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“Towards a different regional innovation policy : eight years of European experience through the European Regional Development Fund innovative actions”

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Abstract

This article argues for a different regional innovation policy, on the basis of lessons drawn from the European Regional Development Fund innovative actions experience since 1993.

Based on physical infrastructure improvement, direct grants to firms and foreign investments attraction, traditional regional policy has proved to be little successful in promoting innovation, in particular in less favoured regions in the European Union.

In these regions, innovation promotion policy has been faced with a limited capacity to absorb public funds efficiently, despite the comparatively greater need for innovation support policies in this particular regional context. This ‘regional innovation paradox’ can be explained by the fragmented and underdeveloped nature of the regional innovation system in these regions (e.g.: little or no tradition of public-private and inter-firm co-operation, weak research base, lack of interfaces for Research, Development and Technological Innovation (RDTI), insufficient social/relational capital, etc.).

As the Regional Innovation Strategy (R.I.S. and R.I.S.+ projects) pilot experience has shown in over 30 regions from a dozen different countries, effective regional innovation policies require a new set of objectives, instruments and policy delivery systems in order to set the foundations of an efficient regional innovation systems in less favoured regions. This article explores these new requirements on the basis of lessons drawn from empirical testing.

1. Limits of traditional industrial policies in less favoured regions

Old industrial policies do not respond appropriately to current development needs in less favoured regions, not least because they tend not to discriminate territorially and are poorly adapted to current business needs. Thus, their cost effectiveness is criticised. In general, they tend to be short term, work better with winners than with losers and often they are more social conversion policies than real economic development growth policies.

In less developed regions, the disadvantage of these traditional policies face another difficulty: the limited absorptive capacity, despite a greater need to invest in innovation.

In order to be able to argue for a new regional innovation policy, we must first of all identify in which way this policy, with new objectives, instruments and forms of implementation, differ from traditional industrial practices and policies. It is therefore important to try and analyse the latter in a (self-)critical way and leave aside all ideological preconceptions in order to go beyond the orthodox and quasi-religious debate about the legitimacy of intervention by the public sector in the economy.

The old industrial policies have been vulnerable to criticism from the point of view of their cost-effectiveness, having often been based on several of the following (the list is not exhaustive):

- Selecting and positively discriminating in favour of ‘winners’ (businesses, sectors or technologies) by means of public grants from the national/regional public authorities, awarded on the basis of administrative decisions made by officials and/or politicians without adequate entrepreneurial or technological know-how and without sufficient analysis and consultation with other key economic actors in the region.
- Protecting domestic industry from international competition with artificial barriers, often non-tariff barriers, that provided a breathing space that was only occasionally used to lay the foundations for sustained growth in the sector concerned, by actively identifying and reinforcing new factors for regional competitiveness.
- Concentrating efforts on attracting direct international investment using tax policy in competition with other regions. Almost all regional development agencies in Europe have placed great emphasis on attracting foreign investments, which have been found to be highly volatile, sometimes bringing more problems when they are withdrawn than benefits when they arrive

This is particularly the case if they are based on exploiting low labour costs and there are no active accompanying measures to ‘root’ the investments in the region, which requires more than offering low wages and taxes

- Horizontal, automatic and non-discriminatory public aid schemes intended to reduce business costs temporarily without substantially changing the stakeholder’s strategic thinking (‘bread today and hunger tomorrow’). In addition, they have in certain cases created clientelistic businesses networks that tend to become long term and generate a system of specialised consultancy.
- Even on the business side, the excessively bureaucratic nature of the application procedures and the time taken to evaluate applications and grant aid have caused businesses to regard aid more as rebates on the cost of investments they would have made anyway rather than as real incentives to make high-risk investments they would not have made without aid. In other words, the principle of the ‘additionality’ of public aid has often not been applied because of an implementation procedure that is badly designed as regards the identification of actors needs, the provision of information, the evaluation and the time taken to grant aid.

These policies have also been criticised because of the short-term nature and the limited anti-cyclical and local impact of some of them, which has detracted from their legitimacy as instruments of economic regulation and is partly responsible for the idea held by some that they simply distort the market. To contribute to a progressive modernisation and diversification of the regional productive fabric, these policies must be considered not as a ‘lesser evil’ or as a miracle cure but rather as stable, agreed and progressive policies, taking into account inter-related historical, economic, cultural and sociological aspects. By their very nature, these processes are slow which makes these necessary policies difficult to appreciate at the time and hard to sell politically.

It is also important to realise that such policies often work better with ‘winners’ (emerging businesses and sectors) than with ‘losers’ (businesses undergoing conversion). What have been called policies to promote industry in fact have been social conversion policies, designed more to reinforce social cohesion than to promote economic development. In this

sense, it is critical to distinguish from the very beginning socially oriented cohesion policy from economic development- growth related policies.

In the context of the less-developed regions, these traditional policies face another difficulty, the so-called innovation paradox (C. Oughton, M. Landabaso & K. Morgan, 2002). The innovation paradox refers to the apparent contradiction between the comparatively greater need to invest in innovation in the less-developed regions and their relatively smaller capacity, compared with more developed regions, to absorb public funds earmarked for the promotion of innovation. That is to say that the more a region needs innovation to maintain and improve the competitive position of its businesses in an increasingly globalised economy, the more difficult it is to invest effectively and to 'absorb' public funds to promote innovation in this regions. In other words, one might expect that once the need (the innovation gap) is acknowledged/identified and the possibility exists, through public means, to respond to it, such regions would have a greater capacity to absorb such resources, since they are starting at a very low level ("with everything still to be done"). However, experience shows that these regions have serious difficulties in absorbing the money available.

The main reason for this apparent paradox is not that public funds are not available in the less-favoured regions. The explanation lies instead in the nature of the regional innovation system and the institutional capacity and organisation of these regions.

2. The nature of innovation processes in less developed regions

The regional innovation system in some of the less-favoured regions is poorly developed and fragmented and lacks an appropriate institutional framework for designing and managing innovation policies, often because of a lack of understanding of the process of innovation in the region. There is consequently a need to link and coordinate different agents and policies through public policy. Policy promoting networks and intermediaries between different actors could help to 'integrate' the system.

It is interesting to note that the opposite to this fragmentation which goes a long way in explaining inefficient regional innovation systems can be used to explain successful regional innovation stories. As beautifully put by John Seely Brown and Paul Duguid (pp.7, 2002) when referring to Silicon Valley as a paradigmatic example of an efficient regional innovation system:

"It (the success of Silicon Valley) needs to be understood not at the level of the individual participants, but at the level of their joint interactions. In effect, the Valley is not a collection of isolated organisms, but an interdependent ecology built around a particularly responsive kind of knowledge. As in all robust ecologies, there is a base that provides widespread nourishment for established organisms and niches for new ones...visitors should realise that this is not an entirely self-organised ecology of microorganisms running wild. Some parts are. Other parts are more purposely farmed. In particular the valley has benefited from the visible hands of government and economic organisation as well as from the invisible hand of the market. The Department of Defence, NASA, the National Science Foundation, the Small Business Administration, and fiscal policy have all contributed to making the Valley what it currently is, even if their presence is less strongly felt today than in the past. Most other successful regions have found the helping hand of government important for getting under way." Going on to conclude that "like all ecologies" the Valley has a history ("the path is some 90 years long") and that "innovation still has a geography" even for the heartland of the digital era.

In contrast with the above, the regional innovation systems in many of the less favoured regions do not have the necessary interfaces and co-operation mechanisms to match RDTI supply to demand nor the appropriate conditions for exploiting synergies and co-operation among the few individuals and bodies involved in RTD that could overcome deficiencies, exploit synergies and avoid duplication of effort. In addition, the regional innovation systems in the less-developed regions suffer from being isolated from the best international RTD networks. SMEs therefore find it hard to access the technology sources and make contacts with the partners, including informal personal contacts, that are necessary to keep up with technological change.

But one of the most important factors among these mentioned above is the fact that regional firms, often family-owned and competing among themselves in relatively closed markets, do not have a tradition of co-operation and trust in the regional RTD infrastructure, particularly universities. Co-operation for innovation is critical in the case of small firms because they lack the internal human resources and technical know-how required to attempt innovation. Firms are not in the habit of expressing a demand for innovation (Autio, 2000) and the regional RTD infrastructures are often not sufficiently embedded in the regional economy to identify the innovation needs and capacities there is therefore a mismatch between regional supply and demand for innovation.

Furthermore, advanced business services and networking agents/interfaces such as those existing in developed regions are few and not necessarily specialised in innovation. This reduces the innovation opportunities of firms, which could be increased if proper technology audits were carried out to correctly identify and stimulate the demand for innovation in the region and so develop suitable public innovation policies. The same can apply to access to strategically important services such as innovation management, technology forecasting and training, etc. These initiatives, particularly private ones, become trapped in the vicious circle of low demand and poor supply, which is rarely broken from within the system. When such initiatives do respond, as firms react defensively and adaptively (rather than proactively), to market pressures, it is usually as consumers of off-the-shelf technology and innovation opportunities are lost to local industry.

Financial instruments and institutions in less-developed regions do not promote long-term, higher-risk and intangible investments that are characteristic of innovation projects. Further, if they are able to evaluate the risk involved, they often penalise innovative investments with high interest rates (Muldur, U., 1992). In addition, in some regions public policy, rather than promoting 'financial engineering' in the form of new products such as loans, guarantees, seed and risk capital, aid for the establishment of networks of 'business angels', etc., continues to rely on non-repayable grants, without requiring the financial discipline that is directly related to the quality of the applicant undertaking's management.

Also, the quality of the institutional setting in some of these regions is often the main obstacle to the creation of an effective regional innovation system. Over and above the different degrees of autonomy as regards regional industrial policy, some regional government structures in less-developed regions suffer from a lack of credibility in the eyes of the private sector and lack political stability and awareness when it comes to innovation. They lack also a real multi-disciplinary approach to innovation, which implies that various departments of regional administration (in particular departments responsible for

education/training/universities and for industry/economic development/SMEs) inform one another of their activities and work closely together.

The above explains to a certain extent the conclusions reached recently in an evaluation of RTD financed by the Structural Funds over the period 1994-99 in the less-developed regions (Higgings et al, pp. 9, 1999) in which the major policy issues identified were:

- A lack of co-ordination between the bodies responsible for public research and those responsible for private research.
- A lack of co-ordination between universities and businesses.
- In many regions there seems to be no co-ordination at all of science and technology policy and between departments of industry and departments of education.
- In some regions there is overlap and inadequate co-ordination between national and regional measures.
- There is little involvement of those involved in RTD in the region, particularly those in the private sector, in policy planning.

In this situation, investing more money in the creation of new technology centres or just giving more money to universities to carry out further basic R&D work, for example, without previously co-ordinating and adjusting the work of existing ones and/or directing them more towards fulfilling the needs of the productive sector, risks further distorting the system.

Recent report (Tornatzky, L.G., Waugaman, P. and Gray, D. pp.178, 2002) on the “new” role of Universities in a knowledge economy which analyses a dozen good practice case studies in USA concludes that “some of the most notable accomplishments (in promoting innovation) by universities have occurred when there were formal, operational programme partnerships in place with state government” and point out that “the enabling context of pro-technology state government goes beyond the benefits of merely a benign policy environment. Many of the universities describes here are active partners with state government in fostering a technology-based economy”.

The running costs of these R&D institutions, which are unlikely to reach a satisfactory level of self-financing in a reasonable time due to the mismatch referred to above, could also impose a further burden on public financing. The same goes for a number of technology park initiatives in less-developed regions, which might end up becoming property developments dependent on attracting outside capital, with no links to the region's industry and playing a very limited role in the economically strategic function of regional technology transfer.

This is not to say that strengthening the knowledge base in less favoured regions, universities in particular, including basic high-level research, is not a precondition for successful innovation promotion efforts. This is to say that such efforts should go hand in hand with a fundamental effort at integrating and rooting them within the regional innovation system in an effective way. At the very least to avoid ‘brain drain’ from perfectly well educated, high level scientists, trained by the regional universities and/or having them working exclusively for multinational companies outside the region with little (if at all) “spill overs” for the regional economy.

Andalucia, for example, which is the Objective 1 region in the EU that receives the biggest Structural Funds envelope in 2000-2006, is illustrative in this respect. According to B. Plaza and R. Velasco (2001), it appears that “Investment in R&D mainly comes from the 20-odd universities and OPIs (public research bodies). Expenditure by businesses is currently low...To this must be added the fact that 70% of researchers work in fields with only a very

tenuous link to the productive sector and of the remaining 30% only a quarter specialise in agri-food technology, the environment or information technology, which we consider to be strategic areas given the structure of the region's industrial sector”.

In conclusion, it should be clearly stated that, unfortunately, the public sector has often only thought of industrial/regional policies when it is already too late and the situation and problems they are intended to deal with are at their most serious, those policies then being immediately criticised for not producing the expected results in the desired timescale (usually the term of office of the political figure who announced them).

Furthermore, the shortcomings identified above in the conception, management and implementation of the old industrial/regional policies have given ammunition to those who, on purely ideological grounds or from an orthodox economic point of view, have resolutely opposed those policies ‘on principle’, without realising that many of the most economically advanced countries and regions, pragmatically and in relative silence, implement and invest heavily in very sophisticated industrial/regional policies, some of whose objectives and instruments are analysed below. In the United States for instance, it was found that the public investment in innovation for SMEs in particular is very substantial and on comparable levels to the EU

In the European Union, according to the latest data on state aid, state aid to the manufacturing sector in the EU member states amounted to 27,6 billion Euros (annual average 1997-1999 in constant prices 1998). Interestingly, in terms of Euros per person employed, it varies widely between richer and poorer regions, from less than the EU average of 916 Euros in the so called cohesion countries of Portugal (193 €), and Spain (567 €) where most European less favoured regions are located, to over 1200€ in some of the more advanced countries such as Germany, Denmark, France, Ireland and Luxembourg.

These differences are even more pronounced when referring to R&D state aid to companies per person employed in the manufacturing sector, with Spain, Portugal and Greece under 50% of the EU average to indexes of over 200% in Denmark and Finland, out of approximately 3 billion for the whole European Union. Moreover, Austria and Finland are dedicating more than one third of all state aid for the manufacturing sector to R&D support to firms. Denmark, France and the Netherlands dedicate all around one fourth of all state aid for manufacturing to R&D, while the EU average stands at 14%, with Portugal (6.4%) and Spain (14%) well behind. Thus advanced countries and regions give more of a policy priority to innovation promotion than less favoured countries and regions, which paradoxically are in a bigger need and start from a worse off situation.

So, if less favoured regions which are principally located in the cohesion countries spend comparatively much less state aid in R&D for firms than regions which are located in advanced countries, with which they already have a very considerable “R&D and innovation gap”, and this is compounded with a problem of public innovation monies ‘absorption’, how are firms located in these regions going to compete through innovation in a progressively global economy (and single market) in the absence of new more efficient innovation promotion policies?

3. Different objectives and instruments

To respond to the difficulties faced by the less developed regions, an emphasis must be put on a different set of policy instruments from before. One could imagine regional economic development as essentially dependent on two complementary types of condition: the necessary and the sufficient. The ‘necessary’ conditions, based on basic infrastructures (land, air and sea transport, telecommunications, energy, the environment, etc. - physical capital) and human resources with a minimum level of training (human capital).

The ‘sufficient’ conditions are based on ‘intangibles’ and are more directly related than the former to the competitiveness of the businesses base - the capacity for innovation, a business culture that encourages co-operation, the quality of management, a minimum level of R&D capabilities, the availability of business services, etc. and an institutional framework that promotes co-operation between the public and private sectors and between companies (related to the concepts of social capital and the so called “institutional thickness”). The two types of conditions are intimately related and must be present in the required proportions to maximise the impact of regional development policies.

The mix of policies to promote one set and those to promote the other set of conditions depends on the level of development in the region concerned and must necessarily change over time, bringing a change in the type of policies and instruments used. In other words, there is no fixed recipe as sometimes is the case in other branches of economic science with regard to variables such as inflation, deficits, interest rates, exchange rates, etc. For example, the emphasis placed on and the resources devoted to the second type of conditions say in a developed region like Baden-Württemberg will be relatively much greater than in a less-developed region such as Andalusia where there is still a substantial lack of physical infrastructures. The important thing is to understand that in both cases it is the policy mix that determines the effectiveness of public measures and that neither of the two regions can afford not to take action on both types of conditions to ensure that the second complements and maximises the impact of the first. In this sense, the second type of conditions can be seen as the ‘software’ that runs in the ‘hardware’ provided by the set, thus making it more effective.

To date, in the less-developed regions, the Structural Funds have been mainly directed towards creating the necessary conditions: financing physical infrastructures (roads, airports, water-treatment plants, energy networks, railways, etc.), which have the additional advantage of being relatively easy for a ‘central’ national or regional authority to plan, with little margin for trial and error, and the concrete results are easily foreseen and have a relatively immediate and tangible impact on public opinion. In addition, the need for and the public nature of those projects are widely recognised by just about everybody in the doctrine and therefore are not subject to major contention related to the ‘economic principles’ motivating these actions.

However, intangibles are gradually becoming a priority for regional policy in those less-developed regions that are successfully overcoming their shortage of infrastructures. The emphasis is therefore increasingly being placed on those conditions directly related to the competitiveness of the region's productive base since it is precisely those conditions that will most directly and immediately affect the capacity of businesses, particularly SMEs, to develop new job-creating activities. This necessarily involves policies (which will probably consume fewer financial resources) that are more ‘regionalised’ and based on close co-operation with the private sector through new forms of public-private partnership. The necessary starting point for any such policies is an understanding/identification of the demand (for innovation in particular) from the productive base and the active involvement of the

private sector and the regional RDTI actors, starting with the university and the technology centres.

The instruments for implementing these policies obviously go well beyond tax incentives, training programmes, aid for basic research or the provision of physical infrastructures.

The aim must be to establish an innovative climate that facilitates access to the inputs required to increase competitiveness and that are not necessarily available within the business, from strategic information in the form of prospective technological studies, to new types of financing in the form of seed capital or 'business angels', to cooperation between businesses to promote innovation and electronic commerce via clusters, to new measures to encourage technology transfer by means of programmes to exploit the results of university research or the employment of research workers.

Also, one of the principal objectives of regional innovation policies should be to consolidate a pool of local 'talent' through the recruitment and/or retention of 'intelligence' (high-level professionals). To that end, regional authorities, in addition to giving priority to improving and effectively 'selling' the quality of their educational, technological and research environment must decide on the distinctive international 'image' they want their region to project in the increasingly transparent and uniform global economy

These policies should attempt to complement strictly growth-orientated objectives with broader considerations of economic cohesion (measured for example in terms of the distribution of the regional income or poverty rates), the quality of life (using composite indices ranging from public safety to health), the environment and the preservation of culture and community spirit. The new regional innovation policies must give priority to the creation of 'intangible' infrastructures in the form of social capital and quality public administration to permit the full development of the region's intellectual potential and 'creativity', and the improvement of the quality of life and the exploitation of local culture.

Indicators

It is clear that measuring progress towards the above objectives and finding sound indicators with which to evaluate policies is more difficult than using traditional growth targets, such as income per capita and unemployment rates. In this sense, an indication of a region's GDP provides only a static 'photograph' of its economy, that tells us less about the capacity of that economy to dynamically generate new economic opportunities than the level and type of employment already achieved. A move must be made towards more sophisticated indicators like stable, high added-value and quality employment (and of employability of the workforce).

Other indicators showing the dynamic dimension of the regional social and relational capital are necessary even if they are difficult to build. Measuring networks' depth and effectiveness, relevant linkages and interactions among different regional innovation actors and, more broadly, the basic components of social and relational capital such as "trust, and reciprocity" or confidence levels and innovation capacity are complex and extremely difficult to measure. But progress might be made even by better analysing existing indicators, for example on educational levels, under a new light as a proxy for these more 'theoretical' concepts. In fact, firms themselves often overemphasise physical assets (land, capital, etc.) to the detriment of intangible assets (R&D, intellectual property, brand, workforce skills, organisation competence, networks of customers and suppliers, etc.) which new business management

literature is so keen on. Returns to non-physical investment are not yet enough valorised (possibly because they are hard to measure) by policy makers. This affects also the evaluation systems used to assess these policies. It should be possible to measure, correct and improve these policies on an on-going basis, using not only ex-post impact indicators based on quantifiable outputs, but also more qualitative methods to evaluate processes, including planning, implementation, administration and management, etc. systems, while the policies are actually being implemented. More interactive evaluation methods should be used such as self- evaluation tools, discussion animation techniques, etc. Evaluators should become animators of a reflection process rather than judges of past facts.

Instruments

In this context, two types of instruments should be developed. First, these new instruments should, at the microeconomic level, promote entrepreneurship and provide ‘real business services’, that respond to an aggregated demand by business networks and clusters, in contrast to public subsidies to individual businesses through horizontal, automatic and traditional programmes of public aid.

Some instruments at micro-economic level

- Innovation management techniques diffusion
- Quality and design incorporation
- Encouraging use of “clean” production processes
- Product differentiation and new forms of marketing and after sales services
- Adaptation of products and services to new niche markets
- Making use of economic intelligence and foresight studies
- Using new forms of business management and organisation, including intensive use of information and communication technologies
- Technology audits
- Intellectual Property rights policy awareness and defence
- Recruitment of graduates and use of researchers in SMEs
- New financial products (seed capital, risk capital, business angels)
- Etc...

These are instruments that try to facilitate the introduction of new or improved products, processes and services onto the market, covering all the necessary steps from the research effort and technology to marketing, management and training to new and appropriate forms of financing. In other words, these are instruments that are directly related to the process of innovation in businesses and their objective is precisely to increase the capacity of businesses to innovate as a principal source of competitiveness.

This is even more relevant in the case of small and medium-sized firms in less- developed regions, whose key economic difficulties are related not just to size but also to isolation (Cooke and Morgan, 1998). The principal objective, therefore, is not simply, or even mainly, to reduce entrepreneurs' costs but to change corporate strategies and business culture and improve the ‘productive environment’ or ‘milieu’ in which these firms work.

At the ‘meso-economic level’, those instruments are linked to the concept of the regional innovation system: an economic and institutional environment that permits the creation, dissemination and adaptation/adoption of knowledge (either in codified form or tacitly) that increases the competitiveness (and the attractiveness) of the regional economy. This concept is intimately related to the concept of social capital and institutional efficiency. In short, the

aim is to direct public policy towards promoting innovation as a basis for giving the region a competitive advantage by means of a solid public-private partnership and better institutional co-ordination and organisation. The ultimate objective is to create a suitable environment that will permit the creation or development of (new) activities with a high added value.

Some instruments at meso-economic level : a systemic approach

- creating public-private co-operation networks
- strengthening co-operation between businesses via clusters
- creating single points of access for businesses to systems of aid ('one-stop-shop' / 'first stop shop')
- improving contacts between universities and businesses
- making better use of existing RTDI resources and infrastructures
- increasing coherence and synergies between the different policies, institutions and individuals active in the field of RTDI
- strengthening entrepreneurship in the region
- facilitating access to skilled workers and to new financial products
- incubating activities
- etc.

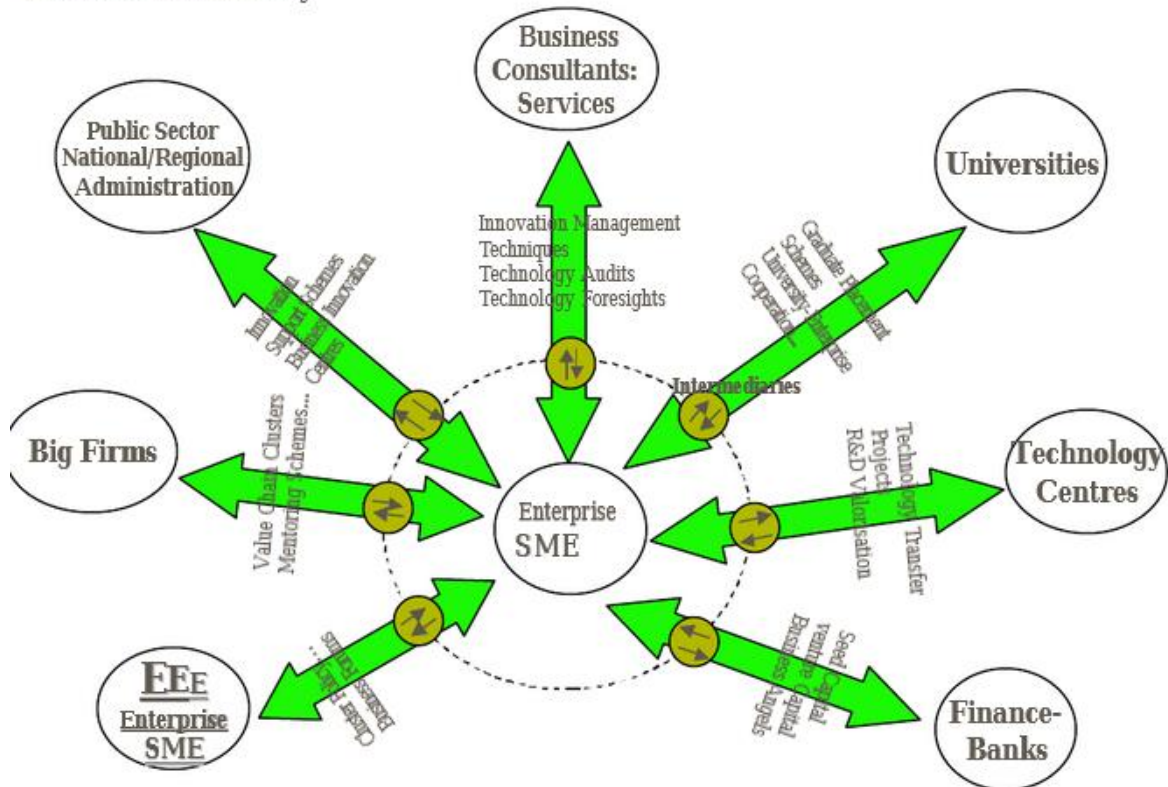
As regards the policy to attract investments, these new instruments put much more emphasis on attracting qualified professionals ("bring your brains, and your family, to our region because we have the policies and infrastructures to get the best from your skills as well as having a great quality of life") rather than attracting subsidiaries of multinational companies ("bring your business to exploit our low labour costs and benefit from our low taxes"), since, as Michael Porter points out, in the global economy, a country or region that relies on low wages to give itself a competitive advantage is rapidly overtaken by another.

The legitimacy of public policy for improving these conditions is critically dependent on acceptance of the idea that the competitiveness of businesses is determined not only by their own capabilities but, to a no lesser extent, by the quality of their environment, sometimes referred to as 'structural competitiveness' (Chabbal 1994). The assumption is that businesses, and particularly SMEs in less-developed regions (mainly because they are working in imperfect markets with limited access to information and specialised technical know-how), may need assistance in tapping into the necessary outside resources (principally access to knowledge, in the form of technology or qualified human capital) to face up to the new forms of competition that are developing in the global economy.

Public policies to promote innovation must therefore aim principally to create this relational environment that permits actors, and particularly SMEs, to access the outside resources that can increase their international competitiveness and that are shown in the diagram below.

Fig. 1: The networked economy

The Networked Economy



Empirical results from recent research efforts (Koschatzky, K. and Sternberg, R., pp. 493-4, 2000) confirm the importance of network building “whose advantage lies in the acquisition of complementary resources which an individual actor does not have at his own disposal”, for promoting innovation in firms, SMEs in particular, by establishing that:

- “Small firms show a high preference for local and regional cooperation partners. They have a much higher share of intra-regional linkages than large firms.
- “Innovating firms are much more engaged in networking than non-innovating firms”
- “Small firms cooperate to a lesser extent with universities and other research institutes, while medium size and large firms make much more use of this information and knowledge pool”
- “Because their preference for local and regional partners, small firms depend greatly on the supportive quality of their regional environment and the innovation-relevant knowledge sources available there”

4. Different policy delivery systems

The planning and implementation procedures for the new regional policies to promote innovation share some of the following characteristics:

Regional governments play a key role in the conception and implementation of these policies, enjoying a strategic position for setting up public-private co-operation networks and creating a suitable climate for effective innovation. They are well placed to co-ordinate different elements (policies and institutions) of the regional innovation system, beginning with a thorough analysis of the actual innovation needs of, particularly, SMEs and of the principal obstacles facing them, including raising awareness of the need for innovation in the first place. In other words, ‘national’ innovation policy is difficult to implement without a very close relationship (co-ordination and synergy) with regional governments, which have a detailed knowledge of key RDTI regional actors and the needs of the productive base. Inversely, it is essential that innovation policies, which by their very nature are ‘territorial’ (in the case of the overwhelming majority of businesses), be co-ordinated with the major national and international research and development systems, including, universities and major public

research institutions and laboratories, as one of the main sources of knowledge. In short, regional governments are key players in these new policies.

A second characteristic is that such policies cannot be effectively developed without the direct participation of the private sector in planning and implementation and without the agreement and active support of other actors in RTDI in the region, semi-public agencies, technology centres, universities and trade unions.

Finally, these policies must be based on new forms of institutional organisation that are more dynamic, horizontal and flexible, not only for the purposes of planning, the determination of objectives and co-operation in networks but also for project implementation and development.

The public sector must provide leadership, rather than control, on these policies and must play the role of 'promoter' of and 'catalyst' for economic development. It must be able to co-operate closely with the private sector and others active in the region as an equal partner. It must also be capable of reacting and providing creativity and must allow for the amendment of policies and programmes on an on-going basis as lessons are learned from experience.

These policies must not be conceived by an elite using a 'linear procedure: 'experts' or senior officials conceive the policy, politicians approve it and it is carried out by a branch of the regional administration, which, on completion, carries out an ex-post evaluation and makes any changes required. These policies must be amended on a permanent basis ('learning-by-doing'). On the basis of pilot experiments and evaluation during their implementation, further planning and conception work is carried out, taking risks and learning from mistakes. That is why the institutions and agencies responsible for implementation must be given a considerable degree of autonomy and (political) trust and need to have a high level of professional experience in the field (development economists and technical experts rather than general administrators responsible exclusively for implementation and auditing).

Finally, these policies have a very wide and multidisciplinary focus and place special emphasis on contextual questions, permanently improving education and training respond better to the needs of the market. In the long term, the most important thing for achieving innovation in the regions is human capital.

To ensure that these policies bear fruit they require strategic planning based on wide consensus in a stable public-private partnership and a firm commitment from the principal R&TD and business services providers (the regional "knowledge infrastructure") in the region so as to ensure that the policies will be long-term and benefit from adequate resources.

There are no universal magic formulas for this type of policy (neither must they be affected by doctrinal fashions: yesterday technology parks, today clusters, tomorrow ...), instead specific policies are required for each region, which will be principally demand led and conceived using a balanced bottom-up approach. There are no best practices, but only good practices, from which lessons can, in certain cases, be learned that can then be adapted to suit the particular situation in each region.

5. Eight years of experimentation with regional innovation strategies (RIS)

The RIS projects have provided a first attempt at the EU level to implement the necessary improvements explained earlier. The first experiences of support to regional innovation policies by the European Commission were launched in 1993-94. Since then, the regional innovation system approach has been widely diffused in the European regions

These projects have been basically tools to create the most favourable economic and institutional environment for innovation in SMEs. The methodology used was based on a strategic approach (what do we need and can do to foster innovation in our region ?), based on an analysis of the regional innovation system (how innovative are our firms and what are their innovation needs? how well our universities, research centres and innovation support organisations work with each other and respond to the innovative development of our firms? how might the situation evolve in the future regarding technology trends? how are other regions doing with their innovation promotion policies ? what are the most appropriate innovation policies for our region in view of our own strengths and visions? Etc.) and the elaboration of a strategy and an action plan to promote innovation done by and for the region.

This RIS approach is based on the idea that strategic planning, developed as an iterative process built on interactions among regional actors, allows each of them to progressively adapt its behaviour (agenda, objectives and actions) to the others' voluntarily. This maximises synergies and avoid duplications in the absence of a top down "dirigisme" by a central planning authority. This can be achieved mainly through the consensus and open discussion induced by the process of elaboration of a shared vision for the region (strategic objectives) and the design of the means to achieve them (actions plan). This shared vision can progressively become the common reference by which the economic development relevance of each actor's agenda can be assessed. Moreover, through enlightened self-interest, becoming an active partner and approaching one's agenda to the shared one can have direct economic benefits in the form of public incentives and enhanced business opportunities, through 'clustering' of business activities, for example. As an illustration of the above, in the German area around Altmark, Harz and Madgeburg, 350 firms participated in the RIS, along with 12 universities and R&D organisations, 10 innovation providers, Chambers of commerce and industry, associations and administrations. Their joint work led to the launch of 25 pilot projects for innovation in the region.

In practice, a RIS project consisted in three steps :

1. A first consensus building and awareness phase, based on discussion among key regional actors. During this phase, the steering committee of the project is created, the management is clarified, working groups are organized according to key sectors, technologies or key innovation-related issues for the region, consultants are selected and communication tools (web site, newsletters, logo, etc.) are created. It is a vision and partnership creation phase.

This phase is crucial to the success of the projects. In fact, it is not a one-shot phase but a real continuous work all along the project. Creating a momentum is difficult and even more difficult is maintaining it. As stated by an Irish RIS manager, one of the key lessons from the RIS is that "regional partnerships for innovation are central to regional competitiveness but building these partnerships demands care, courtesy and patience." When the dialogue has been limited, the success of the project has also been limited, such as in Auvergne (F) for instance.

2. An analysis phase where the innovation needs of firms are identified, based on technology audits, sectoral working groups, postal or email questionnaires sent to firms and face-to-face interviews with entrepreneurs. The experience has shown that it is often difficult for firms to express their needs for innovation (Erkko Autio, 2000).

§ More and more, technology audits of SMEs have been used successfully to carry out this needs analysis.

§ The R&TDI supply, including R&TDI organisations and policies, available in the region to respond to these needs is also analysed. Face-to-face interviews are carried out, including discussion groups, in complement to desk analysis based on already existing studies. In some cases, strong reluctance came from supply organisations (universities, research centres, technology transfer organisations, service providers to firms, chambers of commerce and industry, existing supply networks, etc.) to provide a self-critical view of their actions.

§ The international trends in the key technologies or sectors which are economically and technically significant for the region are scanned (foresight).

§ Finally, a complementary benchmarking analysis of what other European regions are doing is also carried out, in view of possible exchanges of good practice.

3. A third phase consists in elaborating a regional innovation strategy and an action plan, on the basis of the previously mentioned analysis and partenarial discussion. This strategy should be translated into an action plan and pilot projects. In particular, it is important to launch “flagship” projects, that are capable of illustrating in practice the small-scale translation of the new ideas identified in the RIS action plan, for the sake of credibility, towards the private sector in particular (‘not just another publicly run study or planning exercise’). These actions and pilot projects could be financed, fine-tuned, tested in the RIS+ projects. These RIS+ projects aimed to:

§ Stimulate and develop projects emerging from action plans of RIS or similar projects such as RITTS in view of mainstreaming them into the structural funds

§ Launch feasibility studies for the preparation of actions

§ Launch small demonstration projects to validate methods or innovation promotion tools

§ Stimulate exchanges of good practice with other regions.

The main idea is to reduce the waiting time between the end of a RIS and its full implementation, when financial support is missing or late, thus filling the gap between expectations and the time necessary to make things happen. In fact, RIS was thought of as a ‘software’ that would eventually, if successful, run in the ‘hardware’ provided by the mainstream funds of the European Regional Development Fund, thus helping to solve the above referred ‘regional innovation paradox’ by higher and better innovation spending in less favoured regions.

These more than 30 RIS and 25 RIS+ have been ambitious: their objective was to “promote the creation or strengthening of regional innovation systems in order to increase regional competitiveness”. After eight years of experimentation, we can say that RIS contributed, in regions where there was no or little innovation support activities prior to the RIS, to the very first foundations of regional innovation systems. In most regions, RIS reinforced a real networking of actors, an improved transparency and understanding of RDTI support organisations and a better identification of the innovation needs of firms, SMEs in particular.

Considering their limited budgets (half a million Euros for 18 to 24 months with 50% of the budget coming from the European Commission), the outputs of some of these projects go

well beyond expectations in various fields and regions. For instance, they contributed to change the way innovation was perceived and to bring innovation as a higher priority in regional policy agendas and they initiated networking within regional innovation systems (between firms, between key public and private actors) and outside, between regions.

6. Results and achievements of RIS and RIS+ projects

External evaluations of the Regional Technology Plans (RTP), Regional Innovation Strategies (RIS) and Regional Innovation and Technology Transfer Initiatives (RITTS) projects as well as the recent analysis of RIS+ projects, provide some insight on the impact of such projects. They are mainly related to regional policy making and to the improvement of business support instruments (Morgan and Nauwelaers, 1999).

(1) Contribution to changes in regional policy making

Introducing innovation into the economic development agenda of less favoured regions. These projects contributed to raise awareness and enlarge the scope of the concept of innovation as well as to integrate it within their regional economic development strategies as a priority task. In many RIS/RIS+ regions, it went from a narrowly defined “economic exploitation of research results” and technology transfer, to « profitable change » and “the successful economic exploitation of new ideas”. This broader concept of innovation includes not only research and technological efforts but a broader, more integrated approach involving organisational, financial, managerial, training, and marketing considerations, as well as the promotion of entrepreneurship and an innovation culture in the region.

RIS strengthened the position of innovation in regional strategies. This has even induced several regions such as Niederösterreich, Limburg, Strathclyde or Overijssel to clearly and publicly set the vision of becoming one of the « most innovative regions » in Europe.

Others have set up ambitious political objectives in this field. In Shannon for example the key objective of the RIS is to double the level of innovation by having at least 20% of all enterprises introducing some new product, process or service in the previous two years, by the year 2003. In West Midlands one of the objectives of RIS was to "Increase the proportion of innovating firms from the current figure of 60% to 90% by 2004 in the region by focusing in particular on the ability to increase innovative activity within these firms through stimulating networking amongst business and organisations across the region" and to "Increase the investment in R&D, fixed capital equipment and education and training to, at least, the UK average by 2004". In Castilla y León they had the complementary objectives of increasing R&D expenditure to reach 1% of regional GDP and to raise R&D in companies by 50%.

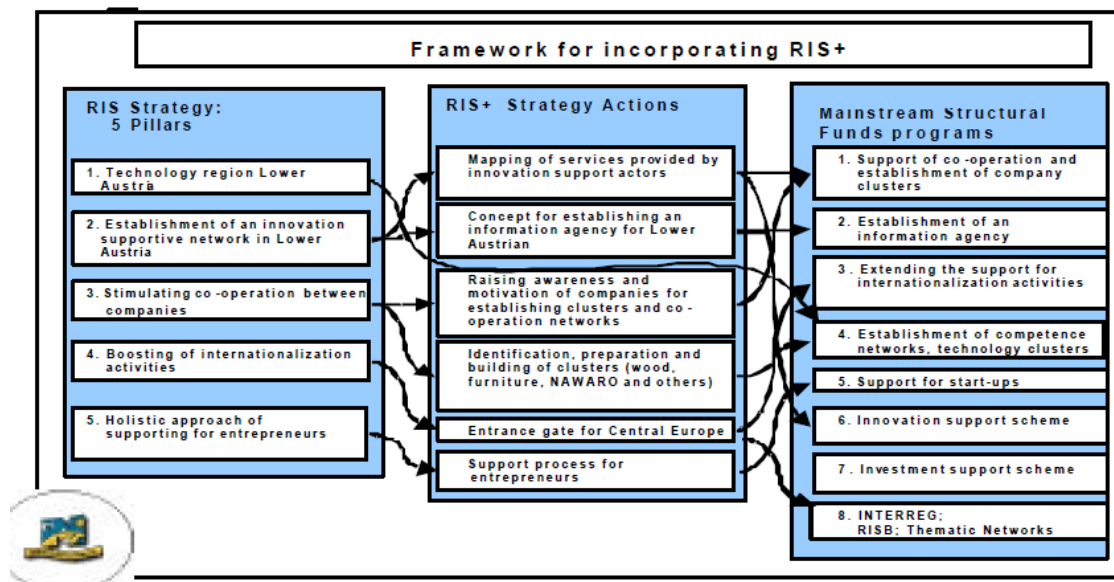
Raising awareness of entrepreneurs and even the general public about innovation has also been supported by around 40% of all the RIS projects, both in less favoured regions and in more advanced ones. An innovation promotion Minimovie was produced in Western Scotland to raise awareness for entrepreneurs, the Da Vinci TV programme in Overijssel is already a success for several years, and the Innovation week organised in Thessaly is a good communication event on innovation. The Canary islands have also launched radiobroadcast programmes on innovation and Aragon ran a successful press campaign on the benefits of innovation. In the Dutch Limburg, a tool based on problem solving and creativity

management technique (TRIZ) developed by a large firm was adapted to be used with SME managers to raise their awareness on innovation.

In all, we can safely say that RIS have certainly raised political awareness about the need to act in this field on the basis of public-private cooperation and a sound assessment of firms innovation needs and capabilities. Mainstreaming into National and European Structural Funds for increasing the quality of public expenditure

Most projects have managed to guarantee a good mainstreaming of their priority actions into the Operational Programmes for objective 1 or 2 areas by providing new project ideas and identifying partnerships to implement them. In regions such as Halle-Leipzig-Dessau, Yorkshire and the Humber, Limburg, Calabria, Shannon, Castilla y León, Central Macedonia, Thessaly, Sterea Ellada and Western Scotland, many of the measures proposed under the new generation of Operational Programmes can clearly be traced back to the RIS activities. Niederösterreich is an interesting case as it has managed to make the evolution in time and the link between programmes quite visible.

Fig. 2 : Incorporation process of RIS strategy in Niederösterreich



Several regions have been able to provide precise figures on budgets allocated to innovation in the structural funds or in either regional or national programmes after their RIS. They all show a significant increase in the quantity and the quality of innovation support.

This is the case of the Spanish region of Castilla y Leon in which public investment for innovation have been multiplied by 3 and private funds by 2 after the RIS project since 1994. In Yorkshire & the Humber, 80 millions euros have been earmarked to finance actions of RIS and RIS+, coming from the public and private sector. Within these 80 million, let us take one precise example: an excellence centre for chemical industry is being financed for a total budget of 4.7 millions euros, of which only 1 million euros come from the objective 2 but which had a very positive leverage effect to attract the main private sector investor (Hickson plc).

Considering the small budget provided by the European Union for RIS projects, these figures are highly illustrative of the leverage effect of such projects. Some 20 regions tend to

consider this as the main achievement of their project, such as in Central Macedonia: “the continuous incorporation of Innovative actions in the regional planning mechanisms during the development of the RIS+ constitutes the biggest achievement of the programme in Central Macedonia (EU Commission, 2002)”.

Yet, it is too early to measure the overall impact of this mainstreaming into national and European regional development funds in terms of regional innovative capacity. An institutional framework for a more efficient use of public and private funds One of the unexpected conclusions of the evaluation of these projects was that their « policy » dimension contributed to improve the institutional capacity of regional administrations in charge of innovation. The RIS and RIS+ have often contributed to a better co-ordination of public financiers of innovation. In the Canary Islands RIS+ prepared a “Quality charter” for technology transfer offices in universities. In Wallonia a new decree for technological centres, detailing approval conditions for these centres, including a charter on prices for services they offer. In Overijssel, a new official convention was signed by the regional development agency, the regional government and the regional office of the national agency for innovation (Syntens) for the promotion of innovation.

In these various dimensions, a positive impact on the national level has also been acknowledged. The Spanish minister for industry mentioned that “the project in Castilla y Leon was a good example and a benchmark for other Spanish regions”. The same was said in Ireland where “the RIS in Shannon has set a headline for national policy”.

(2) Improvement of business support instruments and processes

A wide variety of business support tools and processes have been developed in RIS and in particular in RIS+ projects, which are shown in the table below.

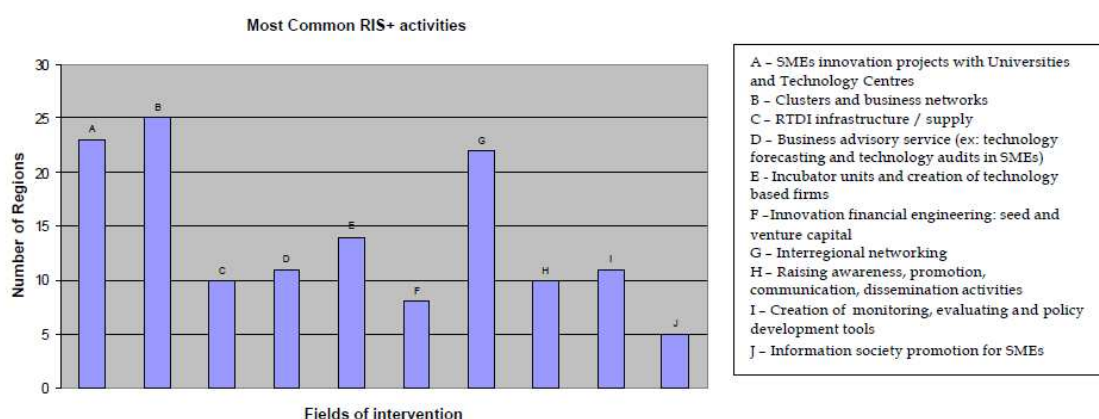
Table 1 :Examples of policy instruments developed under the RIS /RIS+ projects

Cluster policy support	Wallonie, North Sweden, Weser-Ems, Toscana, Halle-Leipzig-Dessau, Yorkshire & the Humber, Pais Vasco, Overijssel, Central Macedonia
New financial instruments for innovation support	North Sweden, Castilla y Leon, Canarias, Central Macedonia, Shannon, West Midlands, Yorkshire & the Humber
Networking of R&TDI organisations	Wallonie, Castilla y Leon, Niederösterreich, Canarias, Castilla la Mancha, Galicia
Electronic business and ICT business audits	Cantabria, Castilla y Leon, Wales, Thessaly, Galicia, Aragon, Pais Vasco, Canarias, Overijssel, Aragon, West Midlands
Start-ups and spin-off support	Niederösterreich, Halle-Leipzig-Dessau, Umbria, Canarias, Castilla la Mancha, Umbria, West-Midlands
Benchmarking tools and R&TDI observatories	Limburg, Wales, Thessaly, Galicia, West Midlands, Central Macedonia
Valorisation of university research and technology transfer	Umbria, Canarias, Thessaly, Calabria, Castilla la Mancha, Overijssel
Foster innovation capacity within firms	Limburg, Thessaly, Aragon, Overijssel, Sterea Ellada
Fostering innovation skills	Northern EU, Overijssel, Central Macedonia, Aragon
Innovation awareness in firms	Wales, Western Scotland, Thessaly
Foresight activities	Limburg, Wallonie, Wales, West Midlands

Cross-border R&TDI cooperation	Algarve-Huelva, Northern EU, West Macedonia, Central Macedonia, Niederösterreich
Specific sectoral approaches:	
• Tourism sector	Stereia Ellada, Weser-Ems
• Agro-food sector	Thessaly, Stereia Ellada, Central Macedonia, West Macedonia, Weser-Ems, Shannon, Yorkshire & the Humber
• Plastic / chemical sector	Halle-Leipzig-Dessau
• Cultural heritage sector	Toscana

In the RIS+ projects specifically, which provide an opportunity for the implementation of RIS strategies, the importance given to cluster support is confirmed : activities for clusters and networks of firms have been developed by 100% of the regions (25 in total), followed by innovation projects in SMEs in collaboration with universities or technology centres and interregional projects.

Fig. 3 : Most common RIS+ activities



Sectoral projects such as the cultural heritage sector in Toscana or the chemical sector in Halle-Leipzig-Dessau are clearly specific to some regions. Also, we tend to see more Southern Europe regions dealing with the valorisation of research developed in universities and R&D (with the exception of Overijssel in the Netherlands).

Technology audits of SMEs are also often used in Spanish regions. On the contrary, foresight activities are more common in more developed regions. But generally speaking, the tools and processes developed in RIS and RIS+ are not so much geographically determined.

Promotion of public and private partnerships and business networks

This is one of the most visible results of the projects. All 30 regions (25 RIS+ and 5 RIS) decided to support clusters and business networks in their actions plan. For example, in Wallonia, 5 pilot clusters led by firms in collaboration with research centres and sectoral association were developed under RIS. In Yorkshire & Humber, 15 sectoral business networks were all animated by entrepreneurs and directly integrated into the activities of the newly created regional development agency. In Tuscany they developed a cultural heritage cluster which has been recently pointed out as an example of good practice by the European Parliament's STOA Office.

Finally in Halle-Leipzig-Dessau, a public- private dialogue in the chemical sector developed into co-operation between big firms and regional SMEs and the establishment of a network of 50 firms in the plastic sector, preparing the creation of a Technological institute for polymers.

Currently, RIS+ strategic reflections throughout the Union show that the provision of a regional framework for inter-firm cooperation is of paramount importance for the promotion of innovation in SMEs. Innovation flows through the formal and informal regional networks created. These networks help translate knowledge (codified or tacit) into economic opportunity, while at the same time build up the necessary bonds and linkages among persons and institutions so as to exploit the synergies that catalyse regional innovation. It is also interesting to notice that in the way RIS projects have been managed and animated, public-private partnerships have been enhanced. Yorkshire & the Humber is an interesting case :

Fig. 4 : The RIS process in Yorkshire & the Humber

- | The RIS approach in Yorkshire & the Humber (UK) | |
|--|--|
| • | RIS has developed as a series of strategies for key business sectors. |
| • | RIS brings together all stakeholders in a Business sector innovation network to include manufacturers, suppliers, academics, customers and support organisations. |
| • | Each business sector is led by a business champion. |
| • | The outcome of the project is to put in place a strategy and working support structure for each business sector. |
| • | RIS benchmarks the Yorkshire & Humber business support infrastructure, in target sectors, against the best in Europe. Deficiencies become priority areas for public funding. |

Within RIS/RIS+, hundreds of SMEs have been audited from the technological point of view and hundreds more have been involved in the process of identification of innovation business needs through participation in working groups and all sorts of surveys. In Castilla y Leon, it is 300 firms that have been surveyed, 20 of them have had a further technology diagnosis and another 20 an Information and Communication Technology (ICT) audit. Also, some regions such as Central Macedonia, Wales (Henderson 2000) and the West Midlands are establishing regional innovation observatories to update and monitor the innovation needs analysis.

On the supply side, most regions have undertaken a thorough critical analysis of their current innovation policies and the contribution of their R&TDI institutions to regional development, including universities and technology centres in particular. In this sense, following the RIS/RIS+, several regions such as Niederösterreich, Canarias and Algarve/ Huelva are planning the creation of interface organisations. Others like Castilla y Leon are aiming at 'one stop shop' by labelling a network of regional innovation support organisation in order to make the R&TD resources available more transparent and accessible. In Weser-Ems (D), five competence centres are being created.

Another interesting experience is the one developed by the Dutch Limburg region. To monitor the effects of regional policy instruments, several databases have been set up to improve the coordination between the key regional stakeholders (regional government, regional development agency and the regional innovation agency Syntens). One of these databases, BEVOS, is presented in the box below.

Figure 5 : The Company Monitoring System (BEVOS)

The Company Monitoring System (BEVOS)

To build this monitoring system, 35 indicators have been selected in such a way that they:

- assist consultants from the regional development agency (LIOF) and the regional innovation Agency office (Syntens) in advising companies and offer the possibility of tracking developments in a company over time;
- provide a benchmark of this company when compared to a group average, which can then be presented as a score for each operational management aspect and a total score;
- help to clarify the impact of individual and group projects;
- offer insights into the trends and developments of the entire group of companies advised by Syntens and LIOF.

Because of the importance and promising results, the Province granted an extra 60 000 euro after the RIS+ period. It is considered that BEVOS contributed to improve project development (by identifying and meeting requirements) and should be an important building brick for future policy.

Finally it is important to note that interregional exchanges of good practice, which was one of the objectives of RIS+ projects, have been quite frequent among regions with 90% of all regions involved in study visits, working groups and other means of communication. This has clearly brought a European value added to these projects, which will be of even greater importance with the future enlargement. The new regions will need to have access to knowledge and experience already developed by other regions, keeping in mind that there is no universal magic formula.

Some tentative key success factors can be identified based on the RIS experiences:

- Critical role of “champions”, often from the private sector or universities.
- Importance of a bottom-up approach that allows real regional partnerships to be built and maintained over time.
- Importance of a demand-led approach where SMEs needs are well understood.
- Multidisciplinary vision of innovation.
- Added value of learning from other regional experiences
- Importance of human capital building, improving skills and developing a critical mass of R&TDI regional capability.

More generally, the need for new policy instruments and delivery mechanisms and the incremental long term dimension of this policy process must be emphasized.

Promoting innovation, which is key to regional competitiveness, requires new policy instruments and delivery mechanisms

RIS type projects illustrate the relevance of the need to go beyond supporting physical infrastructures and RTDI equipment to encourage collective learning and co-operation processes between local actors of innovation that facilitates the creation or strengthening of dynamic regional “systems” of innovation. As mentioned in the Interregional institutional learning is all the more important since “because of the evolutionary character of a regional innovation systems...there is no such thing as an optimal system of innovation, or a single best way” as explained by Hassink, R. and Lagendijk, A. (pp. 77) 2000. First part of this article, European regional innovation policy should now move from support to technology to measures promoting innovation , entrepreneurship and building social capital.

There are various forms that collective learning may take, depending on the social, economic and political setting of a region. For instance, in some regions which do not have a strong degree of political autonomy, these regional projects cannot be developed easily and efficiently without co-ordination with national actors. This necessity varies strongly from one country to the other. In countries which are less regionalised (France, Portugal, Greece, and the Nordic countries), working with representatives of the State in the regions is mandatory.

In any case, it is essential to have a RIS linked and integrated within a broader national and international science and technology systems, and away from a narrowly defined “parochial” regional approach.

This illustrates the need to also promote this type of projects vis à vis national authorities and to inform them and to obtain their support, without losing the regional specificity of innovative actions, which also involves direct collaboration between regions and the European Commission. In this sense, the exchange of experiences between projects within a same country should also be supported through the creation of “national” RIS networks, just like the ones already existing in Greece, Spain, Portugal and the UK.

Regional innovation promotion is a long process and RIS can be a step in the right direction on which to build on

RIS projects are moments (for some regions, key moments) in a long term policy process. A two-year RIS is not enough to build a regional innovation strategy that translates efficiently into a concrete policy or to reinforce a dynamic innovation system. RIS+ has contributed to concretise strategies and to test some ideas and tools but they are not the end of this long-term policy process. Promoting innovation at the regional level is a long process that requires stable political commitment and deep pockets. As mentioned earlier, the impact on mainstream national and European regional development funds of RIS and RIS+ has still to be further promoted.

As stated by the Greek region of West Macedonia, “the combination of a RIS and a RIS+ is innovative in itself, due to its well balanced mix of analytical work and empirical action. RIS+ has also strengthened the local consensus building among actors of the region. Thus, representatives from the public and private sector, as well as academics continued to cooperate to further increase the added-value from the project and to maximise the benefits from the experience gained over the years.”

7. Reasons for RIS and RIS+ failures

Finally, it is important to acknowledge the reasons why a few RIS experiments failed to deliver and were interrupted or put into the archives as one more interesting ‘study’. Most of these failures were due to ‘political’ reasons related to:

- Key regional government authorities and/or established R&TDI institutions feeling threatened by an inclusive, transparent and bottom-up process, which opened the innovation policy discussion to a wide array of regional actors.
- Key regional government authorities and/or established R&TDI institutions feeling threatened by the results of the R&TDI supply analysis and the evident miss-match between their policies and the SME innovation demand, which was largely ignored or unknown so far. This led to a limited diffusion of the diagnosis done in the RIS, preventing firms, which are the end target, to accept and share this diagnosis.
- Key regional policy makers not willing to take into account and ‘mainstream’ the ideas and projects stemming from the RIS strategy into ERDF operational programmes. Even ‘operational failure factors’ are linked to the lack of support from the policy makers in the region.
- Failure to find the right regional champions and/or high level RIS management which could set the networking process in motion, by providing leadership and creating awareness and involvement of the appropriate key regional actors.
- Failure to keep this regional champion / management team and the networking process in motion over time.

- Over reliance on external consultants for the development of the strategy and action plan without any relevant appropriation by the local actors.
- An excessive technology-push perspective without sufficient consideration to a demand-led perspective, and absence of an adequate understanding of the functioning of the regional innovation system and its weaknesses.
- A ‘study’ approach rather than an ‘applied’ one that could have gained credibility and showed local partners, businesspersons in particular, that it was a new practical departure and not just another planning exercise with little real-life translation.

In short, weak social capital and lack of institutional thickness, over and above technical issues were the main causes for RIS-type regional innovation policies to fail (Bourgogne, 2002).

8. Conclusions

To date, in the less-developed regions, the Structural Funds have been mainly directed towards creating the physical infrastructures that are a necessary pre- condition for sustaining a process of economic development: roads, airports, water- treatment plants, energy, railways, etc. Intangibles, although they gradually become a priority for regional policy in those less-developed regions, are still not supported enough yet. The emphasis should be even more increasingly placed on those conditions that will most directly and immediately affect the capacity of businesses, particularly SMEs, to develop new quality job-creating activities. This necessarily involves policies for the promotion of innovation, that are more regionalised and partenarial as the RIS/RIS+ experience has clearly shown.

Considering that the Structural Funds are a key source of funding for regional innovation support schemes in Europe, as shown by the RINNO database, it is important to improve these policies by drawing lessons from the successes and failures of RIS-type experiments. At the regional level, these policies should aim at establishing an efficient regional innovation system: an economic and institutional environment that promotes the creation, dissemination and adaptation/adoption of knowledge that increases the competitiveness and the attractiveness of the regional economy. Collective learning, strengthening networks and social and relational capital are central to such a policy. In the coming years, the European Union support to co-finance regional innovation strategies will have to evolve. First, it will have to look towards the East, where the 50-odd regions of the candidate countries could use the experience developed by their counterparts of the current Union to promote innovation at the regional level

Secondly, we need to better understand and tackle some of the following aspects in order to improve regional policy making in the innovation field:

- Improve evaluation methodologies of intangibles, by focusing on the process rather than outputs and building indicators to measure the regional innovation system as a whole, including interactions and networks revealing the social and relational capital of regions.
- Valorise and diffuse the “tacit knowledge” on regional innovation policies through tools such as interregional networking (like the existing IRE - Innovating Regions in Europe network), workshops gathering academics, consultants and practitioners at EU, national and regional levels. Through face-to-face exchanges, this knowledge and practice could be shared between “thinkers” and “doers”.
- Reflect on relevant specific follow-up activities for less favoured regions, such as tutoring agreements with more advanced regions

.

The new generation of Innovative Actions 2000-2006 financed by the ERDF, which draws heavily from the RIS experience, will involve approximately 5 European regions out of 6, that is to say around 135 regions out of 156 eligible regions. These programmes introduce new delivery mechanisms by allowing a direct relationship between the European Commission and the regions, based on subsidiarity, and aim at new policy objectives allowing for regional experimentation of new policy instruments in three fields that are acknowledged nowadays as economic development priorities: technological innovation, information society and sustainable development.