is important for the productivity of technological research

Literature on regional science highlights the importance of spatial dependence in knowledge production – i.e. the fact that research activities in any given place are often influenced by related activities nearby.[129] This is confirmed by an econometric study[130] of the role of

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126 http://intercluster.eu/index.php?option=com_flexicontent&view=items&cid=1:frontpage&id=159:release-of-the-white-paper-on-the-emerging-of-world-class-clusters&Itemid=1&lang=en

127 http://ec.europa.eu/enterprise/sectors/ict/key_technologies/index_en.htm

128 Furman, J. L., Porter, M. E. and Stern, S. (2002), "The determinants of national innovative capacity", Research Policy, 31, pp. 899-933

129 Audretsch, D. and Feldman, M. (1996) R&D spillovers and the geography of innovation and production. American Economic Review 86, 630-640; Bottazzi, L. and Peri, G. (2003), "Innovation and spillovers in the regions: Evidence from European Patent Data", European Economic Review, Vol. 47, pp. 687-710

130 Varga, A. (2000), "Local Academic Knowledge Transfers and the Concentration of Economic Activity", Journal of Regional Science, Volume 40, No. 2, pp. 289-309

agglomeration in university R&D productivity in transferring knowledge to innovation, based ion US metropolitan statistical area data. The study finds that a "critical mass" of advanced technology firms, private research labs and business services is a prerequisite for university research to have a significant impact on regional innovation.

The development of regional innovation systems is a cumulative process characterised by positive-feedback: success breeds more success.

Local innovation capacity is built up slowly over time, an observation that highlights the importance of policy with a long-term horizon. According to endogenous growth models, the size of the workforce generating idea as well as knowledge accumulated over the past is important[131] ('standing on the shoulders of giants'). Cumulative processes also have a geographical dimension. Localities with high levels of agglomeration of innovation capacity can act as poles attracting mobile science and technology resources to initiate a virtuous cycle of better performance and more resources.[132]

Specialisation is a function of the extent of the market

Economic theorists as far back as Adam Smith have understood that the move from self-sufficiency to specialisation is conditional on the means of sourcing o essential inputs not produced internally. Following this reasoning, greater specialisation will come naturally as the ERA matures and European integration in research and innovation progresses.

In its proposed form of implementation, the concept of smart specialisation draws inspiration from studies of the implications of the emergence and diffusion of General Purpose Technologies (GPTs, analogous to 'key enabling technologies' (KETs)). Historical and theoretical insights suggest that the diffusion of GPTs/KETs akin to the development of the steam engine, electricity and computers in stimulating economic growth.[133] A GPT/KET often emerges within strict sectoral confines in response to specific needs. The distinguishing characteristic of a GPT'/KET is its 'generalisation' capacity, in opening up numerous opportunities for proximate innovation across economic sectors.

Smart specialisation is built on the pragmatic realisation that some regions may be better adapted to advancing the frontier (i.e. inventing new GPTs/KETs), whereas others can be involved in the co-invention of applications. The aim of regions adopting smart specialisation strategies is to achieve coherent matching between their science base, technology production and economic structure. This is a long-term process, with echoes of similar processes advanced in economic geography under the banner 'the learning region'.[134]

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131 Romer, P. M. (1990),"Endogenous technological change", Journal of Political Economy, Vol. 5, No. 98, pp. S71-S102

132 Crescenzi, R., Rodríguez-Pose, A., and Storper, M. (2007), "The territorial dynamics of innovation: a Europe-United States comparative analysis", Journal of Economic Geography, Vol. 7, pp 673-709; Varga, A. (2006), "The spatial dimension of innovation and growth: empirical research methodology and policy analysis", European Planning Studies, Vol. 9, pp. 1171-1186.

133 Crescenzi, R., Rodríguez-Pose, A., and Storper, M. (2007), "The territorial dynamics of innovation: a Europe-United States comparative analysis", Journal of Economic Geography, Vol. 7, pp 673-709; Varga, A. (2006), "The spatial dimension of innovation and growth: empirical research methodology and policy analysis", European Planning Studies, Vol. 9, pp. 1171-1186

134 Asheim B.T. (2001), "Learning regions as development coalitions: Partnership as governance in European workfare states?", *Concepts and Transformation*, Vol. 6, No. 1, pp.73-101.

***Regional development through smart specialisation: The Bluebionet example*[135]**

Bluebionet is focused on the development and adoption of maritime biotechnology. Four maritime regions (in France, Germany ,the UK and Spain) are coordinating their efforts to strengthen their knowledge base through the development of biotech applications in this area. This is an example of regions with a strategic vision identifying what makes their knowledge base unique and distinctive. By working in a coordinated way, they have determined that a new technology could modernise and revitalise what is for them an important economic sector. Such a vision has enabled them to define a competitive area with few players world wide and w ere critical mass is easier to reach. By working together, a critical cluster has been formed emerged and the knowledge assets - people, ideas, labs – are available to all members of the network, encouraging the expertise to remain in the EU.

4.3. How can regions develop a smart specialisation strategy?

A *smart specialisation* strategy should be the end result of an entrepreneurial process of discovery. Appropriate means should be mobilised to identify and achieve a consensus on a *smart* specialisation strategy that translates global opportunities (mainly in the form of key enabling, or 'general purpose', technologies) into regional strengths. It should be stressed that smart specialisation does not call for a pre-conceived "grand plan", but rather a flexible strategy under which the role of policy is one of monitoring and providing qualified support. It should:

- Be place-based: driven by a pragmatic assessment of individual strengths and weaknesses and mindful of the region's history, territorial characteristics and broader geographical context, especially the activities of neighbouring regions.[136] The involvement of stakeholders in the identification process is crucial in this regard.
- Include a pool of strategic resources: proportional in size to the region's ambitions.
- Be sufficiently broad to allow for a diversified portfolio of related activities: striking a balance between specialising enough in order to be competitive, but not so much so as to hinder diversification and expose the region to the risk of changing market conditions or other external and unpredictable events. Cross-sectoral approaches and consideration of future potiential changes or spin-offs from existing sectors can contribute to such a portfolio.
- Seek complementarities with other regions: regions focusing on the same key enabling technology yet with different capabilities and capacity can seek synergies by forming partnerships for closer research and innovation cooperation and mutual policy learning.
- Assessed and monitored through peer review and anticipate stepwise structural change and the accompanying revision of priorities. Monitoring should be accompanied by fall-back strategies to avoid sunk costs being magnified.
- Accompanied by a diverse policy mix, including specific measures for higher education and vocational training, support to innovation and SMEs, taking account of necessary

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135 Example taken from Foray, D. and Van Ark, B. (2007), *Smart specialisation in a truly integrated research area is the key to attracting more R&D to Europe,* Knowledge for Growth Expert Group, Policy Brief 1, http://ec.europa.eu/invest-in-research/pdf/download_en/policy_brief1.pdf

136 Barca, F. (2009), "An Agenda for a reformed Cohesion Policy. A place-based approach to meeting European Union challenges and expectations", Independent Report prepared at the request of Danuta Hübner, Commissioner for Regional Policy.

changes in framework conditions. The sustainability of the strategy will depend on the timeliness of complementary investment in related areas. Care should be taken to ensure that the focusing of resources on areas of smart specialisation does not interfere with the development of a broad human capital base.

Differentiated strategies across space and time

Strategic objectives will depend on the regional context and may include:

- *Retooling: support to technological and human resource upgrading within an already existing industry;*
- *Extending: some diversification of the knowledge base is developed based on synergies between two or more activities (e.g. silicon and solar panels);*
- *Emerging: the discovery of an entirely new niche which is likely to be viable and economically important.*
- *Cross-sectoral: a new combination of sectors helps generate innovative ideas for new products and services.*

Depending on local context and circumstances, the smart specialisation process can be motivated by different rationales and objectives:

- **Retooling of an existing sector**: technological upgrading of an existing industry, involving the development of applications of a GPT. What is *discovered* in this case is the potential of a given generic technology to generate structural change in an already existing industry. Here smart specialisation means simply that a new area of R&D and innovation specialisation (e.g. the application of ICT of some kind) is emerging to match an important industrial area of specialisation in the region concerned. In this case, the role of entrepreneurs in stimulating the smart specialisation process is obvious. But the retooling process can happen in industries which are at different levels of capability (high, medium, low). Two examples are given below of extreme cases of high and low capability. Depending on the local context, the role of policy is likely to be different too.

  Example 1: The Finnish Pulp and Paper (P&P) industry views nanotechnology as a promising source of valuable applications innovations and its firms are taking steps to assess this potential. Some of the P&P companies are responding to these opportunities by increasing their overall internal R&D investment, which is aimed not only at implementing available technologies but also at exploring recent advances in areas of nanotechnology and biotechnology.

  Example 2: In the Braga region in Portugal, some retooling processes are evident involving the application of nanotechnologies in the agro-food sector in order to improve quality control in the production of cheese, wine and olive oil. The emergence of biotech applications in the exploitation of maritime resources (Galicia, Spain) is another good example.

- **The co-emergence of R&D/innovation activities and the related business activity**, which suddenly becomes profitable and attractive because of the innovations applied to it. While some assets as well as market opportunities might be present, the fact that there is no industry, or a very weak ones, makes it difficult for the specialisation to emerge spontaneously. What is discovered here is simply that research and innovation in a particular area will make business activities attractive and profitable when they were not

before. However stimulating entrepreneurs to make the discovery concerned likely to be even more difficult than in the previous case since a lot of things are missing to make a business commitment economically attractive and profitable. While the difference between this and the previous case is one of degree (of capability), they require entirely different policy approaches.

> *The development of IT applications for the management and maintenance of the archaeological and historical heritage in Italy (Florence) is a prominent example of the co-emergence of an R&D/innovation niche and a business activity*

- **Extension and diversification of the knowledge base**, driven by the potential for economies of scope, intra-regional spillovers and potential synergies between different activities (an already existing one and an emerging one). What is discovered here is that an area for R&D and innovation focus could be highly productive because of the potential for economies of scope and spillovers. A conceptual distinction can be drawn between spillovers, in the sense that research input in one area may generate knowledge applicable to another area (e.g. silicon and solar panels), and economies of scope arising from the public aspects of core bodies of knowledge applicable to other areas. In practice, both effects are likely to be a function of the diversity of the region's research and innovation activities and the linkages between them. The role of entrepreneurs here might again be less obvious for the simple reason that exploring new areas (even close to the main knowledge base) involves more risk and uncertainty than in the first case.

> *The region of Toulouse exhibits smart specialisation in aeronautics (Airbus valley). The extension of entrepreneurial activities and high education and research infrastructure to new areas such as satellites and GPS technologies is a good case in point.*

- **Cross-sectoral links** can provide a region with the degree of originality and specialisation in its innovation strategy that is necessary to differentiate it and give it a competitive advantage compared to other regions. The fostering of cross-sectoral cooperation has proved to be successful in generating ideas for new innovative applications and integrated solutions.

In sum, regions need to formulate a smart specialisation strategy to make explicit their answers to the following questions: a) what is the link between the major economic sectors of the region and the potential application of a generic technology? b) which are the businesses, universities, and other bodies active in the region, which areas are they active in and how should they be supported? c) is there a gap between the emerging areas of specialisation and the assets and infrastructure in the region and how should this be filled?

4.4. Assessing smart specialisation strategies: preliminary thoughts

A smart specialisation strategy should be developed through a process of discovery led by entrepreneurs. Nevertheless, policy makers have a central role in facilitating communication and in achieving the consensus necessary between stakeholders for an initial (yet flexible) identification of areas and sectors to prioritise; in other words in the definition of a strategy. They also have a crucial role in 'opening-up' the region to cooperation with other regions (nationally and internationally). The design of the strategy represents only the beginning of the process of discovery and its ultimate success is closely linked to how systematically it is assessed and revised.

Yet assessment of R&D and innovation processes in general, and of those aspects most relevant to policy making in particular, is notoriously difficult. The process by which R&D and innovation translate into tangible economic outputs is characterised by complexity, context-specificity and uncertainty. Important elements of this process leave no measurable trail, or only do so partially and with a long delay. These are important limitations in our ability to measure differences and trends and then act upon them, which apply equally to smart specialisation strategies. Nevertheless if strategies are designed according to common principles they can be compared with each other and be subjected to peer review.

Assessment of implementation can also centre on two facets: the monitoring of the *policy effort* needed to facilitate regional specialisation and the monitoring of the *impacts* of this effort in terms of significant economic outcomes.

Policy efforts

It is important to assess the consistency of public support for the knowledge economy with a region's smart specialisation strategy. Regions can develop and use, *inter alia,,* the following monitoring and evaluation tools:

- **Indicators of alignment** of regional public R&D, skills generation and industrial structure.
- **Statistical identification** of related variety[137] to direct public resources to those areas, sectors and skills with the greatest potential for regional growth.

Impacts

The impact of the strategy can be assessed by monitoring structural change and economic impact. Taking into account the inter-complementary relationship between structural change and economic impact, the two dimensions are both means to an end as well as ends in themselves.

- **Structural change**: Monitoring means for changing industrial structure, and patterns of cooperation as well as the structure of science and technology, including specialisation and proximity to the GPT/KET framework identified need to be developed.
- **Economic impact**: These can include a range of indicators, appropriately adjusted to the regional context, measuring economic impact in terms of job creation, skill levels and job profiles, the emergence of clusters and the creation of new companies in knowledge-intensive sectors.

4.5. A Smart Specialisation Platform

Some Member States and regions are well advanced with the development, and even implementation, of smart specialisation strategies. Other regions may wish to share the know-how obtained and some regions may see a need to adjust and up-date their strategies with a fresh approach. This is obviously for Member States and regions to determine. However as it is the basis for the success of the Europe 2020 strategy, in particular the smart and sustainable growth flagships, and as the ever tighter constraint on public finances requires quick action to enhance the economic impact of public investment, the Commission puts its arsenal of support measures at the disposal of national and regional policy-makers.

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137 Frenken, K., Van Oort, F. and Verburg, T. (2007), "Related variety, unrelated variety and regional economic growth", Regional Studies, Vol. 41, pp. 685-697

It plans to launch a "Smart Specialisation Platform", for national and regional innovation policy makers to provide assistance for the development and review of smart specialisation strategies.

This will bring together the relevant EU funding programmes and policy support activities in research, regional, enterprise, innovation and education policies.

It will also bring together expertise from research centres, regional authorities, businesses and Commission services, existing platforms and projects so as to help identify needs, strengths and opportunities.

This platform will collaborate closely with the CIP-funded open "European Cluster Cooperation Forum" to be established under the European Cluster Observatory[138] in 2011. Building upon the policy cooperation of the European Cluster Alliance and taking into account the discussions of the informal Competitiveness Council of July 2010, this measure will allow policy makers to share the experience on cluster policies and evaluation practices from national and regional initiatives.

	Data material & analysis	**Expertise & technical assistance**	**Platforms for trans-national policy learning & cooperation**
REGIO	• Ex-ante studies and analysis Ex-post evaluations 2000-2006 Thematic Evaluations 2007-2013 • Other studies • ESPON studies • RfEC good practice case studies	• RFEC conferences RegioStars awards	Fast Track Networks of the RFEC initiative
RTD	• Regional key figures on R&D • ERAWATCH • "Socio-economic Sciences and Humanities" projects • Data from ESFRI on existing research infrastructure landscape • JRC studies	• Contacts with regional research policy makers via existing FP7-funded networks and platforms • Access to R&D expertise via NCP network • Research Potential projects • Conferences and expert workshops	• Regions of Knowledge • ERA-Nets
ENTR	• Regional Innovation Monitor (hub for data on regional innovation policies ; web-portal functions …) • European Cluster Observatory • Sectoral Innovation Watch	• Contacts with regional innovation policy makers via existing CIP-funded innovation networks and platforms[139] • Access to innovation and business support providers'	• European Cluster Cooperation Forum • European Cluster Alliance

138 www.clusterobservatory.eu

139 www.proinno-europe.eu/policy-cooperation; http://ec.europa.eu/enterprise/policies/innovation/policy/public-procurement/index_en.htm#h2-networks

140 www.europe-innova.eu ; www.enterprise-europe-network.ec.europa.eu

	• Regional Innovation Scoreboard + EIS • Innovation Policy TrendChart • studies *(available budget in 2011: some 200.000)*	expertise via the EEN and other CIP-funded networks[140] • Conferences and expert workshops *(available budget in 2011: some 200.000)* • …	
EAC	• Study on culture's contribution to regional and local development, including a pedagogical tool • Study on the European Capitals of Culture (ECoCs) and annual evaluations of the ECoCs • Study on the economy of culture Study on the entrepreneurial dimension of the Cultural and Creative industries	• Conferences and expert workshops	• Potentially[141], a working group of Member State experts working on how best to promote an integrated approach to culture in regional and local development. Policy analysis groupings evaluating the impact of cultural policies at national, regional or local levels[142]

5. MAPPING REGIONAL INNOVATION

A **synthetic indicator of regional innovation potential** which takes account of several key aspects of the innovation process is developed here, including such aspects as R&D expenditure, patents, academic publications and the share of human resources in science and technology to capture the innovative capacity of a region. The absorption capacity is measured by the education level of the population, lifelong learning and the share of employment in knowledge intensive services. The capacity of the region to participate in the diffusion of innovation is based on motorway and railway density, access to flights, the distance of the population to universities, the share of high tech employment and the share of households with broadband access.

The map shows six types of region, ranging from strong generators of knowledge to weak absorbers and diffusers.

The first type 'strong generators' is mostly made up of the highly developed regions of the North-Western EU Member States. These regions are close to the world technology frontier and their growth process generally hinges on innovation and R&D as well as on the accumulation of human capital with a view to move the technology frontier outwards.

The 'intermediate performers' broadly correspond to the moderately developed regions of the EU. These regions are catching up on the first group through a process of technology absorption. However, such a process requires high levels of human capital and the main

141 Depending on formal adoption of the Work Plan for Culture from 2011 onwards, due in November 2010.

142 http://ec.europa.eu/culture/our-programmes-and-actions/doc2011_en.htm

challenge for these regions is to reduce the gap with the first group in terms of the education level of the workforce.[143]

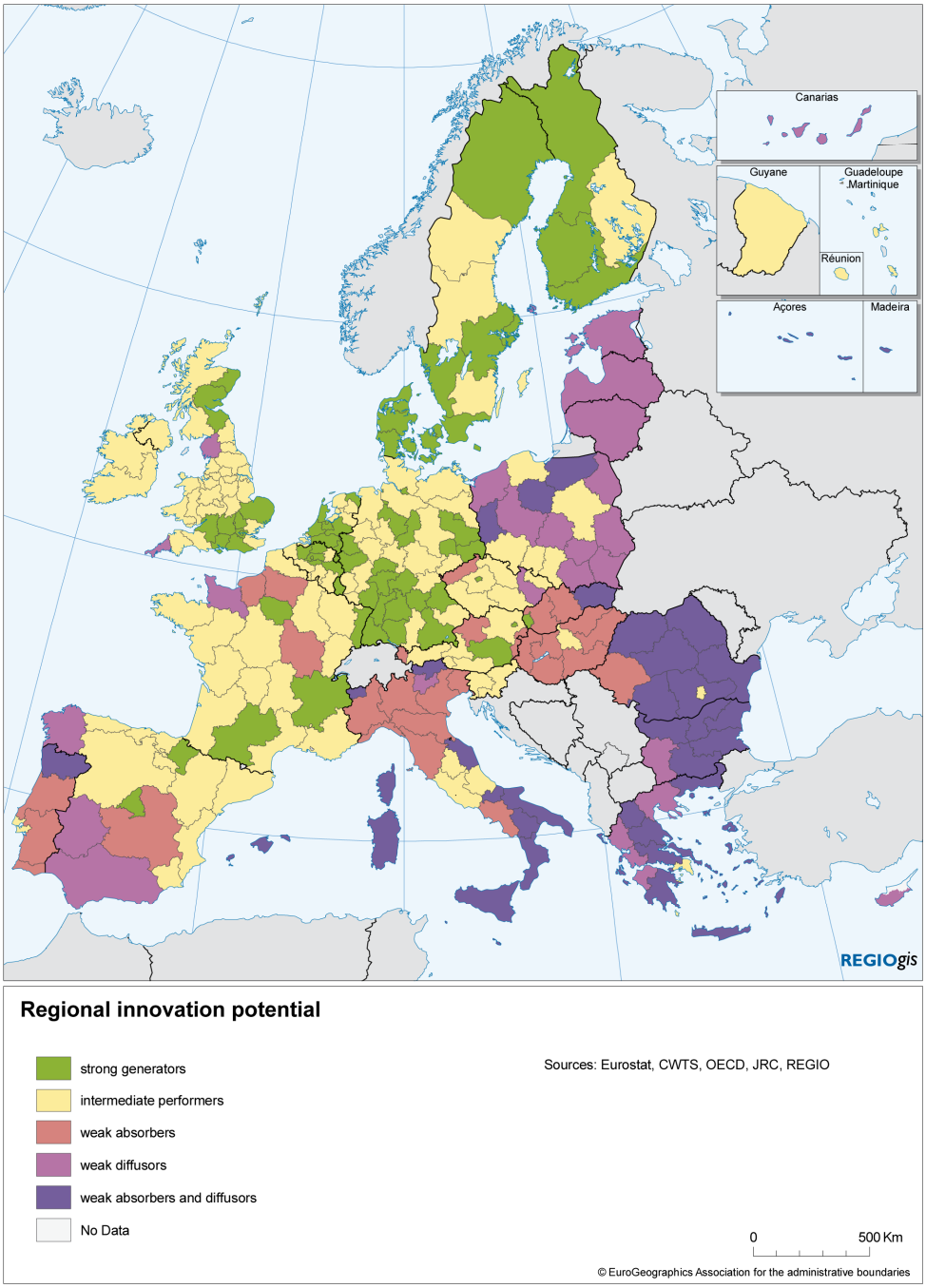
The two groups 'weak absorbers' and 'weak diffusers' are mostly in Central and Eastern Europe. Absorption is mainly reflected in the education level of the workforce, the extent of life long learning and the share of employment in knowledge-intensive services. For these regions where the level of education is often relatively high, the main limiting factor is not human capital but rather the low endowment of infrastructure and the quality of the business environment, though factors like the quality of the education system or the links of the universities with businesses also need to be tackled through policy action.

Diffusion largely depends on factor mobility, access to broadband, employment in high-tech activities, international trade and foreign investment. When these are at a developed enough level, the strengthening of human capital usually needs to be included in the priorities.

The regions in the worst situation are those which are both 'weak absorbers' and 'weak diffusers'. This group includes Central and Eastern European regions but also some regions in the southern European countries.

[143] DG Regio Study 2010: R. Wintjes, H. Hollanders, "The regional impact of technological change in 2020".

Map 4 Regional Innovation potential – synthetic indicator



Different potentials require different policy-mixes

Such diversity implies that there is scope for a regional approach to innovation. Indeed, the innovation process has a strong local dimension. Knowledge includes an important tacit component that cannot be easily codified and therefore requires direct interaction between actors in the innovation process.

The geography of innovation has also changed in the last few years, with a less well defined and more complex division of labour across cities, regions and countries. Lack of risk capital and the limited production, transfer and use of knowledge constitute key barriers to

innovation along with limited cross-sectoral collaboration, lack of entrepreneurship and the long-term negative effects of the financial crisis on R&D funding.[144]

Regional diversity in development pathways and models of innovation calls for differentiated policies adapted to specific regional circumstances. Differentiated policies can address the wide range of determinants of innovation performance across the EU. Integrated policy approaches can target both innovation potential and broader social and economic framework conditions, particularly in lagging areas. Addressing the weaker innovation systems is vital to enhancing overall economic performance.

In order to achieve the Europe 2020 Strategy objectives of developing knowledge-based economies, there is a need to assess their potential for innovation in order to identify the best policy mix to overcome the challenges they face.

The ex-post evaluations of the 2000-2006 ERDF programmes recommended that in Convergence regions, the ERDF should focus first and foremost on technology transfer and building capacity rather than into leading edge research. For example, building research centres in regions where the SMEs have limited absorption capacity is likely to be less effective than setting up innovation services for companies or more generally improving the business environment.

144 Wintjes Hollanders, 2010

6. QUANTIFYING COHESION POLICY SUPPORT TO INNOVATION

The Community strategic guidelines on cohesion policy (2007-2013), adopted by the Council, stress that to promote sustainable development and strengthen competitiveness it is essential to concentrate resources on research and innovation (RTDI), entrepreneurship, the information society and the training of workers.

In 2007, the Commission published a Staff Working Document 'Regions delivering innovation through Cohesion Policy'[145] which produced an estimate, based on this approach, of the planned investment implemented through the Operational Programmes and communicated to the Commission by the Member States on the base of a list of categories included in the Implementing Regulation for the Structural Funds.[146]

In 2010, the 'Strategic report 2010 on the implementation of the 2007-2013' programmes has made an overall assessment of the rate of advancement of these initial plans. This assessment shows that, while there has been investment, there are still large amounts of funding available to be used.

6.1. Innovation

ERDF and ESF support for innovation (total) by Objective

Objective	Planned EU Investment million €	Allocated to Selected projects million €	Allocation Rate %
Convergence	61.289	16.291	26,6%
Regional Competitiveness and Employment	21.887	5.446	24,9%
European Territorial Cooperation	2.075	481	23,2%
TOTAL	**85.252**	**22.217**	**26,1%**

145 .SEC(2007) 1547. http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/comm_en.htm

146 Implementing regulation for the Structural and Cohesion Funds 2007-2013 (EC) No 1828/2006. http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/newregl0713_en.htm

ERDF and ESF support to innovation by category and groups (all objectives)

Code	Category	Planned EU investment million €	Allocated to selected projects million €	Rate of Allocation %
Research Technological Development Innovation				
1	R&TD activities in research centres	5.809	1.973	34,0%
2	R&TD infrastructure and centres of competence in a specific technology	9.845	3.157	32,1%
3	Technology transfer and improvement of cooperation networks ...	5.321	1.011	19,0%
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	5.853	1.248	21,3%
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...)	2.479	485	19,6%
7	Investment in firms directly linked to research and innovation (...)	8.927	2.929	32,8%
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	6.820	2.536	37,2%
74	Developing human potential in the field of research and innovation, in particular through post-graduate studies ...	4.934	843	17,1%
Entrepreneurship				
5	Advanced support services for firms and groups of firms	5.158	1.728	33,5%
68	Support for self-employment and business start-up	3.212	491	15,3%
Innovation ICT				
11	Information and communication technologies (...)	3.476	1.151	33,1%
12	Information and communication technologies (TEN-ICT)	517	179	34,5%
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	5.216	1.008	19,3%
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	2.050	166	8,1%
15	Other measures for improving access to and efficient use of ICT by SMEs	1.477	352	23,8%

Human Capital				
62	Development of life-long learning systems and strategies in firms; training and services for employees ...	9.645	2.254	23,4%
63	Design and dissemination of innovative and more productive ways of organising work	1.751	158	9,0%
64	Development of special services for employment, training and support in connection with restructuring of sectors ...	2.758	547	19,8%
	TOTAL	**85.252**	**22.217**	**26,1%**

The relative shares allocated differ between Member States depending on the total amount of funds available, national needs and priorities set by each Member State.

6.2. SMEs and other businesses

The support to SMEs and other businesses can also be estimated in a similar form. Categories included here are a subset of those indicated above with one important exception. The category 08 'Other investment in firms', which accounts for a significant amount of funding has been excluded from the innovation group because it can be argued that it is not directly targeted at innovation.

ERDF (mainly) support directly targeted to SMEs by category

SME	Category	Planned EU investment million €	Allocated to selected projects million €	Rate of Allocation %
3	Technology transfer and improvement of cooperation networks ...	5.321	1.011	19,0%
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	5.853	1.248	21,3%
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...)	2.479	485	19,6%
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	6.820	2.536	37,2%
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	2.050	166	8,1%
15	Other measures for improving access to and efficient use of ICT by SMEs	1.477	352	23,8%
68	Support for self-employment and business start-up	3.212	491	15,3%
	TOTAL	**27.213**	**6.289**	**23,10%**

ERDF (mainly) support to businesses not related to size, of which a proportion also benefits SMEs by category

Code	Category	Planned EU investment million €	Allocated to selected projects million €	Rate of Allocation %
5	Advanced support services for firms and groups of firms	5.158	1.728	33,5%
7	Investment in firms directly linked to research and innovation (...)	8.927	2.929	32,8%
8 *	Other investment in firms	14.096	5.671	40,2%
	TOTAL	**28.181**	**10.328**	**36,50%**

***** Not included in innovation

ESF support related to businesses by category

Code	Category	Planned EU investment million €	Allocated to selected projects million €	Rate of Allocation %
62	Development of life-long learning systems and strategies in firms; training and services for employees ...	9.645	2.254	23,4%
63	Design and dissemination of innovative and more productive ways of organising work	1.751	158	9,0%
64	Development of special services for employment, training and support in connection with restructuring of sectors ...	2.758	547	19,8%
	TOTAL	**14.155**	**2.960**	**20,90%**

6.3. ICT

It is also possible to estimate the total amount of support to ICT, the first category of which (10: 'Telephone infrastructure (including broadband networks)' was also excluded from the innovation total along with other types of infrastructure.

ERDF (mainly) support for ICT by category

Code	Category	Planned EU investment million €	Allocated to selected projects million €	Rate of Allocation %
10 *	Telephone infrastructures (including broadband networks)	2.306	418	18,1%
11	Information and communication technologies (...)	3.476	1.151	33,1%
12	Information and communication technologies (TEN-ICT)	517	179	34,5%
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	5.216	1.008	19,3%
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	2.050	166	8,1%
15	Other measures for improving access to and efficient use of ICT by SMEs	1.477	352	23,8%
	TOTAL	**15.042**	**3.274**	**21,8%**

***** Not included in innovation