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Innovation policy instruments in Rhône-Alpes – key challenges and future orientations

abstract: The paper is an attempt to show to what extent selected innovation policy instruments in the French Rhône-Alpes region are drivers of regional competitiveness. The aim of the paper is threefold. Firstly, an overview of recent regional economic performance, as well as key socio-economic conditions are presented using available regional statistical data. Secondly, regional innovation policy governance is presented as a foundation of regional innovation policy and selected innovation policy measures: competitiveness clusters, research clusters, regional clusters and the ARDI are described as instruments of regional innovation policy to foster regional competitiveness. Thirdly, some crucial challenges and recommendations are proposed in order to increase the effectiveness of regional innovation policy.
Keywords: Rhône-Alpes, innovation policy, region.
JEL code: R11.

Introduction

In the wake of the 2008 financial and economic crisis, innovation is regarded as a focal point in boosting job creation, economic growth and in enhancing competitiveness to build stronger regional and national economies. This view is reflected in major international agendas such as the OECD Innovation Strategy or the EU's Innovation Union. Two policy trends underline the increasingly relevant role of regions in this process. Firstly, strategies based on mobilization of regional assets for growth, bringing innovation to the core of regional development strategies are favoured. Secondly, the regional dimension of innovation is more and more significant in national innovation strategies. Moreover, the growing importance of networks and connectivity for innovation in the globalised economy also reinforces the relevance of regional innovation systems [OECD 2011, p. 19].

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From the academic point of view for several years the discussion in regional studies has been focused on territorial innovation models proposed by Moulaert and Sekia [2003]. Among the theoretical concepts enumerated by Moulaert and Sekia, the regional innovation system model is said to be the most appropriate in explaining the links between different regional innovation actors and innovation support institutions taken into account in the model [Cooke & Morgan 1998, p. 71; Landabaso, Oughton & Morgan 1999; Uyarra 2010], especially in a globalizing economy. The theoretical foundations of regional innovation systems literature are grounded in the systems of innovation approach, and other territorial innovation models, such as Marshallian industrial districts, clusters or innovative milieux [Asheim et al. 2011, p. 876].

Research on regional innovation has grown significantly over the last three decades fostered by advances in theoretical analysis, growing interest in innovation as a source of competitive advantage, and the need for new policies to address globalization processes at the regional level. As pointed out by Asheim, Lawton, Smith and Oughton [2011, p. 877], the increased availability of theoretical, empirical and policy-based publications and the articulation and development of the RIS approach have begun to enhance general understanding of the complexities of regional innovation, particularly in the context of global recession. As suggested by Tödtling and Trippl [2005, p. 1204], innovation in a broad sense is of key importance for all regions. It would be wrong, however, to use a "one size fits all" approach to all regions and to suppose that innovation activities required to foster competitiveness and innovation performance can be the same in all regions. They opt for a more differentiated innovation policy, dealing with specific socio-economic conditions of different regions. This approach, widely quoted in regional studies discussions, is also accepted in this paper. In this context lessons learned from the Rhône-Alpes case can be of importance for regional innovation actors in different regions as an example of regional innovation policy and not as a solution to be fully and directly implemented in other regions.

The paper is an attempt to show to what extent selected innovation policy instruments[1] in the French Rhône-Alpes region are drivers of regional competitiveness. The aim of the paper is threefold. Firstly, an overview of recent regional economic performance, as well as key socio-economic conditions are presented using available regional statistical data. Secondly, regional innovation policy governance is presented as a foundation of regional innovation policy and selected innovation policy measures: competitiveness clusters, research clusters, regional clusters and the Regional Agency for Development and Innovation (ARDI) are described as instruments of regional innovation policy to foster regional competitiveness. Thirdly, some crucial challenges and recommendations are proposed in order to increase

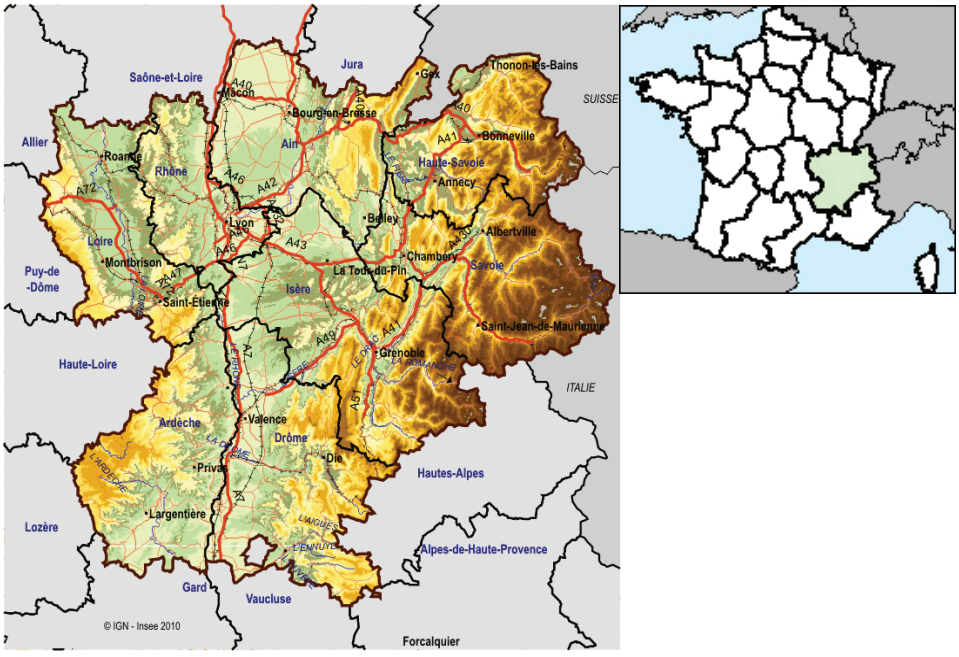
[1] In this paper the terms *measure* and *instrument* in the context of regional innovation policy are used interchangeably as synonyms.

the effectiveness of regional innovation policy. The paper uses the regional innovation system concept to explain the significance of key regional innovation policy instruments in Rhône-Alpes from a policy-based perspective which seems to be of growing interest for regional innovation actors.

1. Economic performance of Rhône-Alpes in the context of regional innovation policy

With a population of 6.21 million in 2010, the Rhône-Alpes region with the capital city in Lyon accounts for 9.9% of the total French population in 2,897 communes and 8 administrative departments: Ain, Ardèche, Drôme, Isère, Loire, Rhône, Savoie and Haute-Savoie (Map). Bordering highly industrialized countries and regions like Switzerland and Northern Italy, the region enjoys a strategic position in Europe, reinforced by the Lyon-Saint-Exupéry international airport.

Table 1 depicts selected statistical data of Rhône-Alpes and metropolitan France in terms of population, demography, employment, GDP and GVA by sectors, external trade, tourism and information society; in many cases Rhône-Alpes repre-



Rhône-Alpes region
Source: INSEE

Table 1. Rhône-Alpes: main socio-economic characteristics

Population and area				
Indicator	Year	Rhône-Alpes	Rhône-Alpes/ Metropolitan France	Rank
Population	2010	6,211,811	9.9%	2
Area (km^2)	2010	43,698.2	8.1%	2
Demography and society				
Indicator		Year	Rhône-Alpes	Metropolitan France
Population density (inhabitants per km ^{2})		2008	140	114
Average population change 1999–2007 (%)		2007	0.9	0.7
Average population change 1990–1999 (%)		1999	0.6	0.37
Life expectancy at birth		2008	82.4	81.1
Age structure diagram (%)				
0–24 years		2008	31.9	31
25–39 years		2008	20	19.7
40–59 years		2008	26.9	27.4
60 years and more		2008	21.2	21.9
Fertility rate (%)		2008	1.33	1.27
Rate of foreigners (%)		2008	6.3	5.8
Poverty rate (%)		2006	11.5	13.1
Participation of adults aged 25–64 in education and training (%)		2010	5.3	5
Employment				
Total employment rate (%)		2007	65.7	63.7
Total employment rate, men (%)		2007	70.5	68.4
Total employment rate, women (%)		2007	61	59.2
Total employment rate, age group 55–64 (%)		2007	36.3	38.2
Unemployment rate		2010	8.5	9.4
Employment rate by sectors (%)				
Agriculture		2008	1.8	2.6
Industry		2008	17.4	13.9
Construction industry and public works		2008	7.1	6.7
Services		2008	73.7	76.8

cont. Tab. 1

GDP and Gross Value Added by sectors				
Indicator	Year	Rhône-Alpes	Rhône-Alpes/ Metropolitan France	Rank
GDP (EUR million)	2009	181,810	9.7%	2
Indicator	Year	Rhône-Alpes	Metropolitan France	
GDP *per capita* (EUR)	2009	29,420	29,897	
GVA in agriculture (EUR million)	2009	1,657	29,300	
GVA in industry (EUR million)	2009	26,263	211,189	
GVA in construction industry (EUR million)	2009	12,299	108,323	
GVA in services (EUR million)	2009	123,828	1,339,874	

External trade				
Indicator	Year	Rhône-Alpes	Rhône-Alpes / Metropolitan France	Change 09/08 (%)
Export (EUR million)	2009	36,294	10.6%	–22.4
Import (EUR million)	2009	34,462	8.6%	–15.3

Tourism			
Indicator	Year	Rhône-Alpes	Rhône-Alpes / Metropolitan France
Nights spent in hotels and campsites	2010	29,549,851	14.6%
Number of hotels and campsites	2009	3,672	12.7%

Information society			
Indicator	Year	Rhône-Alpes	Metropolitan France
Households with Internet access (%)	2008	62	58

Source : Author on the basis of: INSEE, [Chambre Régionale 2011] and Eurostat database.

sents approximately 1/10 of French territory (e.g. for population, GDP, export rate). Between 2000 and 2008, Rhône-Alpes registered a 4.1% average annual growth rate. In 2008, the service sector in the region was the main employer, with 73.7% of the labour force and the industry sector, including construction, concentrated 24.5% of the regional employment (Table 1). The service sector in Rhône-Alpes contributed up to 75.5% of the regional gross value-added in 2009 and the industry sector, in-

cluding construction, up to 23.5% of the regional GVA which makes Rhône-Alpes the second industrial region in France (17.4% employment rate in Rhône-Alpes in 2008 in comparison with 13.9% in metropolitan France) and the first French region in terms of industrial subcontracting. Since 2004, the regional industrial sector has been significantly affected by job destructions (–13% between 2004 and 2010). Despite national leadership in tourism, transports and logistics, iron and steel industries, mechanical equipment, energy, chemistry, textile, plastics and sports industries (Table 2), traditional industries hardly face international competition. As a consequence, the new regional plan for economic development (SRDE 2011–2015) will focus on growth sectors in the region (clean tech, creative industries) and some sectoral changes are expected in the regional industry in this respect [Gallié 2007, pp. 17–18; Lacave 2011, p. 1].

Table 2. Industrial specialization of main cities in Rhône-Alpes

City/employment zone	Industrial specialization
Lyon	Pharmaceutical industry, automotive industry, electrical materials, production of machines, chemistry, metallurgy
Grenoble	Electronic components, electrical equipment, production of machines
Saint-Étienne	Metallurgy, automotive equipment, mechanics, weaving and spinning, food industry
Roanne	Textiles, mechanics, food industry
Chambéry	Electrical materials, metallurgy, production of machines
Oyonnax	Plastics, production of machines
Annonay	Industrial vehicles, automotive equipment, textiles, paper industry
Annecy	Mechanics, sports industry, metallurgy
Arve Valley	Screw industry, electrical materials

Source: [Chambre Régionale 2007].

Regarding regional innovation performance, the region's R&D expenditure was 2.51% of GDP in 2007, thus ranking the region 2nd nationally, behind the capital region. Business expenditure on R&D (BERD) in Rhône-Alpes represented 1.7% of the regional GDP in 2007 against 1.31% nationally in 2007 [Ministère de l'Enseignement supérieur et de la Recherche 2009] which is partly due to a presence in the region of large industrial groups and innovative SMEs linked to R&D concentrations [Lacave 2011, pp. 1–2]. Large-scale enterprises and public research organisations such as STMicroelectronics, the French Petroleum Institute (IFP), the French Atomic Energy Commission (CEA), Seb, Rhodia, Schneider Electric, Aventis

account for 15% of French patents in the high-tech sector [Eparvier & Zaparucha 2008, p. 14]. Rhône-Alpes is known as a research pole with research performance results (number of patent applications, number of publications) superior to other French and many European regions. It ranks 8th for publications and 10th for patents. Moreover, Rhône-Alpes ranked 33rd in Regional Innovation Scoreboard 2006 and 65th in EU Regional Competitiveness Index 2010 (44th for Innovation pillar of this index) [Annoni & Kozovska 2010; Hollanders 2007]. However, in recent years regional policy-makers and innovation stakeholders[2] began to realise that the region faced the risk of falling behind the best performing European regions[3] [Lacave 2011, p. 2].

Rhône-Alpes is known as a major centre of higher education and research in France with 8 universities and 35 *grandes écoles* situated mainly in Lyon and Grenoble. In order to increase the competitiveness of the higher education sector, the region hosts 2 PRES (Higher Education and Research Poles) which are groupings of universities in Lyon-Saint-Étienne and Grenoble. During years 2009–2010 244,900 students took courses in higher education establishments in the region (64% in Lyon) [Ministère de l'Enseignement 2011, p. 8].

2. Innovation policy governance in Rhône-Alpes

In the 1980s, French regions – as recent administrative entities (devolution bill from 1982) – were given authority to manage professional schools and high schools, lifelong learning, transport and economic development. Lately, the devolution process from state to region has accelerated. The State-Region Plan Contract (fr. CPER) – a document signed for six years, expressing commitment of the state and of the region over policy priorities – enabled regions to set up governance structures in research, higher education and innovation [Czyżewska 2010, pp. 77–78]. French regions fully realized the importance of research and innovation policy instruments in 2004–2005 as a result of growing international competition and economic difficulties in France. In 2004 a second part of the devolution process in France took place which allowed French regions to lead regional innovation policy (despite the fact that from the legal point of view these competences still belonged to the state). As a consequence, regions included some regional innovation policy instruments into regional plans for economic development (SRDE) or into regional plans for higher education and research (SRESR).

[2] Regional authorities and representatives of innovation support structures, higher education and research structures, directly involved in regional innovation policy implementation.

[3] Results of the best performing European regions (mainly metropolitan regions and Scandinavian regions) are better than Rhône-Alpes's in terms of innovation input/output ratio.

The budgetary autonomy of French regions vis-à-vis the central government is rather limited, since they collect very few taxes (and have little autonomy in determining their level) and are heavily dependent on state transfers and subsidies.

Regional innovation policies are jointly designed by the state administration in the region (Regional Secretariat for Regional Affairs – SGAR, Regional Delegate to Research and Technology – DRRT, Regional Directorate for Industry – DIRECCTE) and the regional authorities. They are embodied in the above mentioned policy and programming documents CPER and EFDR OP. The rule of co-funding is used in most cases, but a very limited number of measures is financed only by the region. As highlighted before, the autonomy of regions is reflected in two policy documents: SRDE and SRESR. Both documents indicate policy orientations, but need, in general state co-funding, to have orientations translated into concrete actions [Lacave 2011, p. 5].

SRESR was used by Rhône-Alpes in 2005 to attribute to the region some competences in research and higher education. The key role of innovation as an instrument to increase regional competitiveness and to create new jobs is highlighted in this document. The regional policy of Rhône-Alpes aims at reinforcing linkages between research and innovation. Its main objective is to promote the culture of innovation and research commercialization while searching for better clarity and accessibility of research and innovation instruments for socio-economic use. In 2010 Rhône-Alpes decided to underline the importance of innovation in the Regional Strategy for Economic Growth and Innovation 2011–2015 (SRDEI), which is a continuation of SRDE from 2005 and in the Regional Strategy for Higher Education, Research and Innovation 2011–2015 (SRESRI). In 2010 the Regional Innovation Strategy – RIS was also elaborated at regional level.

The most important strategic document among the above mentioned is the Regional Innovation Strategy but as it becomes a confidential document, it is hard to assess its content or its monitoring. Its elaboration began in 2008 by elaboration of a comparative study of Rhône-Alpes and other 13 European regions by an external consultant, followed by two working groups on textile and health industries in the region (the results of these analyses become also confidential documents). On the basis of these studies, in 2009 the elaboration of the Regional Innovation Strategy began. After numerous exchanges between the Regional Council and state administration in the region (SGAR, DRRT, DIRECCTE) a document *Stratégie Régionale d'Innovation Rhône-Alpes Note de synthèse* was finally formulated[4] [Lacave 2011, pp. 6–7].

[4] Strategic orientations of the RIS are commonly accepted by the Regional Council and the state administration in the region. A divergence concerns the results of the comparative study of 13 European regions. As it has been based on macroeconomic indicators (e.g. number of patent applications, number of researchers as % of active population etc.) in many cases from 2003, the results do not reflect possible changes in the region caused by the SRDE and the SRESR implementation [ADE 2010, p. 385].

The Regional Strategy for Economic Growth and Innovation 2011–2015 (SRDEI) was elaborated on the basis of SRDE from 2005 and taking into account a turbulent international economy: global financial crisis that provoked a 26,160 loss of jobs in regional industry, Europe 2020 strategy and its environmental and innovation objectives. Being a result of 40 regional and departmental meetings with social and economic partners, SRDEI comprises 2 strategic axes and 11 actions to be taken to meet objectives in economic growth and innovation with special attention placed on regional industry. Innovation issues are tackled in the following actions proposed in the strategy: coordination of financial tools for SMEs and micro-enterprises and accompaniment of companies toward innovation. The second action will be implemented through the following steps: creation of synergies between economic and research partners, incubation, research commercialisation and technology transfer, acceleration of innovation transfer in SMEs and micro-enterprises [Conseil Régional Rhône-Alpes 2011b]. The objectives and actions to be taken proposed in SRDEI concerning innovation are rather general and should be better defined and followed by any performance indicators.

The Regional Strategy for Higher Education, Research and Innovation 2011–2015 (SRESRI) takes into account the second best position of Rhône-Alpes in higher education and research in France (after the capital regional). According to this strategic document innovation should be fostered by more cooperation between different scientific disciplines which would lead to more synergies between them. Moreover, a strong need to facilitate access to innovation is highlighted as well as assistance to incubation and research commercialisation for SMEs. The key role in these processes is assigned to ARDI [Conseil Régional Rhône-Alpes 2011c].

The multiplicity of regional strategic documents makes regional innovation policy rather complicated and needing operationalisation [CESER Rhône-Alpes 2011, p. 10].

The institutions of core importance for regional innovation policy in Rhône-Alpes are four, as in all French regions: the state administration representing the ministry of research (DRRT) and of industry (DIRECCTE), regional authorities and OSEO Innovation. They are working together through implementation of the CPER and ERDF OP. The Rhône-Alpes regional authorities have some autonomy as regards regional innovation policy as they manage some measures funded by ERDF grants: technological platforms, collaborative projects of regional clusters, collective actions in eco-products and eco-services, network of environmental advisers. OSEO Innovation is also managing some actions accompanying companies toward innovation.

The French innovation governance system is criticised at strategic level because it remains centralised and does not involve enough regional stakeholders and at management level because it has led to the proliferation of intermediary innovation structures. The response of Rhône-Alpes to this objection was the creation of

a *Comité stratégique de l'innovation en Rhône-Alpes (COSIRA)* within the framework of the ERDF OP. It was expected to be composed of about 20 regional representatives and appointed by the Préfet de Région in agreement with the President of the Regional Council. In fact, the committee has not been effective since it has had very few meetings since 2007. To tackle the issue of innovation policy governance at management level, the region created the Regional Agency for Development and Innovation (ARDI) (for further details see section 4). The agency is expected to simplify the regional innovation system by strengthening the interrelations between different intermediary structures functioning at the regional level [Lacave 2011, p. 6].

3. Selected innovation policy measures in Rhône-Alpes

After examination of numerous innovation policy documents in Rhône-Alpes, as well as regional policy governance which constitute a foundation of the regional innovation policy, this section investigates selected innovation policy measures[5] proposed and implemented by regional authorities to strengthen innovation potential and competitiveness of Rhône-Alpes, especially by networking of regional innovation stakeholders.

There are different cluster policies implemented in Rhône-Alpes in order to increase regional innovativeness and competitiveness, either from the state (*competitiveness clusters*) or from the region (*research clusters*, *Rhône-Alpes clusters*). The competitiveness cluster[6] is a part of new French industrial policy, introduced at national level in 2005. Competitiveness clusters that gather companies, training centres, public and private research organisations around innovative joint projects are discipline-oriented and each cluster is specialised in a single scientific and technological field. The key objective of competitiveness clusters is to increase research excellence and give new impetus to industrial policy through better articulation between innovation, territorial and industrial policies. Initially, the idea of the government was to increase the visibility of French research and industry sectors with a limited number of clusters (15 at the beginning), but finally 71 competitiveness clusters in France were set up. The priorities and status of each cluster are defined individually between the different parties involved (state, local authorities, research labora-

[5] Different regional policy measures on macro and micro levels are reviewed in Armstrong and Taylor 2001, pp. 233, 235.

[6] *Competitiveness cluster* is an English equivalent for the French term *pôle de compétitivité*. Therefore some authors use the term: *competitiveness pole* which seems more appropriate. French official documents have been translated into English using the notion of *competitiveness cluster*; the same term has been used in this paper.

tories, universities, training centres and enterprises). The competitiveness clusters are ranked nationally according to the perimeter in which they are able to compete (there are global competitiveness clusters, globally-oriented competitiveness clusters and national competitiveness clusters) The projects that have been given the cluster label can also apply to call for projects launched by the National Research Agency (ANR) [Czyżewska 2010, p. 79].

Rhône-Alpes hosts 13 competitiveness clusters: 2 global, 1 globally-oriented and 10 national competitiveness clusters (Table 3). They reflect the multiplicity of industrial specializations in the region (compare Table 2) and cover numerous science and technology fields. ARVE Industries – the biggest competitiveness cluster in terms of number of companies belonging to the cluster – gather 270 companies. As regards the number of employees, the biggest regional competitiveness cluster is Lyon Urban Bus & Trucks (28,854 employees in 2009).

An important element of the policy in Rhône-Alpes is that the region decided, ahead of the national competitiveness cluster policy, to develop its own cluster policy. In 2002, the region launched two types of clusters (in the field of research and innovation):

1. Rhône-Alpes clusters;
2. Research clusters.

The philosophy of Rhône-Alpes clusters is to provide support to a group of enterprises on a specific theme corresponding to regional assets and to support them in three ways:

i. increase export capacity;
ii. develop industrial performance;
iii. increase technological innovation.

The idea was to identify, through a top-down approach, existing clusters of enterprises, research centres and learning centres. The identification of research clusters was made through this top-down approach. The pre-identification of regional research strengths was pivotal to the Regional Plan for Higher Education and Research that indicated 14 research clusters in Rhône-Alpes. Research clusters were set up in 2004 and started their operations in 2005. The region covers the functioning costs of research clusters and provides most funding under Ph.D. grants. From 2007, the cluster funding is recorded in a quadrennial contract in order to secure funding [Eparvier & Zaparucha 2008, pp. 22–23].

From the last update of the list of competitiveness clusters in 2010, Rhône-Alpes hosts 13 competitiveness clusters, as well as 12 Rhône-Alpes clusters and 14 research clusters [Czyżewska 2010, pp. 80, 82]. The three types of clusters in Rhône-Alpes cover some common science and technology fields and enables the public authorities to finance projects covering the whole spectrum of R&D, from fundamental research to innovation. As stated before, they also reflect the multiplicity of specializations in regional industry and the diversity of regional economy (Table 4).

Table 3. Competitiveness clusters in Rhône-Alpes (data from 2009)

Competitiveness cluster	Lyonbiopôle	MINALOGIC	Axelera	ARVE Industrie	Pôle Européen d'innovation Fruits et Légumes	Imaginove	Lyon Urban Bus&Trucks	Parfums, Arômes, Senteurs, Saveurs	Plastipolis	Techtera	Tenerrdis	Trimatec	Viameca
Type of competitiveness cluster	global	global	globally-oriented	national	national	national	national	national	national	national	national	national	national
Number of companies belonging to the cluster	56	105	109	270	110	118	85	87	175	115	66	76	72
Number of employees	7,018	18,379	17,033	16,109	7,503	2,144	28,854	5,328	12,523	7,484	9,658	12,116	9,271
Number of R&D projects labelled by the cluster	53	11	25	16	19	27	21	6	35	20	69	15	42
Estimated number of HRST from public sector in the labelled projects	no data	2,625	150	47	561	153	no data	20	no data	46	no data	39	no data
Estimated number of HRST from private sector in the labelled projects	no data	3,675	100	122	31	216	no data	18	no data	62	no data	40	no data
Number of patent applications in the labelled projects	no data	71	12	10	no data	4	no data	0	25	18	no data	no data	no data

Source: [Ministère de l'Enseignement 2011, p. 52].

Table 4. Complementarity of science and technology fields covered by the three types of clusters in Rhône-Alpes

S&T field	Competitiveness clusters	Rhône-Alpes clusters	Research clusters
Health	– Lyon Biopôle (virology)	– I-Care (health technology)	– Infectious diseases – Disability, ageing, neuroscience
Wellness and living	– Pôle européen d'innovation fruits et légumes – Parfums Arômes Senteurs Saveurs (fragrance, cosmetics)	– Organics (biological products) – Montagne (mountain planning and development) – Sporaltec (sport, mountains, *outdoor*) – ALLIRA (food industry)	
Information technologies/ Creative industries	– Imaginove (cinema, games, video, animation, multimedia) – Minalogic (micro- and nanotechnologies, embedded systems)	– Imaginove (cinema, games, video, animation, multimedia) – Edit (software)	– Microelectronics, nanoscience and nanotechnology – Computer science, signal processing, embedded software
Energy	– Tennerdis (renewable energy) – Trimatec (eco-energies)	– Eco-énergie (renewable energy and energy management in construction industry) – Lumière (lighting)	– Environment – Renewable energies, energy efficiency
Clean transport	– Lyon Urban Truck & Bus (buses and trucks)	– Automotive (vehicles) – Aérospace (aeronautics) – Logistics cluster	– Transportation, regional land use and society
Chemistry/ materials	– Axelera (chemistry) – Viameca (mechanics) – Plastipolis (plastics) – Arve Industrie (mechatronics) – Techtera (technical textiles)		– Materials and design for sustainable development – Sustainable chemistry and chemistry for healthcare
Others			– Management and organisation of production systems and innovation – Quality of plants, agriculture, stakeholders and regions – Social and regional dynamics – Culture, heritage and creation – Issues and representations of science, technology and their applications

Source: Author on the basis of: [Czyżewska 2010, p. 81; European Commission 2013; Conseil Régional Rhône-Alpes 2011a; Perrat 2011, pp. 2–5].

Apart from different cluster policies implemented in Rhône-Alpes, in order to make research and cooperation between public and private sectors efficient, many innovation support structures are spread over regional territory. A wide range of actors involved in innovation processes in Rhône-Alpes includes: regional authorities, the Regional Agency for Development and Innovation (ARDI), the Technological Development Network (including chambers of commerce and industry, chambers of craft and regional innovation and technology transfer centres), competence centres, incubators, business angels, seed and venture capital funds, technology parks, other structures supporting innovation processes [Czyżewska 2010, p. 82; Czyżewska 2012, pp. 141–148]. As stated in the previous paragraph concerning regional innovation policy governance, the most important role among these innovation stakeholders is assigned to the Regional Agency for Development and Innovation (ARDI). The Agency, created in 2008, is composed of 7 departments: Health, Digital, Performance, Design Centre, Synergy Networks, Material, and Electronic Systems that existed independently as sectoral agencies in Rhône-Alpes before the creation of the ARDI. The strategic challenge of the Agency, which employed 68 employees in 2010 with an annual budget of €7 million (the budget for 2011 is €8.3 million) is to create linkages between regional actors involved in innovation processes. Taking into account a great number of innovation support structures functioning in the region[7] as well as their overlapping competences, the ARDI is expected to simplify the regional innovation system by coordinating the actions of multiple intermediary organisations and by strengthening interrelations between areas of activities of different clusters in the region [Lacave 2011, p. 6]. From the managerial point of view, there is a strong need for coordination of innovation policy in Rhône-Alpes and of a decrease in the number of innovation intermediary structures. The ARDI addresses its services to all types of firms, in particular to firms involved in innovation development in partnership. There are approximately 4.000 firms in the region lying within the direct target group of the ARDI: 700 plants of 200 large firms – key actors of regional economic evolution, 3,000 SMEs engaged in innovation processes autonomously or in partnership with other firms or laboratories and 220 young innovative firms with a technological profile and with great growth potential [ARDI 2011, p. 5]. The Agency plays a crucial role in implementing and coordinating horizontal measures of regional innovation policy through its main missions: providing diagnostics to companies; orienting enterprises towards the relevant innovation support structure; providing services in the field of project engineering; delivering information and conducting economic and technological intelligence studies [Lacave 2011, p. 10].

[7] In 2009 the author identified 75 innovation support structures in the region grouped in 10 categories: 1. technology parks, 2. technology incubators, 3. academic business incubators, 4. regional development agencies, 5. technology transfer centres, 6. seed capital funds, 7. business angels networks, 8. competence centres, 9. chambers of commerce and industry, 10. other regional structures involved in technology transfer and innovation [Czyżewska 2012].

4. Challenges for regional innovation policy in Rhône-Alpes and recommendations

As previously stated, in spite of great innovation and research potential, the Rhône-Alpes region is facing the risk of falling behind the best European regions in terms of innovation performance. This is due to the fact that its European competitors (i.e. best performing European regions in terms of innovation) perform better than Rhône-Alpes . This conclusion can be also drawn from analysis of a recent Regional Competitiveness Index 2010. Among the identified challenges for regional innovation policy in Rhône-Alpes it is essential to enumerate the following [Czyżewska 2012, pp. 205–210; Lacave 2011, pp. 8–11].

Firstly, it is important to highlight that the region benefits from the presence of world-class, large research centres cooperating or not with universities, but which do not deliver sufficient innovation (in terms of innovation performance indicators). A rather strong networking culture is being observed between large companies and research centres. However, regional SMEs do not present a strong innovation culture (BERD is concentrated in large companies and a small number of high tech SMEs). In this context it is imperative to encourage regional companies to innovate by showing them potential benefits they can achieve by increasing their level of innovativeness. In this aspect the main role to be played is by the ARDI and chambers of commerce and industry in the region, as they know best the innovation needs of regional firms.

Secondly, at the regional level there are too many clusters (about 40) which, on the one hand, reflect the diversity of the regional economy, but, on the other hand, make the system of clusters complicated and expensive. As a consequence, there is a need to limit the number of clusters in Rhône-Alpes by developing interfaces between them or merging them into bigger structures. Smaller number of clusters would facilitate their evaluation at regional level and would guarantee an easier access to funding. For such a move, some foresight and intelligence studies are required. The same problem concerns a great number of intermediary organisations supporting innovation and technology transfer in the region. As for the different clusters in Rhône-Alpes, they are complementary to some extent and reflect the diversity of regional industrial specializations, but their competences overlap. As a result, companies willing to be provided with innovation support services in the region, do not always know which structure is the best provider of a certain type of innovation services. To make the system more simplified and rationalised, the number of intermediary structures in the region providing innovation services should be diminished by merging them into bigger structures with more detailed competences regarding innovation support for regional companies. Another reason to lower the number of intermediary structures in the region is financial sup-

port from public authorities which will not be able to provide financial resources for all of them in the future.

Thirdly, it is important to ensure appropriate territorial balance for regional innovation policy. The region comprises two metropolitan areas (capital city in Lyon and Grenoble) with strong innovation and research potential. The respective positions of Lyon and Grenoble widely differ between each other. Grenoble is characterised by smart specialisation in micro and nanotechnologies, software, *w*hich is not so obvious in Lyon where there is a great potential in health and biotech, chemistry, clean tech, but without a level of specialisation as sharp as in Grenoble. What is more, the rivalry between the two metropolitan areas has been lately reactivated by competition for obtaining state money through the 'Initiatives of Excellence' aimed at raising some French universities to world class level [Lacave 2011, p. 4][8]. Moreover, mid-size cities in the region have to find their own field of specialisation through combining national and regional policies for clusters and recent higher education initiatives. The challenge for regional policy-makers is to design a policy able to take into account all these differences.

Fourthly, it is worth emphasizing that innovation policy evaluation studies are not numerous at regional level. It seems crucial to launch within the governance structure some foresight studies, concerning in particular smart specialisation, as well as to monitor and evaluate implementation of all regional innovation policy measures. In this respect the elaboration of some performance indicators and impact indicators allowing this process would be of interest. The same framework of evaluation for all innovation support structures would provide them with effectiveness indicators of their services. It is also imperative to assess the firms' innovation needs in the region to adjust the services provided by innovation support structures to their expectations.

Conclusions

One of the measures to enhance competitiveness of European regions is to increase the effectiveness of their innovation policies and strategies. Rhône-Alpes is an example of a territory where many actions have been taken to strengthen regional innovativeness and to meet the challenge of regional and international competitiveness and where results are visible even if new steps can always be taken to achieve better innovation performance. Rhône-Alpes is still an industrial region with traditional

[8] According to results of the second call for projects concerning 'Initiatives of Excellence' presented in February 2012 by the French government, none of the regional PRES participating in the competition was selected. The idea of Jean-Jack Queyranne, President of the Rhône-Alpes region, after the defeat is to start cooperation between the two regional PRES [Ducuing 2012].

sectors, some of them, as the automotive industry and plastics, being strongly affected by competition from low labour cost countries. In the region a strong emphasis is placed on the support of competitiveness clusters, research clusters and Rhône-Alpes clusters and on making the innovation support systems more effective through the activity of the ARDI. Some orientations in the regional innovation policy proposed in the section 4 of this paper can be seen as a remedy to make the system less complicated and more effective.

As regards lessons to be learnt from the Rhône-Alpes case, it is important to emphasize the research and innovation potential of the region that is not sufficiently explored. Regional SMEs and micro-enterprises are not innovative enough compared to e SMEs in other European regions. Regional economy and innovation policy seem to be very complex as they reflect the diversity of regional specializations. In order to increase effectiveness of regional innovation policy it is imperative to make the system simpler (this is why the proposal to diminish the number of regional clusters and regional intermediary organisations by merging them into bigger structures) and to evaluate implementation of strategic documents at regional level and of measures offered by intermediary structures to increase the innovativeness of regional companies. To make the regional innovation system more effective one cannot forget facilitated access to financing innovation for SMEs and the need to foster cooperation between multiple innovation stakeholders at regional level and at international level.

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