

RIS3 Regional Assessment: Epirus

A report to the European Commission, Directorate General for Regional Policy, Unit I3 - Greece & Cyprus

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Alasdair Reid, Nicos Komninos, Jorge-A. Sanchez-P., Panayiotis Tsanakas

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1. Executive summary: Overall conclusions and recommendations

Smart specialisation priorities and the innovation system

Although one of the smallest and poorest of the Greek regions, Epirus has a potential to develop a specialised regional development strategy. Infrastructure investments (Egnatia road, Igoumenitsa port, etc.) over the last decade have better connected the region both nationally and internationally. Epirus is also home to a number of food and natural resource based businesses and the growth potential of alternative tourism (eco-tourism, etc.) is recognised. Moreover, regional scientific specialisation is more in line with regional needs than in some other Greek regions, with a number of specialised centres (notably in agro-food technology).

The two key regional research organisations are the University of Ioannina and the Technological Education Institute of Epirus. However, there are also a number of smaller research centres active in a range of natural resource based and agro-food technologies relevant for the regional economy. The technology park and the BIC Epirus are the most relevant innovation intermediaries supporting a number of smaller high-tech firms in two incubators. However, given the scale of the region there are too many intermediaries and little evidence of impact on business innovation

The expert team **recommends** that the RIS3 should focus future innovation investment in developing 2-3 core competencies relevant to the regional economy. These are most likely to be found in research and technology extension services for the dairy industry and other agro-food firms, ICT technologies and their application in improving regional health and tourism services and manufacturing production and, technology know-how related to environmental protection and sustainable exploitation of the natural biodiversity. The RIS3 process should include a more detailed analysis of technology needs and opportunities in regional firms. Moreover, the current range of intermediary organisations should be rationalised (closing or terminating funding for non-performing projects) and a single network or one-stop shop structure created, most probably on the basis of the current BIC Epirus.

Governance and the innovation system

Since 1999, the regional stakeholders (who are they?) have built up a good experience of partnership based innovation policy design and pilot actions (such as...) but there is still only limited capacity to implement full-scale innovation policy measures due to the centralisation of programme delivery during 2007-13. Actually, the Regional Authority of Epirus is coming back to innovation planning and support ideas that are close to earlier regional strategies, focusing on productive restructuring and product development in the food and dairy sectors, aquaculture, eco-tourism, local products, quality and branding. The Regional authorities have committed to setting up a RIS3 steering committee and support a process of 'entrepreneurial discovery' with external consultants and targeted working groups. The expert team **recommends** that to (1) reinforce further the regional RIS3 planning exercise in order to guarantee a bottom-up planning through the entire strategy process, (2) address the regional-national planning coordination issue and explore opportunities for joint actions with neighbouring regions on specific topics.

Innovation policy

During the current programming period, under €5m has been awarded to Epirus based organisations through the national research and innovation funding programme administered by the GSRT. A majority of this funding has been allocated to a few projects, notably the participation of three regional organisations to the national cluster programme. There has been insufficient focus on the core productive sectors, notably the dairy and other agro-food sectors, in terms of technological know-how and innovation support.

The expert team **recommends** (1) a detailed analysis of company needs operating in sectors defined as priority: farming and aquaculture; food and diary products processing and promotion; tourism and culture; environmental management and protection in terms of transition, modernization, and diversification, (2) identify key enabling technologies capable to sustain competitiveness of companies in the above sectors, and actions that will make those technologies available locally, and (3) assess candidate innovation actions with respect to six criteria of sustainability, creation of local capabilities, integrated solutions, private funding leverage, and contribution to development goals.

Clusters

To date, the involvement of regional firms and research actors in the national clusters programme has been very limited. However, the regional stakeholders and authorities indicated that they would favour a greater effort to regional cluster actions and clusters are identified in the opportunities section of the SWOT analysis for 2014-20. In a region with neither existing mature clusters nor previous experience of cluster policies, we **recommend** to draw on the experience of a technology industrial cluster approach to facilitate the rapid spread of good practice (e.g. Corallia Clusters Initiative, Why Corallia could be a good practice for clusters to be developed in Epirus?). Moreover, the region should update the existing analysis with more recent data to create a stronger foundation for cluster selection. A particular focus should be given to strengthening links of existing/emerging sectors/clusters to national and global value chains. In this respect and due to the fact that the region borders with Albania, the strategy should provide incentives for the development of transnational and trans-regional clusters.

ICT policy, broadband, eServices

Epirus faces a deficit in ICT infrastructure, particularly with regard to broadband networks, which hampers economic development (% of territorial coverage?). The region is in 11th position for PC usage and in 12th position for the use of the Internet (date?). Although these indices have further improved by 2012, they are not satisfactory as a basis for a modern competitive economy. In terms of the business sector, the region hosts a very limited number of ICT companies, mainly focused on system integration and business software support. The regional higher education institutions (Univ. of Ioannina and TEI of Epirus) are active in ICT education and research, but their work remains loosely connected with the other main production sectors (agriculture/forestry, food & beverages).

The 2005 Thematic Network on ICT in Epirus (what is this network?) identified the regional needs in terms of ICT infrastructure and usage and made a set of recommendations on ways to improve the low level of ICT development in particular through a co-ordinated approach to the dissemination and diffusion of ICT in the business sector of the region and the development of a regional policy and instruments for the promotion of e-business for SMEs. The analysis fed into the regional development strategy for the 2007-2013 but as all measures were funded through the national digital convergence programme, the regional strategic priorities were not implemented.

The expert team **recommends** that the RIS3 should seek to build on past regional ICT strategies and focus digital convergence measures on a few selected actions where maximum impact can be achieved (e.g. health services, tourism services, etc.). A significant part of the strategic ICT plan should be implemented using public-private partnerships, characterised by increased transparency and less red-tape. PPPs can also leverage private funds and improved sustainability, providing additional flexibility to project execution.

2. Regional Innovation Performance and potential

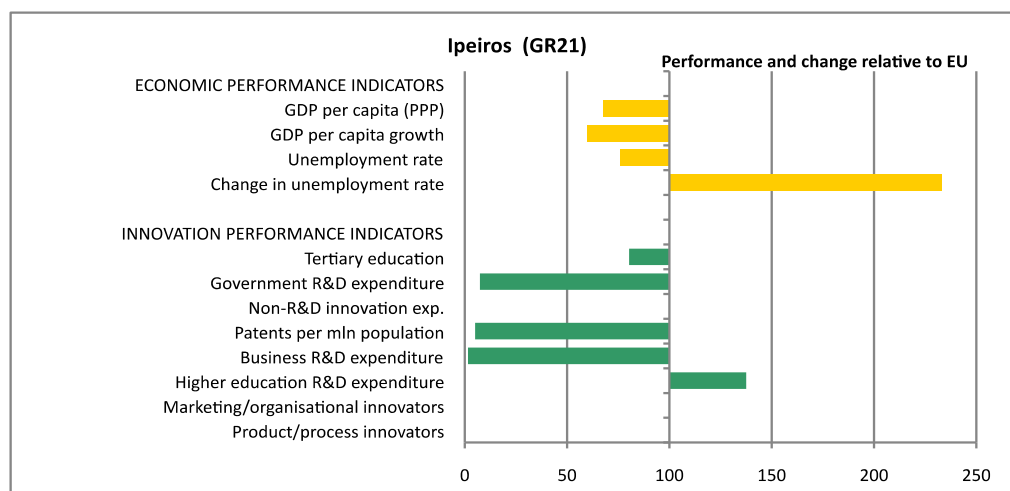
2.1 Regional profile and specialisation

Located in Northwest Greece, Epirus is a mountainous, sparsely populated (39.4 inh/km²) and relatively isolated region accounting for only 3% of the Greek population (336,650 inhabitants). The region has suffered from emigration and there are significant disparities between rural and urban areas. The regional capital, Ioannina, accounts for nearly a third of the population.

Epirus is the poorest Greek region with a regional GDP per capita (in PPS)¹ of €15,300 in 2009, 65% of the EU27 average, making. The region has been hard hit by the economic crisis: unemployment rose to 16.7% in 2011 up from 9.9% in 2008. The educational level is relatively low: only 23.3% of the population aged 25-64 have completed tertiary education (25.4% in Greece, 26.8% in EU27), although Epirus is ranked 4th out of the Greek regions. This is allied to a low and declining level of life-long learning (but this is similar to the national trend) with only 2.5% of adults aged 25-64 participating in education and training (Greece 2.9%, EU27 9.4%).

A 2007 technology foresight exercise (as part of an ERDF co-financed Regional Programme of Innovative Actions) identified a number of drivers for improving competitiveness: the major infrastructure projects (the Egnatia and Ionian Roads, Igoumenitsa port, expansion of the Ioannina University, the technology park, etc.) combined with emerging sectors such as eco-tourism, for which the region has a natural competitive advantage², provide a basis for future development.

Figure 1 Summary benchmark of regional innovation performance, Epirus



Source: Regional Innovation Monitor, data used is 2011 or latest available year. Trend data is over latest three year period for which data is available.

Although traditionally a rural economy, the importance of the agricultural sector has declined to only 6.3% of regional GDP over the past decade, with a slight upturn between 2008 and 2009. While the rugged landscape makes agriculture difficult, sheep and goat herding are important and Epirus provides more than 45% of meat to

¹ All data provided is sourced from Eurostat unless stated otherwise.

² The flora in Epirus is one of the richest in Greece, due both to its diversity, and the presence of rare species. It also has the highest rainfall of all Greek regions and significant water resources. The mountainous area, dominated by the Pindus massive (a national park). The region hosts: 31 Natura 2000 protected areas and one Ramsar site, Wetlands of International Importance, the Amvrakikos Gulf.

the Greek market and is home to a number of major dairy brands, producing feta and other regional cheese. However, the services sector dominates the economy, accounting for 74.3% of the regional GDP, while industry and construction account for 19.5%. The main regional services activities are transport, financial intermediation, tourism, health, education and trade (RIM 2012). The renewable energy sector, particularly wind and hydro-power, is growing in importance. The manufacturing sector is dominated by traditional industries with a majority of small family-run firms, with limited export capacity. The most dynamic regional industries are the dairy products and other food products industries that are vertically integrated.

Figure 2 lists the 20 business sectors in which Epirus is most specialised compared to other EU regions³. Although the highest share of employees is in ‘growing of crops, market gardening, horticulture’, the main fields of relative specialisation include site preparation; animal farming; manufacture of dairy products and mixed farming.

Figure 2 Relative regional specialisation in 20 industries – Epirus

	Industry	Rank in Europe	Specialisation	Employment
1	Site preparation	1	9.61	3 702
2	Bars	1	4.30	5 694
3	Farming of animals	3	9.02	5 923
4	Manufacture of dairy products	7	4.62	1 303
5	Growing of crops combined with farming of animals (mixed farming)	8	4.13	8 278
6	Manufacture of lighting equipment and electric lamps	9	4.50	554
7	Provision of services to the community as a whole	10	2.88	4 850
8	Adult and other education	10	2.52	2 255
9	Retail sale of automotive fuel	14	2.13	761
10	Retail sale of food, beverages and tobacco in specialized stores	14	2.17	2 908
11	Secondary education	15	2.42	4 895
12	Growing of crops; market gardening; horticulture	20	4.92	10 234
13	Building completion	31	1.59	2 825
14	Maintenance and repair of motor vehicles	31	1.57	1 921
15	Primary education	34	2.02	5 417
16	Production, processing and preserving of meat and meat products	35	1.85	1 346
17	Production and distribution of electricity	42	1.76	1 230
18	Manufacture of beverages	46	1.61	578
19	Manufacture of builders' carpentry and joinery	63	1.53	653

Source: Centre for Strategy and Competitiveness –CSC, Stockholm School of Economics (2011), Smart specialisation in Europe, European specialisation data by region

Based on 2005 data (most recent available) on research and development (R&D) expenditures, the region accounted for only 2.6% of the Greek gross R&D expenditure (GERD) or a total investment of €29.82m. However, this is equivalent to 0.68% of GDP, placing the region third amongst Greek regions (equal with Western Greece), a share that increased by 23% between 2003 and 2005. The vast majority (96%) of the regional R&D investments efforts occur in the higher education sector (47.5% in Greece, 22.5% in EU27) and to a limited extent in the government sector for 3.52% (20.3% in Greece, 13.6% in the EU27). Consequently, the business sector contributes only 0.73% of regional GERD (31% nationally and 63% for the EU27). This enormous gap is due to the low-to-medium technology structure of the regional economy and the dominance of traditional sectors. In addition, since 2008, the economic crisis is likely to have negatively affected business R&D investment. The low business R&D intensity is reflected in the level of patenting activities, with 5.68 patents registered, at the

³ The minimum degree of specialisation is 1.5 (meaning that the region has 50% more employment in the industry than the size of the region), and the industry must have at least 500 employees in the region (in order to eliminate high specialisations in very narrow industries).

European Patent Office, per million inhabitants in Epirus, in 2008, against 8.04 on average in Greece and 111.58 in the EU27.

In 2011 the region hosted 2.7% of the national Human Resources in Science and Technology (HRST) or 28.8% of the regional workforce (active population)⁴, ranking the region third (after Attica and Central Macedonia). The total R&D personnel in 2005 was 1,037 full time equivalent (FTE), or 0.75% of the regional active population against 0.69% in Greece and 0.95% in EU27. Not surprisingly, most of those were to be found in the higher education sector (97.5%), with only 29 FTE to be found in the business sector and 15 in the government sector. Looking specifically at the share of researchers (0.47% of active population against 0.4% in Greece and 0.59% in EU27), 98% of the 656 regional FTE are working in the higher education sector. Only 11 FTE researchers worked in Epirus’ businesses. The RIM reports argues that the low HRST employment rate by regional enterprises is the direct outcome of the manufacturing production structure, where low skill cost competition dominates. Despite the fact that Epirus has a strong education tradition, the HIDDEN report (2011) highlighted that 80% of the graduates from the University of Ioannina turn towards the public sector and lack an entrepreneurial perspective.

Figure 3: SWOT of regional innovation potential and specialisation

Strengths	Weaknesses
<ul style="list-style-type: none"> • Good quantity and quality of scientific production • High level of HRST • Presence of regional academic research capacities with specialisation relevant to regional economy • Past experience in the development of regional innovation policies (RIS, RPIA, RISI, etc.). • Significantly better transport infrastructures for inter-regional connections • Rich and relatively well-protected natural and aquatic resources 	<ul style="list-style-type: none"> • Quasi non-existent business R&D investments • Traditional structure of the economy, dominated by small low-tech companies • Remote, under-developed area • Low level of ICT diffusion • Low level of education of the population and life-long learning practices • Low level of science-business collaboration • Weak entrepreneurial and innovation culture in business sector
Opportunities	Threats
<ul style="list-style-type: none"> • Enhancement of the competitiveness of agriculture and tourism and increased focus on quality (e.g. green products) based on scientific specialisation • Increase coordination of national and regional policies to support ICT diffusion • Improvement and upgrading of infrastructure in the industrial areas and of support infrastructures • Improve support to upgrading of SMEs technological capacity • Potential for expanding renewable energy generation 	<ul style="list-style-type: none"> • Economic specialisation in low-tech sectors (agriculture, tourism) • Competition from low-cost economies • Brain drain

Looking closer at the scientific production, between 1996 and 2010, the University of Ioannina (UOI) ranked sixth among the 21 Greek universities analysed based on Thomson Reuters data in 2010 (714 publications in 2010 against 250 in 1996). Over the period 2006-2010, UOI had a total of 3,481 publications (8.6% of total Greek universities’ publications), 42% of those involving national co-authorship and 41% international collaboration. Publications of the UOI were cited 20,705 times over the period 2006-2010, giving the UOI an overall citation impact of 1.04. The main fields of scientific activity in the UOI are to be found in natural sciences (1,890 publications,

⁴ The percentage of the total labour force aged 15-74 having successfully completed a third level degree or employed in an occupation where such an educational level is normally required

over 2006-2010, 10,505 citations, citation score of 1) and medical and health sciences (10,122 publications, 1,409 citations, citation score of 1.11). There is also some activity in engineering and technology (2,769 publications, 685 citations, citation impact of 1). Interestingly, there are not many publications and citations in the field of agricultural sciences (167 publications, 51 citations) but the citation impact is relatively high (1.24).

The Technological Education Institute of Epirus (TEI Epirus)⁵ has a considerably lower level of scientific outputs, with 99 publications over the period 2006-2010 (ranked 8th out of the 16 Greek TEI), 257 citations (ranked 8th) and a citation impact of 0.81. The TEI Epirus is particularly active in natural sciences (120 publications over 2006-2010, 47 citations, citation impact of 0.58) and agricultural sciences (107 publications, 44 citations, citation score of 1.05). From the total publications, 85% involved a national collaboration and 24% an international collaboration.

Data on scientific specialisation is therefore partly in line with the regional economic specialisation profile in particular for the agricultural area. This would suggest the existence regionally of a potential for upgrading the agricultural capacities and production towards activities generating more added value for the regional economy.

Recommendation: the region should focus future research and innovation investment in developing 2-3 core competencies of relevance for the regional economy, these are most likely to be found in research and technology extension services for the dairy industry and other agro-food firms, ICT technologies and their application in improving regional health and tourism services and manufacturing production and, technology know-how related to environmental protection and sustainable exploitation of the natural biodiversity. The RIS3 process should include a more detailed analysis of technology needs and opportunities in regional firms.

2.2 The strengths and weaknesses of the regional innovation system

The key regional research organisations are the University of Ioannina (over 16,000 students) and the Technological Education Institute of Epirus. However, as can be seen from Appendix C, there are also a number of smaller research centres active in a range of natural resource based and agro-food technologies relevant for the regional economy. The technology park and the BIC Epirus are the most relevant innovation intermediaries supporting a number of smaller high-tech firms in two incubators.

The European Regional Innovation Scoreboard⁶ ranks Epirus (grouped in the statistical-region Kentriki Ellada) as a modest-medium innovator (the lowest of four performance categories) along with all other Greek regions, except Attica. Similarly, the 2011 Regional Innovation Monitor (RIM) report classified all Greek regions (except Attica) as knowledge absorbing innovating regions. From a positive perspective, this group of 19 EU27 regions has the highest average score on 'innovative entrepreneurship' (based on the share of SMEs introducing innovations in the Community Innovation Survey) but the lowest score on 'technological innovation': business R&D and patenting is very low, while the non-R&D innovation expenditures (as a % of turnover) are higher than in any other group. This implies that innovation take place through purchasing 'off-the-shelf' technologies.

Indeed, a report on 'hidden innovation' led by the BIC of Epirus⁷ (HIDDEN, 2011), highlighted that regional firms lack an innovation culture and thus training in innovation management is essential. The local entrepreneurial potential is weak,

⁵ <http://www.teiep.gr>

⁶ MERIT & Technopolis 2012

⁷ The HIDDEN project is co-funded by the Operational Programme MED 2007–2013 and aims to support innovation in the sense of business development, marketing and organisation (hidden or soft innovation) and thus ensure high-growth potential & sustainable development in terms of competitiveness and employment in MED area. The project aims to strengthen the innovation capacity and competencies of relatively small and "low tech" SMEs by putting greater emphasis on non technological innovation.

characterised mainly by small and non-ambitious enterprises, operating locally. More positively, the HIDDEN project studied cases⁸ of regional firm that grew by applying non-technological innovation methods (see Box 1 and Box 2). The HIDDEN report emphasised that innovative entrepreneurship depends on adapting the regional economy to technological needs and opportunities that will occur in the future. In this sense, coordination of national and regional innovation measures innovation is essential. However, as is discussed in section 4.2, the regional innovation system (public agencies and funding bodies, university/public research organisations, business, private equity/business angels/investors, etc.) is still weakly structured and fragmented despite the past initiatives.

Box 1: Modernisation of production and export of traditional dairy products

The Karalis Dairy Industry originates from the cheese-making dairy, which has operated in Petra and Preveza for more than 50 years, but was using outdated technology. Today, the cheese dairy has a modernised structure and technology with a daily capability of processing 80 tons of milk. Traditional production methods have been adjusted to technological progress and up to date know-how of the dairy industry. The products are available in the domestic market and are also exported to America, Australia and EU countries.

Karalis S.A., Milk Industry of Epirus successfully participated to the 2nd Greek Cheese Contest that took place in the scope of the 2nd Cheese and Dairy Festival, organised by the European Regional Development Network (EDPA) in October 2009 at the Piraeus Port Authority. This international standard contest and takes place every two years. The taste tests (blind tests) of the samples participating in the contest were performed by a judging committee was composed of world famous chefs from all European countries. The company was awarded 7 medals for different kinds of cheese.

Source: HIDDEN project (Hidden Innovation Initiatives for SMEs”, project going from 2010 to 2013 co-financed by ERDF and lead by the Region of Epirus), <http://www.hiddenproject.eu>

Box 2: Enlargement of vine varieties in a vineyard

The Glinavos Winery estate is located in the community of Zitsa (Ioannina-Greece). Thanks to ongoing efforts towards the continuous improvement of the quality of its wines, Glinavos winery is one of the leaders in the field of wine-making. Lefteris Glinavos set up the winery in 1978. During the first years, the Glinavos family used the native varieties of white Debina, Vlahiko and red Bekari and later on, the family enlarged the range of varieties to other Greek and foreign ones.

Debina is a Greek indigenous variety, cultivated for centuries in Zitsa. This variety gives a fruity, refined wine with a subtle fresh flavour. In the area of Zitsa, two red native grape varieties are also cultivated, "Vlahiko" and "Bekari", as well as the French varieties Cabernet Sauvignon and Chardonnay. Varieties such as Malagouzia, Riesling, Traminer and others have also been planted in the vineyards of the Glinavos Estate. Also famous is the “Epirus Tsipouroe aroma - Traditional wines”.

During the last years, Glinavos winery has focused on new types of wine. A modern, genuine rosé was an aspiration it succeeded in realising. The Glinavos Rosé won the preferences of the consumers and specialists (Golden prize in the contest Citadelles du Vin 2004. Best Buy in Brussels. First choice according to the Weinmark magazine).

Source: HIDDEN project (Hidden Innovation Initiatives for SMEs”, project going from 2010 to 2013 co-financed by ERDF and lead by the Region of Epirus), <http://www.hiddenproject.eu>

The Hidden report argued that a possible development option for Epirus would be to become an intermodal hub attracting investment in sectors that will integrate innovation and knowledge as key elements for the development of the regional economy, building on its comparative advantages, such as its geopolitical position, the

⁸ Full case studies available here on the HIDDEN project portal: http://www.hiddenproject.eu/wp-content/uploads/2011/10/HIDDEN_3.3_ANNEX_CASE-STUDIES.zip

development of the University of Ioannina, the network of social infrastructure, the rich natural and cultural environment and the positive interrelation of the primary sector with processing. The report further recognises that in order for the region to be further developed, investments in physical and human capital should be increased, innovation should be accelerated and the use of ICT should be extended.

Recommendation: the current range of intermediary organisations (see Appendix C) should be rationalised (closing or terminating funding for non-performing initiatives) and a single network or one-stop shop structure created, most probably on the basis of the current BIC Epirus.

3. Stakeholder involvement and governance of research and innovation policies

3.1 Stakeholder involvement in strategy design and implementation

The Epirus region has significant previous experience in designing and implementing participatory regional innovation policy starting with the Regional Innovation Strategy of Epirus developed during 1999-2001. The RIS-2001 was led by the General Secretariat of the Region and coordinated and managed by two bodies: the Steering Committee composed of representatives of the regional government, the four Provinces and four Chambers of Commerce (Arta, Ioannina, Preveza, Thesprotia), the University and Higher Educational Institute of Epirus, and the BIC of Epirus; and a management unit set up by the regional government, the University and the BIC.

The RIS-2001 strategy and action plan included actions in four thematic areas:

<p>Networking Companies and Organisations</p> <ul style="list-style-type: none"> • Encouraging Technology Transfer from large companies to SMES • Promotion and support for business networking • Linking companies with liaison offices of Universities • Certification of food and diary products • Cluster building in tourism and traditional local products 	<p>Development of New Products</p> <ul style="list-style-type: none"> • Food products with organoleptic characteristics • Products using marble waste • Organic livestock in mountainous goats • Mountainous aquaculture • Enrichment of eel, fish stocks inland waters • Ecotourism • Differentiation of traditional products, in silversmiths and precious metals and stones
<p>Improvement of business management, quality and certification</p> <ul style="list-style-type: none"> • HACCP in food companies • Diffusion associated with the management and promotion companies, particularly in the food industry and furniture • Re-organization of fish farms and environmental management of aquaculture • Standardization – Certification, introduction of export certificates • Energy audits and energy saving in companies 	<p>Development of infrastructure</p> <ul style="list-style-type: none"> • In the marble sector, processing units and Marble Centre • Modernization of farms, livestock cooperatives • Laboratories of physicochemical and microbiological testing • Quality control services (physical, chemical and microbiological) for dairy products. Reopening of Regional Dairy Quality Control Laboratories • Food Certification Unit • Centre of aquaculture

This strategy and action plan was not implemented since the RIS-2001 results were produced too late to influence the ROP 2000-2006 and innovation funding was extremely limited in this period. However, a second regional innovation policy initiative was undertaken during the 2000-2006 period with support from DG REGIO's Regional Programme of Innovative Actions initiative. ENtrepreneurship Through Innovation in Epirus (ENTI)⁹ was run, by the BIC of Epirus, from October 2003 ending in with an innovation week in May 2006. The project was organised

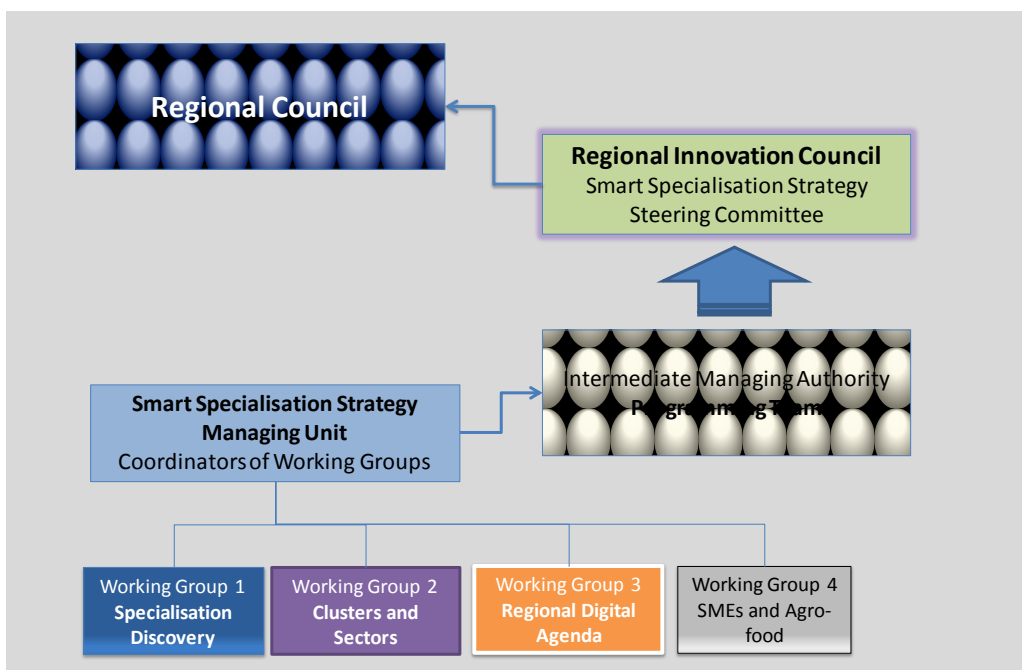
⁹ <http://www.bicepirus.gr/enti/en/default.htm>

around a series of actions (including a regional foresight study), working groups covering three sectors are: Tourism, transport and ICT led by external experts. ENTI also included three pilot actions: Innovation Policy Interface Committee (aiming to create an improved network of innovation activities and results; an E-Commerce pilot action which aimed to assist 35-40 enterprises; and the organisation of Venture Capital Forums to match funders with local enterprises with high potential. Although ENTI produced a rich series of outputs and proposals, as in the 2007-13 period innovation policy was essentially managed centrally by the GSRT, the participatory process and outputs did not lead to concrete follow-on actions funded by the ERDF.

However, in the RIS3 meeting organised by the Intermediate Managing Authority of Epirus on 16 October 2012, the Regional Authority of Epirus underlined its intention and readiness to support again regional innovation planning and actions building on an in line with the past experience of the RIS-2001, ENTI or projects such as the Hidden Innovation projects that the BIC Epirus led during 2007-13 period.

Attended by 53 representatives from the public, academic, and business sectors (see Appendix A), the RIS3 meeting was an occasion for a good quality debate that underlined the depth of understanding on regional challenges and opportunities and the range of ideas about the future priorities. All stakeholders expressed their support and a strong commitment to participate in the RIS3 Epirus, which they consider as an opportunity to foster the restructuring and modernisation of the regional economy. The stakeholders expressed a range of ideas and concerns about the need for restructuring the productive sectors, product development in the food, diary, aquaculture, eco-tourism, local products, enhanced product quality and regional branding. In order to (re)launch an entrepreneurial discovery process, the Regional Authority of Epirus and the IMA committed to set up a RIS3 steering committee with a representative participation of regional stakeholders.

Recommendation: Previous projects, such as ENTI provide a good basis for supporting an entrepreneurial discovery, that should be organised around a targeted working groups, supported by consultants and academic or industry experts as required as illustrated in the following diagram.



3.2 Multi-level governance and synergies between policies and funds

The Epirus Regional Government underlined, during the stakeholder meeting, their intention to manage and implement regionally the funds that are made available for 2014-20. However, the issue of regional–national coordination has not yet been addressed in a concrete way. Indeed, while regional planning covers all three priorities of the ex-ante conditionality for smart specialisation, national guidelines are only given so far for the thematic axis on research and innovation.

Secondly, the Epirus authorities indicated that they expect, in the 2014-20 period, a more integrated intervention at the regional level through a multi-fund ROP. Indeed, the 2007-13 requirement to implement operations through single fund measures led to difficulties in addressing regional challenges, as it excluded from the regional operational programme interventions financed by the agriculture and fisheries funds.

Recommendation: the expert team supports an integrated approach as a means to improve the structuring of interventions around a smaller number of priority themes. However, there is a need for working groups established under the RIS3 process to explore how this can be achieved in practical terms. Moreover, the initial Epirus strategy for 2014-20 does not provide discuss the potential for synergies between Cohesion policy and other policies and funding sources (such as Horizon 2020, etc.). The RIS strategy should clearly indicate how Structural Fund interventions will be complementary to support secured from other EU and national programmes.

3.3 Vision for the region

In the 2007-13 period, the Epirus development strategy is focused on the exploitation of comparative advantages for improving the attractiveness and establishment of the region as multimodal transport hub. The economic development vision is structured around three pillars 'Quality-Knowledge/Innovation–Outward looking'. The main goals include strengthening business competitiveness and innovation capacity, improving transport infrastructure and services, sustainable management of the environment, promotion of cultural identity, and promotion of digital convergence (Operational Programme of Epirus 2007-2013, p.155)

For the 2014-20 period, the development vision is described in the draft strategy as 'Self-sustained and outward-looking development, focused on productive activities that create competitive advantages and strengthen the local identity, with respect to the environment, history and citizenship of Epirus'. This vision will be achieved with strategic objectives and priorities that promote economic, social and cultural development of the region; improve the administrative capacity; improve the services provided to citizens, and the rational management of financial resources of regional authorities (Region of Epirus 2011).

The initial strategy report for the 2014-2020 programming period (Epirus IMA 2012) reaffirms the above orientations, but also underlines the need for reducing intra-regional disparities and a balanced intra-regional development. The priority productive sectors identified by the regional authorities and stakeholders are livestock, fisheries, food and dairy products linked to local agricultural production, tourism and ecotourism.

Recommendation: The change in strategic objectives towards productive activities rooted in the region corresponds to a choice of stakeholders and is supported by the expert team. However, the vision and development strategy should specify in more detail specific investment opportunities, technological or non-technological (marketing, design, etc.) needs of regional firms, in the broader priority sectors to foster productivity and competitiveness of regional firms (both smaller and larger), with an emphasis on quality, origin and branding of regional products and services (such as eco-tourism). In promoting traditional sectors, stakeholders should make the best possible use of existing innovative solutions through the establishment of contacts with firms, research centres and regional authorities located outside Greece, in regions with similar characteristics with Epirus.

4. Towards a regional smart specialisation strategy

4.1 Regional research and innovation policies

The Regional Operational Programme (ROP) covering Epirus for 2007-2013 period is structured, like all Greek ROP, around three main priorities: (1) Digital convergence and entrepreneurship, (2) Sustainable development and quality of life, (3) Infrastructures and services of accessibility, and technical support. During the current period, the funding available for Epirus through the ROP was €315.18m and the ‘Digital Convergence and Entrepreneurship’ priority was allocated €71.51m or 22.68% of the total funds. However, the implementation and management of the first priority and all actions related to research, innovation, entrepreneurship and digital convergence were transferred to the national authorities (General Secretariat for Research and Technology, Special Secretariat for Digital Convergence, Special Secretariat for Competitiveness and Entrepreneurship, etc).

Figure 4 : Current and future regional R&I priorities

Policy Documents	Priorities and objectives
<p>Operational Programme of Thessaly, Sterea Ellada, Epirus 2007-2013</p> <p>Επιχειρησιακό Πρόγραμμα Περιφέρειας Θεσσαλίας, Στερεάς Ελλάδας, Ηπείρου 2007-2013</p>	<p>Strengthening the innovation capacity and business competitiveness is a primary development goal of the Region of Epirus.</p> <p>Priorities include support of research for new products, further development of higher education, strengthening of Internet services and e-consulting, e-learning, e-training, e-business, enhancement of existing or creation of new bodies for technical support to businesses, promotion of networking and business export activity, and improvement and upgrading the technical infrastructure.</p>
<p>Proposal of the Region of Epirus for the Priorities of the National Development Strategy 2014-2020</p> <p>Προταση Περιφερειας Ηπειρου Για Τη Διαμορφωση Των Κατευθυνσεων Εθνικης Αναπτυξιακης Στρατηγικης 2014-2020, Σεπτεμβριος 2012</p>	<p>1. Strengthening research, technological development and innovation:</p> <ul style="list-style-type: none"> • primary sector (farming, aquaculture); secondary sector (processing, packaging, partnerships, promotion); tertiary sector (tourism, culture); environment (management and protection) <p>2. Enhancing access, use and quality of ICT</p> <ul style="list-style-type: none"> • Supporting entrepreneurs on the use of ICT and broadband in their businesses, such as computer applications, storage, wireless ordering, electronic invoicing, web promotion, etc. • Utilisation of existing information and communication technologies for electronic interconnection of the services of the Region and Municipalities • Distance learning and e-learning methods for schools, for specific groups of citizens, etc., development of appropriate training material and diffusion • Electronic collaboration of hospitals within and outside the region, using electronic patient records, medical information exchange, when necessary, a card with medical data of patients, electronic exchange of data concerning the management of the hospitals, • Actions to enhance digital cultural resources, electronic museums <p>3. Enhancing the competitiveness of small and medium enterprises, the agricultural sector (for the EAFRD) and fisheries and aquaculture (for the EMFF)</p> <ul style="list-style-type: none"> • Linking mechanisms of applied research and businesses • Effective use of skilled manpower • Improvement of the technological level of enterprises and the level of production / integration of innovation. • Development of qualitative and export-oriented agricultural production and aquaculture • Development of specific forms of tourism • Improving the infrastructure for supporting SMEs

As can be seen from Appendix D, the scale of funding received by organisations via the R&I measures managed by the GSRT is rather lower than originally planned, with only just over €4.2m committed to 32 projects in Epirus. Funding was relatively evenly

split between enterprises (€2.4m) and research organisations (€1.89m). Of the total funding, 8% was allocated to projects in the field of agricultural sciences, 15.7% to medical sciences, 33.7% to exact sciences and 42% to engineering and technology projects. However, considering the 'sectoral' distribution of funding, the share of agriculture, fisheries, farming, food and biotechnology is 28%, considerably higher than the average for all Greek regions of 11.7%; while 'high value added products and technologies for traditional industries' captures 44% of funding (38% Greece) and ICT projects 20% (16.3%). The data at project level suggests that in the current period funding has been focused on a small number of projects (notably the participation of Global Digital Technologies and Niki to the clusters programme), which account for a large share of the budget allocated to Epirus. Moreover, it was apparent during the stakeholder meeting in Epirus, that the regional actors had little knowledge about the projects funded by the GSRT in the region.

Some conclusions from the review of current and future innovation policies are:

- In every aspect, current regional R&I policy is almost non-existent. This is evident from the current funds absorption (less than 6%), the regional innovation management capacity, the decision making process on the use of funds and the knowledge of the progress of actions under implementation. Major cause of the regional weakening in the field of innovation has been the centralization of R&I policy implementation.
- In the design of the forthcoming programming period, orientations from GSRT and regional authorities and stakeholders of Epirus diverse significantly. Regional priorities are focusing on agriculture, fisheries, food, ecotourism, with research and innovation needs on production modernization and new product development while GSRT's research and innovation priorities are more horizontal focusing on research excellence, science and society.
- The regional authority of Epirus, IMA, and regional stakeholders have already defined a limited set of priorities which correspond to the regional productive structure and economic challenges; the design is outward looking and goals seem achievable as they deal with immediate and urgent production needs and restructuring. However, specialisation is still at the level of production; there is an initial estimation of technology and innovation needs in the priority sectors, but still a robust technological specialisation analysis is missing. Technology needs of production sectors in focus should be defined, as well as the routes that will make these technologies available to companies.

Recommendations: The design of future innovation policy should take into account the following issues: A detailed analysis of company needs operating in sectors defined as priority: farming and aquaculture; food and dairy products processing and promotion; tourism, eco-tourism and culture; environmental management and protection in terms of transition, modernisation, and diversification. Identify Key Enabling Technologies capable to sustain competitiveness of companies in the above sectors. Identify measures and actions that will make those technologies available locally. Assess ex-ante potential actions of innovation policy with respect to six selection criteria: (1) sustainability after the funding period, (2) creation of local capabilities, (3) integrated solutions to technology-production-market-funding, (4) level of private leverage, (5) number of beneficiaries, and (6) contribution to development goals of GDP, company and employment creation.

4.2 Cluster and entrepreneurship policies

Based on the Cluster Observatory star rating system, the sectors in Epirus, with the highest combined scores for size¹⁰, specialisation¹¹ and focus¹² are 2 stars: Farming and Animal Husbandry; 1 star: Agricultural Products and Processed Food. The strongest potential clusters in Epirus are in animal farming (45% of Greek sheep/goats production and aviculture), and agricultural products, extending to aquaculture and forestry. While there are no mature (three star) clusters in Epirus, the ICT firm GDT¹³, with headquarters in Prevenza, and the Computer Science Department of the University of Ioannina are members of the national microelectronics-based systems and applications cluster (mi-Cluster¹⁴); and Niki¹⁵, based in Ioannina, is a member of the space technologies and applications cluster (si-Cluster¹⁶).

Box 3: Emerging Clusters in Epirus

Farming and animal husbandry (farming of animals, growing of crops combined with farming of animals (mixed farming), aquaculture), *Agricultural products* (growing of crops; market gardening; horticulture), *Processed food* (manufacture of dairy products, production, processing and preserving of meat and meat products, manufacture of beverages), *Tourism and hospitality* (eco-tourism, etc.), *Energy* (production and distribution of electricity, renewable energy sources), *Construction* (site preparation, building completion), *Transport & Logistics* (retail sale of automotive fuel, maintenance and repair of motor vehicles), *Manufacture of builders' carpentry and joinery*, *Manufacture of lighting equipment and electric lamps*.

There are also a number of emerging clusters (see box above) that could be further developed through appropriate policies that bring together the potential cluster actors listed in (Appendix C). Other potential clusters include the regionally based silversmiths as well as in the health sector given the existence of public hospitals and of a Medical School. The regional strategy for 2014-20 places a greater emphasis on specific sectors: The development of clusters was identified as opportunities in the SWOT analysis for 2014-20 and at the RIS3 meeting on 16 October 2012, the IMA of Epirus indicated they would seek to implement a cluster policy for sectors with an identifiable competitive advantage.

Recommendations: in a region with neither existing mature clusters nor previous experience of **cluster policies**, we recommended to draw on the experience of a technology industrial cluster approach to facilitate the rapid spread of good practice

¹⁰ The 'size' measure shows whether a cluster is in the top 10% of all clusters in Europe within the same cluster category in terms of the number of employees. If employment reaches a sufficient share of total European employment, it is more likely that meaningful economic effects of clusters will be present. Those in the top 10% receive one star.

¹¹ The 'specialisation' measure compares the proportion of employment in a cluster category in a region over the total employment in the same region, to the proportion of total European employment in that cluster category over total European employment. If a region is more specialised in a specific cluster category than the overall economy across all regions, this is likely to be an indication that the economic effects of the regional cluster have been strong enough to attract related economic activity from other regions to this location, and that spill-overs and linkages will be stronger. If a cluster category in a region has a specialisation quotient of 2 or more it receives a star. If a cluster category in a region has a specialisation quotient of 2 or more it receives a star.

¹² The 'focus' measure shows the extent to which the regional economy is focused upon the industries comprising the cluster category. This measure relates employment in the cluster to total employment in the region. If a cluster accounts for a larger share of a region's overall employment, it is more likely that spill-over effects and linkages will actually occur instead of being drowned in the economic interaction of other parts of the regional economy. The top 10% of clusters which account for the largest proportion of their region's total employment receive a star.

¹³ <http://www.gdt.gr/>

¹⁴ www.mi-Cluster.gr

¹⁵ <http://www.nikitec.gr>

¹⁶ www.si-Cluster.gr

(e.g. Corallia Clusters Initiative, or rural-economy clusters outside Greece such as for the creation of a farming and husbandry cluster) Moreover, the region should update the existing analysis with more recent data wherever possible to create a strong foundation for cluster selection. Furthermore, more qualitative focus studies should be carried out in the activity domains where the region has relative specialisation (see Box 3) in order to determine the market position of regional firms in international value chains or for **cross-clustering** (e.g. farming and husbandry cluster and eco-tourism) and the identification of innovation opportunities at the interface between different clusters (e.g. incorporate ICT in priority sectors to increase competitiveness). Specific funding measures and support should be developed aimed at primary and secondary sector innovation and inter-linkages with other key sectors in the region.

A particular focus should be given to strengthening the cooperation of existing/emerging sectors/clusters to make **connections to local, national and global value chains**. In this respect and due to the fact that the Region has borders with Albania, it should consider in the strategy incentives for the development of transnational and trans-regional clusters. Finally, the regional stakeholders should consider the creation of a **cluster secretariat** within the region or support one at national level.

As discussed above, the traditional business sectors are loosely connected to the regional innovation system and currently there are no significant initiatives to encourage collaboration or cluster. However, a small number of firms in more high-tech sectors are better connected to the regional innovation system thanks to the efforts of the Science and Technology Park of Epirus¹⁷ (STEP-E, hosting one of the incubators) and the BIC of Epirus¹⁸. The incubation activities focus on biotechnology, computing, informatics and telematics and software. The two regional **incubators** host a nucleus of ‘innovative’ firms and national entrepreneurship initiatives have also intervened (e.g. a business forum of Start-up Greece held in Epirus in January 2012).

Aside from the ‘pilot’ actions under previous initiatives such as ENTI, **sector-specific support services/schemes** have not been fully deployed in Epirus. The main focus has been on multi sector support through the STEP-E, the BIC of Epirus and the industrial zones of Ioannina and Preveza. There is not a **one-stop-shop** for entrepreneurial and innovation support in Epirus but rather a diverse range of institutions, chambers, unions, associations or projects (see Appendix C).

Recommendation: the region should create a **one-stop-shop** building on an existing structure or by merging existing organisations into a new structure for potential investors/SME start-ups with the appropriate improvements and sustainability plans based on lessons learnt and known deficiencies of current implementation. It is also recommended to further develop the zones and parks by offering added-value services to tenants and provide incentives for the establishment of incubators in combination with other policies like clusters.

In the financial field, despite past initiatives (e.g. ENTI) to support links between venture capital and regional enterprises, there are no regionally based investment funds or even a business angel network. This is not surprising given that the scale of the potential deal flow is insufficient for a regional VC fund. The commercial banks provide only standard business loans, which have been reduced due to the financial crisis, although there is a regional cooperative bank¹⁹.

Recommendation: The region is too small to sustain a venture or even a co-investment fund, however, an effort could be made to attract or create, with neighbouring regions, a business angel network.

¹⁷ <http://www.step-epirus.gr/>

¹⁸ <http://www.bicepirus.gr>

¹⁹ <http://www.ioanninabank.gr>

4.3 Digital economy and ICT policies

Epirus faces a deficit in ICT infrastructure, particularly with regard to broadband networks, which hampers economic development. Indicators for education, productivity and specialisation are fairly low for the region of Epirus. According to the "Internet Users in Greece" survey (March 2010)²⁰ of the Observatory for Digital Greece²¹, the region is in 11th position for PC usage (31.4%), and in the 12th position for the use of the Internet (32.2%). Moreover, the use of the Internet over the period 2005-08 has only increased by 64%. At the household level, the percentage of home Internet connections is only 26.2% (11th place). Although these indices have further improved until 2012, it is evident that they are not satisfactory, by any means, for a modern competitive economy.

In terms of the business sector, the region hosts a very limited number of ICT companies, mainly focused on system integration and business software support. The regional higher education institutions (Univ. of Ioannina and TEI of Epirus) are active in ICT education and research, but their work remains loosely connected with the other main production sectors (agriculture/forestry, food & beverages).

Epirus was one of the first Greek regions to take part in the European Commission's Regional Information Society Initiative in the late 1990s. The RISE project was used to build up a regional vision and to test potential ICT applications in the public sector and health services, etc. The 2005 Thematic Network on ICT in Epirus identified the regional needs in terms of ICT infrastructure and usage and made a set of recommendations on ways to improve the low level of ICT development in particular through a co-ordinated approach to the dissemination and diffusion of ICT in the business sector of the region and the development of a regional policy and instruments for the promotion of e-business for SMEs. The analysis fed into the regional development strategy for the 2007-2013 period. However, in the 2007-13 ERDF programmes, the major ICT-related investments are carried out by the national Digital Convergence OP. The most important commitments include: Jeremy ICT Fund, Local Metropolitan Access Networks, Vouchers for student PCs, Academic Networking, Forest protection services, Digi-Lodge and e-Services. Moreover, major e-government services like Elenxis, Digital Content for the Disabled, are supported.

In order to ensure an enduring impact, the region will need to make sure that the broadband targets of the Digital Agenda are met, which implies that all citizens should have access to basic broadband by 2013 and that by 2020, the networks are improved so that Internet speeds are greater than 30 Mbps for all households and over 100 Mbps for at least 50% of the households. These crucial and ambitious goals can only be accomplished if regional, national, and EU initiatives are properly combined.

Broadband requirements are also important for utilising the advantages of modern cloud computing²². This technology, strongly supported by the EU, offers advantages to small and geographically dispersed ICT markets like Epirus.

Another important initiative that can improve the effectiveness of any ICT-related programmes is the promotion of e-government services. Although most of these services are, by their nature, provided by national authorities, there exist several cases in which regional e-government services are required to be launched by the local authorities for the citizens and the enterprises of the Region. Open access and

²⁰ Ταυτότητα χρηστών internet στην Ελλάδα", Παρατηρητήριο για την ΚτΠ, Μάρτιος 2010. http://www.observatory.gr/files/meletes/A100526_%CE%A0%CF%81%CE%BF%CF%86%CE%AF%CE%BB%20%CF%87%CF%81%CE%B7%CF%83%CF%84%CF%8E%CE%BD%20internet%202010.pdf

²¹ See: <http://www.observatory.gr>

²² http://ec.europa.eu/information_society/activities/cloudcomputing/docs/com/com_cloud.pdf

interoperability are key common features to be covered by the applications to be developed for new e-government services, based on pertinent EU guidelines²³.

A significant part of the strategic ICT plan should be implemented using new models of public-private partnerships, to increase transparency and reduce red-tape. PPPs can also lead to the leverage of the public funds and improved sustainability, providing additional flexibility to project execution.

Recommendation:

- Identification of business sectors/activities that can benefit the most from innovative ICT tools, in order to establish targeted actions within the Region
- Identification of e-services that can help citizens and businesses in their relations with regional authorities
- Assessment of the real impact of the recent public investments in wire-line and wire-less broadband infrastructure
- Preparation of streamlined administrative procedures to support the implementation of ICT-related projects using PPPs.
- Secure a permanent consultation mechanism on ICT-related activities, involving representatives of the regional stakeholders.
- Prepare a study on the expected medium- and long-term benefits of super-fast Internet connections (via NGAs), as part of the related national NGA strategy.
- Establish strict and quantitative criteria/targets to the selected ICT-related actions to be supported by the structural funds of the Region

5. Monitoring and evaluation

Monitoring refers to the need of verifying the state of implementation of activities. Evaluation refers to assessing whether and how strategic goals are met. In order to perform evaluation, it is essential that objectives are clearly defined in a RIS3 in measurable terms. A central task during the design phase of the RIS3 is to identify a limited yet comprehensive set of output and results indicators and to establish target values for each of them.

Recommendations – evaluation and monitoring

The capabilities for monitoring, evaluation and analysis of innovation programmes and performance should be further solidified and embedded in both the new regional government structures and the wider partnership. A specific budget line could be set aside for a partnership based regional innovation observatory that could fund studies and doctoral/post-graduate research into innovation practice in regional firms, etc.

Guidance on evaluation methodologies for innovation measures is already available for the 2014-20 period²⁴ and the IMA, regional authorities, etc. should make themselves aware of and use such materials to develop an evaluation plan. At a minimum, one official should be specifically tasked with setting up an evaluation and monitoring system for innovation measures in the IMA.

²³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0173:FIN:EN:PDF>

²⁴ See: <http://bit.ly/Igzx5T>

Appendix A List of people attending the workshop

Separate file

Appendix B List of key documents and reference materials

European Commission & Greek Government (2007) Επιχειρησιακό Πρόγραμμα Θεσσαλίας – Στερεάς Ελλάδας – Ηπείρου 2007-2013 / Operational Programme Thessaly – Sterea Ellada – Epirus 2007-2013

Region of Epirus (2011) ‘Operational Programme of the Region of Epirus 2012-2014’, Region of Epirus.

IMA (2012) ‘Proposal of the Region of Epirus for the Priorities of the National Development Strategy 2014-2020, Intermediate Managing Authority of Epirus

BIC Epirus (2001) RIS-2001. Regional Innovation Strategy of Epirus.

BIC Epirus & partners (2011), HIDDEN project “Regional Requirements, Enablers & Barriers of hidden innovation in Mediterranean SMEs
<http://www.hiddenproject.eu/documents/deliverables/>

EFMN (2007), Regional Foresight Exercise for the Greek Region of Epirus

Regional Innovation Monitor (2012), <http://www.rim-europa.eu/index.cfm?q=p.baseline&r=GR21>

Appendix C Key actors in the regional innovation system

Leading Businesses:

Pindos Energy, Hitos, Lofos, Konitsa Mountain Hotel, Pitoulis, Kapsiohas, Botsios, Viki, Karalis, Gikas, Dodoni, Ipeiros, Minerva, Optima, Spider, Zinos (cooperative), Glivanos Estate, Passos winery, Vikos, Nitisakos, Pindos, (cooperative), Aviculture Cooperative of Arta, Pappas, Niki, etc.

Key research actors:

University of Ioannina (Ioannina), the Technological Educational Institute of Epirus (campuses: Arta, Ioannina, Preveza, Igoumenitsa), the General University Hospital of Ioannina, the Institute of Biomedical Research, the Institute of Milk in Ioannina, the Centre for Hydrobiology Research, the Metsovion Interdisciplinary Research Centre, the Institute of Geology & Mineral Exploration in Preveza, Centre of Animal Genetic Improvement, Centre for Research and Action for the Mountainous Cohesion.

Innovation Financing:

Cooperative Bank of Epirus

Incubators, Industrial Areas/Zones:

Science and Technology Park of Epirus, Business Innovation Centre of Epirus, Industrial Zones of Ioannina and Preveza.

Principal Intermediaries:

Chambers of Preveza, Arta, Ioannina, Thesprotia, Epirus Tourism and Agrotourism Federation, Preveza's Hotel Association, Ioannina's Hotel Association, Network of Tourism companies HydrOrizons, Development Company of South Epirus, Development Agency of Epirus, Unions of Agricultural Cooperatives of Epirus and Corfu, Association of ICT companies of Epirus, Egnatia Epirus Foundation

Appendix D Regional RTDI funding under the OP Competitiveness and Innovation

Allocation by region of GSRT grants for RTDI projects (State Aid) under the OP Competitiveness and Innovation

Region	Enterprises	Research organisations	Other entities	Grand Total	% share
Attiki	€ 78,383,203	€ 33,291,462	€ 480,411	€ 112,155,076	47.4%
Central Macedonia	€ 22,588,727	€ 13,566,039	€ 38,300	€ 36,193,066	15.2%
Western Greece	€ 22,841,816	€ 8,901,221	€ 7,000	€ 31,750,037	13.4%
Crete	€ 3,623,524	€ 13,728,214	€ -	€ 17,351,738	7.2%
Stereia Ellada	€ 9,388,903	€ 1,397,119	€ -	€ 10,786,022	4.6%
East Macedonia & Thrace	€ 5,886,928	€ 1,864,884	€ 25,090	€ 7,776,902	3.3%
Thessaly	€ 4,648,471	€ 2,134,643	€ 253,000	€ 7,036,114	3.0%
Epirus	€ 2,403,100	€ 1,887,252	€ -	€ 4,290,352	1.8%
Peloponnese	€ 3,382,986	€ 545,200	€ -	€ 3,928,186	1.7%
Βορειοβ Αττικής	€ 1,813,280	€ 425,506	€ -	€ 2,238,786	0.9%
West Macedonia	€ 1,355,665	€ 524,695	€ -	€ 1,880,360	0.8%
Ionian Islands	€ 388,000	€ 120,000	€ -	€ 508,000	0.2%
Νοτιοβ Αττικής	€ 476,000	€ -	€ 18,750	€ 494,750	0.2%
Grand Total	€ 157,180,603	€ 78,386,235	€ 822,551	€ 236,389,389	100%
	66.5%	33.2%	0.3%		

Source: data received from the GRST on 10 October 2012. Calculations authors. Original data file did not assign all funding by region or entity (the GSRT has promised to provide a totally clean data set whenever possible)

Appendix E Gross value added by sector in Epirus (% of total value added)

Sector (%)	2005	2006	2007	2008	2009
A - Agriculture, forestry and fishing	9.48	7.54	6.72	5.76	6.26
B-E - Industry (except construction)	9.73	10.59	9.97	9.27	10.55
C - Manufacturing	6.59	7.23	6.99	6.37	7.38
F - Construction	11.72	13.13	11.36	10.57	8.92
G-I - Wholesale and retail trade, transport, accommodation and food service activities	26.29	26.36	29.03	29.33	26.18
J - Information and communication	1.77	1.88	1.74	1.59	1.70
K - Financial and insurance activities	3.25	3.15	2.85	2.64	2.77
L - Real estate activities	9.86	9.55	9.94	10.70	10.99
M_N - Professional, scientific and technical activities; administrative and support service activities	2.74	3.09	3.18	3.36	3.41
O-Q - Public administration, defence, education, human health and social work activities	21.66	20.41	20.86	22.19	23.48
R-U - Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organisations and bodies	3.52	4.28	4.34	4.59	5.73
TOTAL - All NACE sectors – in Million €	3,895. 8	4,047. 9	4,318. 9	4,476. 5	4,529. 9

Source: Eurostat