A REGIONAL INNOVATION STRATEGY FOR CYPRUS

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Abstract

The paper introduces the EU sponsored programme of "Regional Innovation Strategy" (RIS) and highlights its relevance for Cyprus. The first part explains the origin and the theoretical foundations of the RIS programme while the remainder of the essay discusses the potential benefits that Cyprus may derive from adopting a RIS project. The paper underlines the lack of an innovative environment in Cyprus and explains why such an environment is desirable to allow Cyprus to face up to the new competition.

Introduction

The objective of this paper is to introduce the European programme of "Regional Innovation Strategy" (RIS) and to analyse the potential benefits that Cyprus may derive from adopting such a programme. The essay is divided into two parts. In the first section of the paper, we provide a description of the RIS explaining how RIS projects operate. The aims and objectives of the RIS programme are further highlighted in the section that follows which deals with the genesis of the programme in the early nineties. The third section discusses the theoretical foundations of the programme through a review of the debate on innovation and localised learning. It sets out the major empirical and policy related research findings necessary to appreciate the pertinence of the RIS programme. The second part of the paper concerns Cyprus. A first section discusses the weaknesses of the Cypriot economy, highlighting potential areas of action to be addressed by a RIS project. The section that follows provides evidence of the European Commission's recommendation to carry out a RIS type of action in Cyprus and a detailed analysis of potential benefits for the island. The conclusion offers an agenda for future action and highlights potential obstacles to the proposed initiative.

The RIS Programme

Objectives of a RIS

The RIS programme, launched in 1994, has been the flagship of European policy in terms of innovation and regional development. RIS initiatives are aimed at supporting regional governments and/or development organisations in undertaking a thorough assessment of their "regional innovation system". The concept of "regional innovation system" is used here to refer to regional stake holders (such as private firms, research centres, chambers of commerce, industrial associations, unions, government services, educational institutions, etc.) who through their actions may contribute collectively, to improve the economic performance of a given region. The concept of innovation also deserves to be clarified: innovation is not only about research and development (R&D); it also refers to other areas of action such as the application and adaptation of existing technologies in firms, introduction of flexible working practices (organisational innovation), training in new skills or techniques, new forms of marketing, etc, that may lead to higher productivity and competitiveness and support increased living standards. To put it succinctly, innovation is the successful application of novel ideas within an organisation. Finally, innovation is a regional process; as we shall see in the theoretical section of this paper, innovation is mainly deter- mined by processes of localised learning born out of a specific (local or regional) "social capital".[1]

In this respect, the particular case of Cyprus deserves some clarification. Although the island is a nation-state, because of its reduced size and compared to other regions within the context of the European Union, Cyprus should be considered as a region, at least in economic terms. Having said this, a RIS project in Cyprus will have to be implemented within the national framework but we shall continue to refer to a "regional" strategy throughout this paper.

The aim of a RIS project is to initiate a learning process with respect to policy formulation through the building of a consensus amongst all relevant regional actors (e.g. entrepreneurs, public authorities, labour unions, research and education institutions and others). Although the project may be partly financed by public authorities, it is not run by public authorities. Instead, it is guided by a steering committee representing various interest groups. The accent lies on collective decision making. The core of the project consists of two phases: a) in-depth analysis of the real needs of firms in terms of innovation and b) survey of the "innovation supply infrastructure" available in the region (research centres, technology centres, etc.). Other studies may be undertaken to gain a better understanding of the economic structures and potentialities of the region. Such may be carried out by separate working groups covering sector based topics (e.g. improvement of subcontracting links

within a particular sector) and horizontal topics (e.g. ways to promote the region abroad). The results of the various studies are translated into policy options, which are discussed collectively before being implemented in pilot projects.

In line with the definition of innovation given above, RIS projects are encouraged to adopt a broad interpretation of innovation. Relevant issues are those that will allow an improvement of products and/or production processes in the market place; or enable a public or private organisation to provide a better service. Innovation in such a context is not only a matter of increased economic wealth, it is also an improvement of social welfare and the creation of jobs. In substance, the programme invites each of the participating regions to engage in a collective thinking exercise on the innovation strategies that may be relevant to the region.

From the preceding paragraphs it appears clearly that a RIS project is above all a process which needs to be initiated and completed by the regional actors themselves. A RIS project is a "bottom-up" exercise and does not involve "top-down" policy recommendations or pre-agreed lines of actions that will be implemented. In fact, RIS projects should bring together regional stakeholders, give them the opportunity to discuss and agree about the particular diagnostic of their own region, decide for a possible need of more analysis in particular fields, assess solutions and opportunities highlighted by their analyses, and finally, decide collectively about the course of action to follow and the projects to be launched. A RIS project is a tool for a collective decision making process and this paper aims to stimulate a debate on this issue.

Since 1994, 32 European regions have undertaken or are about to start a regional innovation strategy (Table 1).[2] The vast majority of the projects have been selected on the basis of a competitive call for tenders and were financed under "Article 10" of the European Regional Development Fund (ERDF). The aim of "Article 10" is to support actions which explore new approaches to economic and social development, and encourage greater co-operation and the exchange of experience between regional actors. Contrary to traditional ERDF interventions (for instance, the Objective 1 programmes which support Greek regions), "Article 10" projects are selected by the European Commission itself. It is interesting to note that the financial allocation to all "Article 10" actions represents only 0.6% of the total ERDF allocation of 70 billion ECU placed at the disposal of the Member States for the period 1994-99 (Landabaso & Reid 1999).

The RIS projects funded by the Commission have four key features (European Commission, 1999):

- they are based on public-private partnership, i.e. the private sector collaborates with regional players to develop and implement the programme;
- they have a demonstration character, i.e. policies which are developed or tested in

a region can be transferred to other parts of the Union;
- they exploit the European dimension through inter-regional co-operation and benchmarking of policies and methods;
- they promote innovation policies, which take into account the real needs of SMEs and based on processes of open consensus building.

The development and implementation of a RIS project is a task that requires a combination of competencies in the field of innovation policies, public relations, animation of partnerships and the creation of relevant political momentum.[3] A successful project will have to address and fulfil four major requirements (European Commission 1999):

i. Concerning the management, the project will need to be implemented in a competent and effective manner. This involves the right choice of experts to support the needs of the Steering Committee and other working groups, the development of an effective communication policy for the diffusion of information, and a sound and rigorous financial and administrative management of the project.

ii. The strategy and pilot actions will be derived from a wider process of consultation with a representative cross-section of interested stakeholders (particularly private sector businessmen). The creation of a large basis of support is a necessary condition for a subsequent successful implementation of policy strategies.

iii. From the point of view of the Commission, the analysis and debate carried out during the RIS must be used to improve the Structural Funds programmes and other regional programmes implemented in the region. While this is a minimum requirement, experience has shown that the wide consultation exercise triggered by the RIS has often far reaching influence on local policy making.

iv. Finally, although the projects are supported by the Commission for a limited period of time (24 months), they are not intended to be a "one-off" boost to regional innovation planning. On the contrary, the "learning effects" must be perpetuated through different means such as the creation of innovation policy observatories, the extension of the mandate of RIS Steering Committees and management units, annual reviews of implemented RIS policies, etc.

Having presented the main features of the RIS programme, we would like to explain how the programme was first initiated within the European Commission. The ensuing discussion about the genesis of the programme will reveal a set of key ideas, which underlie the philosophy of the programme.

The Genesis of the RIS Programme

The first reflection along the lines of a regional innovation strategy had begun as early as 1991 at the European level. That same year, the Directorate General for Regional Policies (DG XVI) organised a workshop in Brussels to discuss the concept of "Regional Technology Strategies" (RETAS). The aim of this workshop was to discuss new ways to re-orientate the Structural Funds expenditures by including strategic policy making and a more active promotion of innovation. The experts were invited to comment on the creation of pilot actions to promote innovations at the regional level. At the outset, it was proposed that the pilot actions should have nine basic features (Landabaso & Reid, 1999):

- They should be strategic: the projects should adopt a strategic planning concept to regional development and incorporate short-term and medium-term actions within a long-term perspective.
- They should adopt a "bottom-up" philosophy: the actions' priorities should be chosen on the basis of expressed needs of firms and technology providers.
- They should be considered within an endogenous policy framework: the reference point should be the actual economic circumstances and the prevailing research, technology development capabilities of the region. In other words, the region should start "helping itself with its own means".
- They should be based on regional actors: regional administrations should play the leading role in the design, implementation, and follow-up of the exercise.
- They should be integrated within other actions: an effort should be made to link efforts from the public sector (the EU, national, regional and local authorities) and the private sector towards a common goal. To this end, all financial resources made available to the region should be integrated into the different parts of the strategy in order to maximise the impact of RTD actions and promote a coherent set of actions.
- They should be applied and therefore work from the market and for market with the aim to raise productivity, employment and technology levels.
- They should be considered in a global perspective: an international outlook must be adopted to consider economic and technological trends while cross-border collaborations are becoming a necessary condition for an effective R&D, technology transfer, and innovation policy.
- They should be incremental and cyclical, the exercise must be dynamic. Each plan for action has to be reviewed in the light of previous experience and an on-going evaluation; there is a continuous feedback.
- And finally, pilot actions should above all be innovative by bringing together and allowing a debate between two previously distinct communities: economic development experts and technology and R&D personnel.

The first outline for a Regional Innovation Strategy originated in 1992 from two

Welsh academics Philip Cooke and Kevin Morgan who had been working alongside the Welsh Development Agency towards a framework for regional technology and innovation in Wales. A year later, four "Objective 2" regions (i.e. regions undergoing industrial restructuring) were chosen to test the new concept. Wales, Lorraine, Limburg and Saxony started to work on what was now called, a "Regional Technology Plan" (RTP). In the following year, it was decided to test the concept in the less developed peripheral regions of Europe (the "Objective 1" regions). Four further Regional Technology Plans were started, one each in Portugal, Spain, Italy and Greece.

By September 1995, the RTP pilot projects had generated a great deal of interest from other regions. This led the Commission to publish an open call for proposals for the development of Regional Innovation Strategies (RIS) under "Article 10" of the European Regional Development Fund. The new (and definitive) acronym RIS was adopted with a view to encouraging the regional managers of these pilot actions to adopt a broad definition of innovation.

Over the last four years, about 600 leading public and business figures have been involved directly in RIS steering committees; some 5500 firms have been surveyed or audited and over 10000 individuals or organisations have been consulted on future options for regional innovation policy in their region. Despite differences in approach, most regions concluded that the capacity of the regions to innovate is influenced by the single most valuable resource for economic development, the human potential (European Commission 1999). The "re-discovery" of the human factor (as opposed to the technological factor) in processes of innovation is not a coincidence. In fact, this tendency had already emerged clearly in the theoretical debates on innovation and local growth and prosperity.

Theoretical Foundations

In recent years, we have seen a series of theoretical concepts, which have been appropriated by policy-makers to promote economic development at the regional level. These concepts include the idea of *competitive advantage* developed by Michael Porter (1990), the notion of *industrial districts* (Goodman & Bamford 1989, Pyke *et al* 1990, Pyke & Sengenberger 1992, Garofoli 1992), the concept of *innovative milieus* (Aydalot 1986, Maillat 1995) and the idea of *collective efficiency* which has been developed in the context of developing countries (Schmitz 1995, IDS 1997). Most of these concepts have helped us to understand how highly localised processes of innovation have allowed some regions to establish local competitive advantages in the context of global competition.

While the above literature mainly concentrated on the analysis of "success stories" in selected regions often highlighting the intangible factors underlying the success of these regions, much work remains to be done to distil economic policies from the above experiences and translate them to other less fortunate regions. Having said this, most theoretical concepts seem to converge towards the idea that economic action is somehow embedded in the local socio-cultural and institutional context and that this embeddedness is crucial to understand the innovative capacity of a region. This observation implies that innovative environments somehow derive their success from their capacity of "collective learning". This capacity is often born out of a common cultural back-ground, which binds local agents and institutions in "synergetic networks",[4] and constitutes the so-called "social capital" of the region (Langendijk 1996).

To a certain degree, the RIS approach aims to translate this idea of innovative environment into an operational concept (Landabaso 1993). This means that it should be possible to establish the foundations of a regional innovation system by improving the quality of the environment in which indigenous firms and SMEs operate. If it is accepted that the innovation capacity of a region is the result of a cumulative learning process, a RIS exercise can gradually contribute to the promotion of networks and partnerships in the region to induce a "learning economy" (Morgan 1997).

The absence of this "learning economy" in most European regions explains one of the EU's key problems, namely its poor record of converting scientific and technological knowledge into commercially successful products and services. In other words, the inability to transfer technology from laboratory to industry, from one company to another and from one region to another region. Until recently, the introduction of new innovations into the economy was considered to be a linear process with sequential and largely independent steps: basic research would take place in laboratories and the outcome of this process would later be diffused in the economy after being exploited by industry.[5] However, the deficiencies of this linear model and its lack of attention for interactions between numerous actors, led to the adoption of a new interactive model of innovation where innovation is seen as a social process. What is clear is that the underlying issues are not necessarily technological. The reason for this is that innovation processes are embedded in, and depend on, sociological and cultural parameters, which influence the organisational patterns of collective actions in a region (Landabaso & Reid 1999).

The concept of "social capital" may help us to clarify how community ties can promote a process of development where patterns of collective actions usually play a decisive role in shaping local competitive advantages. The growing interest in the concept of social capital was triggered by the influential work of Putman (1993) on the role of civic traditions in Italian regions. In simple terms, the idea put forward by

Putman was that the quality of relationships among people may have a major influence on economic performance. Indeed, he sees social capital as a basis to develop voluntary co-operation within a community, with the ultimate effect of improving economic performance:

> Voluntary co-operation is easier in a community that has inherited a substantial stock of social capital in the form of norms of reciprocity and networks of civic engagement. Social capital here refers to features of social organisation, such as trust, norms and networks, that can improve the efficiency of society facilitating co-ordinated actions (Putman 1993, p167)

Until now, the concept of social capital has been mainly applied in sociology and development studies (Bazan & Schmitz 1997, Evans 1996, Woolcock 1998) although it has also entered the field of regional studies (Cooke & Morgan 1998, Morgan 1997). For Cooke and Morgan (1998) "social capital helps *to* lubricate asso-ciational action within the firm, in inter-firm networks , and between firms and their institutional milieu" (p 27). They consider social capital as "the collective consciousness and practical action of the regional social order mediated through its institutional organisations, (the social capital) determines defensive and offensive regional action and hence the evolutionary processes of the region" (p 64); they recognise social capital as "a valuable economic externality" (p 7). In their work on the "associational economy", they show how in Baden-Wurttemberg and Emilia-Romagna new associational modes of civic and economic organisation were developed and note that "In both cases, robust institutional structures, animated not only by public authorities, take care to monitor, evaluate, and learn ways of maintaining and improving their economies in the clear realisation that this is the cornerstone of their recent success" (p 7).

The discussion of the theoretical concept of social capital is important because it underlines the very essence of the RIS programme which is the institutional mobilisation of stakeholders and their ability to conduct collective actions.

The importance of social capital and its associated "institutional thickness" is further underlined by the very nature of processes of innovation in small and medium-sized firms. These processes take place in connection with routine activities in production, distribution and consumption and are "transaction intensive" and often depend on "simple" every day acts performed by workers, technicians and entrepreneurs. In fact, networks of relationships engender collective processes of learning, and therefore innovation is first and foremost a collective social endeavour. What matters are the collaborative processes in which the firms are engaged and their privileged access *to* information and expertise from the wider social constituency (e.g. workforce, suppliers, customers, technical institutes, training bodies, etc.) in which they are embedded.

The innovative capacity of a region does not only depend on its research and technology infrastructure. It is clear then, that when assessing the innovative potential of a region, the traditional type of "input-output" indicators are not sufficient. These indicators are concerned with the Research and Technological Development (RTD) capacity of a region (e.g. university laboratories, research centres and R&D units of larger firms). However, what seems to be more important to take into account are the "process indicators" which measure the broader linkages between the different actors involved in the innovation process. These indicators can provide a clear idea on the capacity of the regional economic fabric to adapt to technological and organisational change (Landabaso & Reid 1999).

The above discussion bears a significant relevance for the case of Cyprus. The peripheral location of the island with respect to the major industrial and urban centres of Europe and the absence of a significant industrial "home" market or hinterland are probably some of the factors that explain the almost total atrophy of its RTD infrastructure.[6] For this reason, the country never developed technology-based industrial activities or "high-tech" services. This in itself should not be a worrying fact since what matters most in today's competitive world is productivity and not inputs or scale.[7] In fact,

> The term *high-tech,* normally used to refer to fields such as information technology and biotechnology, has distorted thinking about competition, creating the misconception that only a handful of businesses compete in sophisticated ways. In fact, there is no such thing as a low-tech industry. There are only low-tech companies, that is, companies that fail to use world-class technology and practices to enhance productivity and innovation (Porter, 1998, pp 85-86).

In regional policy, explicit government intervention to promote the development of certain "desirable" industries should not be a prime concern for policy makers. Instead, what matters is to help existing and future companies to reach high levels of productivity so as to create localised competitive advantages to raise living standards at home.

In this first part of the paper we have outlined a possible agenda to help Cyprus to achieve this aim. In doing that, national and local policy makers will have new roles to play: they will have to strive to create an environment conducive to innovation and rising productivity. In fact, business leaders, government and institutions will all have a role to play in a newly defined collective responsibility for the creation of new breeding grounds for localised innovation. As Porter puts it in his essay on the new economics of competition,

> This task will require fresh thinking on the part of leaders and the willingness to abandon the traditional categories that drive our thinking about who does what in the

> economy. The lines between public and private investment blur. Companies, no less than governments and universities, have a stake in education. Universities have a stake in the competitiveness of local businesses (1998, p 90)

In the next part of the paper, we concentrate on the particular case of Cyprus, highlighting the potential benefits the country could derive from engaging in this new economic policy to support innovation. The structure and problems of the Cypriot economy are first highlighted.

The Relevance of the RIS Project for Cyprus

Strengths and Weaknesses of the Cypriot Economy

The Cypriot economy has evolved from an exporter of minerals and agricultural products in the 1960s, to an exporter of manufactured consumer products (clothing) in the second half of the 1970s. In the 1980s and 1990s, it developed into an international tourism and service centre. For the last two decades, there has been a tremendous growth of the tertiary sector at the expense of agriculture and manufacturing. This is a reflection of the comparative advantage of the country which stems from its stable macroeconomic environment, the relatively high level of education of the population,[8] the relatively low level of labour costs, the high standard of transport and telecommunication services and attractive living conditions. Together, these factors contribute to explain the rapid growth of Cyprus into an important regional business service and offshore centre for shipping, trading and financial and business services.[9]

The Cypriot economy is a small open economy. While it can be characterised as prosperous, it is also highly susceptible to external shocks. Erratic growth rates in the 1990s reflect the economy's vulnerability to swings in tourist arrivals (caused by fluctuations in political and economic conditions in Western Europe, the Middle East and in Cyprus itself) and the need for structural changes in the economy. Moreover, in the last couple of years, a growing public deficit and the pressure to comply with the EMU criteria have put increasing strain on domestic economic policy.

The major structural changes which have affected the Cypriot economy in recent decades can be summarised as follows:

- A dramatic decrease of the contribution of agriculture to GDP (from 10% in 1980 to 4% in 1997, Planning Bureau 1998, p19). While agriculture is still a large employer on the island, activities with higher value added and a more efficient use of water resources need to be promoted to avoid the further de-population of rural central Cyprus.

- A shrinking manufacturing sector (GDP contribution: 18% in 1980 and 12% in 1997, *ibid.,* p19) due to a series of factors including: the small size of companies, the lack of technological, management and commercial progress, shortcomings in technical education and training, and, in the early 1990s, rising labour costs.[10] However, the main reason for the dramatic loss of competitiveness in manufacturing has been the continued policy of protection of domestic industry, which has prevented the sector's timely adaptation to global competition.

- The vulnerability and the progressive erosion of competitiveness of the Cypriot tourism sector which contributed 8.4% of GDP in 1997 *(ibid.,* p 85). This sector has suffered from erratic growth during the last decade with a negative real annual rate of change of value added in 1991, 1993 and 1996 compared with strong positive variations in 1992 and 1994 and to a lesser extent in 1997. One of the problems is that the anticipated increase of high-income tourists has not materialised yet and that the per capita expenditure of tourists has remained stagnant in current terms. To maintain the competitiveness of the Cypriot tourist product in the medium and long-term perspective, there is a need for new forms of tourism, the promotion of ancillary projects, the strengthening of infrastructure, and the opening of new markets *(ibid.,* p 32-33). It is interesting to note that a number of RIS projects which are currently being implemented focus on innovation in the tourism sector while a sub-group of the RIS-RITTS Network has been created around this topic (see for instance the case of Sterea Ellada documented in European Commission 1999).

- The rising cost of an expanding public sector (contributing 14% to GDP in 1997, *ibid.,* p 20) which suffers from a severe lack of productivity and accountability, and which needs new flexible structures that would allow it to contribute significantly to the further development of the economy.

What Cyprus shares with other less favoured European regions is the relative underdevelopment and fragmented nature (lack of integration and coherence) of its regional innovation system. It suffers from an institutional setting lacking adequate policy delivery systems, it is burdened by an inefficient public sector and a lack of understanding of policy makers of the regional innovation process. What has also been witnessed in Europe's less favoured European regions but does not apply to Cyprus, is that money earmarked for innovation is often utilised exclusively for the creation of R&D physical infrastructure and equipment to strengthen research activities which do not always reflect the needs of the regional firms. The result is often the lack of a multidisciplinary approach in the planning of funding which is crucial to achieve a successful innovation policy (Landabaso 1999). So far, Cyprus has been spared from making such errors simply because it has not been eligible for support from the main EU funding instruments (the RTD Framework Programme and the regional Structural Funds).

However, not being able to benefit from such funding programmes has also contributed to the isolation of Cypriot companies from R&D networks and centres of excellence in Europe. This has probably also taken up its toll on the local innovation system making it difficult to keep abreast of technological change in the global economy. Moreover, in a small country like Cyprus where family firms compete among themselves on the local market, there is no tradition of collaboration and trust either between companies *or* with the regional R&D infrastructure.

To sum up, except for its dynamic business service sector, the economy of Cyprus is in urgent need of restructuring, if it wants to proceed successfully with European integration. Moreover, the country's ability to face the new challenges of globalisation is being seriously hampered by the inability of the government to press forward with much needed reforms regarding deregulation, liberalisation, privatisation and harmonisation. As will be shown in the next section, a Regional Innovation Strategy may provide the country with the necessary stimulus to reinforce its competitive capacity through the adoption of new practices in the fields of public-private partnership, consensus building, technological innovation and strategic actions.

Potential Benefits for Cyprus

The relevance of a RIS project for Cyprus has been emphasised by the European Commission itself: In an official communication to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, the Commission

> invites each Central and Eastern European Country *and Cyprus* to develop an appropriate research technology development and innovation strategy at regional and national level, to be considered within their respective pre-accession frameworks as agreed by the European Council in Luxembourg (COM 1998, p15).

There are many reasons as to why a RIS project may contribute significantly to the upgrading of the Cypriot economy. This is especially true if one considers the relatively low cost[11] of the exercise in view of the potential benefits that can be achieved.

The most important contribution of the project would be to facilitate EU accession procedures by strengthening industrial, technological and economic policies in Cyprus and make them compatible with the existing European policy framework. Regarding its Research, Technological Development and Innovation (RTDI) policy, and building on the previous quote, the Commissions' recommendations are a constant reminder of the very essence of the RIS programme which it would like to see implemented in Cyprus.

> RTD and Innovation policies have to be integrated within the productive fabric of the region. This means regional players have to identify and direct resources towards strategic regional priorities. An integrated RTD and Innovation strategy should be based on partnership between local and regional bodies, Member States and the European Union. The strategy should aim to promote innovation, improve networking and co-operation and strengthen human capabilities and be adapted to the institutional, socio-economic and cultural characteristics of each region... Regions should initiate and develop an integrated RTD and Innovation strategy, based on the needs of the regional structure... The Commission intends to build on the experience gained under present regional innovation and information society strategies in order to consolidate a demand-led, bottom-up approach, in accordance with the principle of subsidiarity *(Ibid.,* p 14).

As it clarifies economic goals and identifies specific and concrete fields of action, a RIS project would be instrumental in facilitating the request by the Cyprus government of forthcoming rounds of European Structural Funds.[12] At the present time it is not clear whether Cyprus will qualify to obtain such funds.[13] In any event, a RIS project could be instrumental in providing a strategic framework for national policy decisions in a number of areas:

• Cyprus' research and technological infrastructure is extremely weak. To date, the country counts only a few research laboratories which are located in the Cyprus Institute for Neurology and Genetics, the University of Cyprus, the government institute for agricultural studies, the Higher Technological Institute and the private college Frederick Institute of Technology. However, except for the Cyprus Institute for Neurology and Genetics these laboratories are relatively small and host rather modest scientific activities compared to European standards. Scientific research has been a recent phenomenon in Cyprus (most laboratories did not exist five years ago) and no real assessment of its possible contribution to the local economic fabric has been carried out. The RIS will offer a privileged opportunity to evaluate this situation.

• Through its European dimension, a RIS exercise will provide a privileged opportunity to Cypriot businesses and institutions to develop new links with their European counterparts. Through pilot projects, entrepreneurs often get the chance to come into direct contact with colleagues in other European regions. This is also true for local policy makers or institutional actors (chamber of commerce, training institutes, industrial associations, etc.) who will be the first to seek contacts across regional borders in the framework of a RIS programme. From a general point of view, inter-regional exposure of the main stakeholders of the Cypriot economy will contribute to assist the process of economic integration helping firms of the region to establish their competitive advantages in the wider European arena instead of the domestic market.

• Networking and industrial co-operation are necessary components of most innovation processes which have become too complex, too costly and too risky for individual small and medium sized firms, especially in Cyprus where firms may be more isolated than in the rest of Europe. In fact, a RIS may well provide the opportunity to reflect on one of the most significant policy debates of the nineties, namely the promotion of clusters of economic activity (Porter 1990, 1998). This idea is especially relevant in the case of a small country like Cyprus where the lack of "critical mass" in certain fields of the economy is often seen as problematic. There is little doubt that such a debate should take place in Cyprus and the RIS with its collective decision platforms may be a good forum to engage a discussion on ways to promote localised competitive advantages on the island.

• RIS projects are based on a thorough analysis of the real needs of firms, they are built on collective decision processes spreading over a considerable period of time (average length of a project is over two years), they include the contribution of qualified domestic and foreign experts, and in this way, contribute to offer governments reliable, privileged and detailed information on the actual state of the economy. Indirectly, this may prove to be a considerable asset in the development of specific policy indicators. For example, the Cypriot government could find in the RIS project a significant source of inspiration to develop concrete guidelines on how to administrate and target funds to small and medium sized companies.

• RIS projects favour private-public partnerships and hence they provide an immediate challenge for the business world and public authorities alike to collaborate on concrete matters. In Cyprus, this may provide new impetus to the much-needed upgrade of government services. At present, a significant amount of services provided by public and semi-public authorities to the private sector and the public at large are often inadequate and entangled in bureaucratic inefficiencies. Aside from the necessity for the public sector to put its house in order through higher productivity levels of civil servants, there is an urgent need for the government to assess the best methods in terms of a more customer friendly approach in serving the private sector. However, the major issue that needs to be addressed is the overall re-definition of the role of public services based on a thorough assessment of the real needs of firms.

The establishment of a renewed consensus could in itself be a novelty in Cyprus where most social partners remain entrenched in their traditional position,[14] not realising that collaborative actions, and not confrontational ones, can engender a collective process of learning and innovation based on the expertise and dynamism of a large number of stakeholders. Overall, a RIS exercise in Cyprus may facilitate EU accession procedures by strengthening industrial, technological and economic policies and make them compatible with the existing European policy framework.

Conclusion

The Cyprus economy has undergone radical changes during the last three decades. From a developing country 30 years ago, it is now at the doorstep of the European Union. While in terms of income and living standards it is well placed among the European league, from the point of view of R&D, innovation or use of modern technologies, it must be ranked along side of some of Europe's less favoured and peripheral regions found in Portugal, Spain, Italy and Greece.

Developing a RIS exercise in Cyprus will help focus attention on a policy which encompasses the latest lessons drawn from other European experiences: priority to the promotion of innovation and its associated institutional support and promotion of technology transfers from other regions and through institutional and business-based collaborative networks (Landabaso & Reid 1999). Through its participation in the EU's "Fifth Framework Programme for Research and Technology",[15] and potentially through access to EU Structural Funds, Cyprus will have a unique opportunity to implement such a policy. The institutional framework can also be complemented by a policy aimed at attracting foreign direct investment to the country (Leontiades 1999). Such policy would also contribute to attract the much needed knowledge based industries. However, these industries will not come to Cyprus unless the right environment is being created to promote localised learning and innovation.

There may be promising results if Cyprus decides to adopt an innovation strategy. However, this process should be on going and ensure that politically stable and credible governance structures are put into place supported by professional competence and awareness in the field of innovation.

The new regional leadership must also ensure that the development of the regional innovation system will not fall in the hands of consolidated lobbies and party political considerations that hinder innovation. Setting up a RIS project is a sophisticated and complex endeavour and it may well be that traditional policy makers and administrators would rather favour "traditional" and "easy to manage" regional instruments. In this respect, it is important to see how the project could be financed. Since at the moment Cyprus is not eligible for EU Structural Funds, it will be necessary to seek funding from public and private sources alike.

To conclude, Landabaso (1999) has captured the essence of the challenge facing less favoured countries in Europe, a challenge that also holds true for Cyprus. For regional governments to be able to establish a local innovation system, a major cultural and organisational change has to occur in the regional governance structures:

> ... an increased disposition to consensus building and inclusiveness in the policy process ... away from stop and go policy decisions dictated by short term political stability and parochial interests. It is only then that the necessary "social capital" and "institutional thickness" will be reached ... to lead the process of ... learning conducive to the actual realisation of a "learning region" in practice *(Ibid.,* p 16).

A challenge lies ahead for Cyprus.

Notes

1. Regional scientists have shown us that regions rather than nations constitute the motors of the new global economy (Scott, 1998; Storper, 1997).

2. A comprehensive publication from the European Commission (1999) as well as a dedicated web site for the RIS programme (http://www.inforegio.cec.eu.int/art10/) provide ample information about the various projects that have been developed in the different RIS regions. Due to the limited scope of this paper, we cannot provide details on the relative success of these projects and their impact on the various regions.

3. A RIS is a "social engineering" action (Landabaso 1999).

4. It should be noted however that this does not always guarantee that an innovative project will succeed. On the contrary, cultural and institutional rigidities observed in small societies (like Cyprus for example) sometimes work as a detriment towards change and development.

5. Until very recently, technology policies in Europe were mainly focused on larger projects involving big companies, large research centres and universities. Within this linear model of technological innovation, it was assumed that large sums invested into R&D projects (including basic science) would automatically "trickle down" into industry, where they would be translated into new commercial products and innovative production processes. This first generation of technology policies was based on large infrastructures and the attraction of R&D intensive companies (often multinationals) through a whole range of incentives such as subsidies and tax concessions.

6. In fact, looking at the map of Europe, one can count less than a dozen "islands of innovation and R&D" which are all concentrated around the major urban and industrial centres of the Union, with the exception of some "pockets of R&D activity", often relatively successful science parks such as in Grenoble, Sophia Anthipolis (Nice) or Heraklion (Crete).

7. A most relevant and interesting contribution in this field has recently been made by Maskell *et al* (1998) who explain how high-cost small nations can sustain prosperity in open, low-tech economies.

8. About 23% of the gainfully employed population are college and university graduates (Planning Bureau 1996, p. 19).

9. In 1997, the contribution to GDP of the tertiary sector was 72.7%. Parts of the tertiary

sector are increasingly open to international transactions and have been growing steadily during the last five years (GDP contribution in 1997): wholesale and retail (12.2%), transport, storage and communication (9%), financial institutions (4.7%) *and* business services (3.4%) (Planning Bureau 1998, p. 85).

10. During the period 1987-1996 the rate of increase of productivity in most Cypriot manufacturing sub-sectors was lower than in Germany, France, Italy and the UK (Planning Bureau 1998, p. 20).

11. The average cost of RIS projects in progress is 500.000 EURO with an EU part-financing of up to 50%. In the case of Cyprus, different costs and conditions may apply but total costs should be in the range of 350 .000 to 500.000 EURO. Moreover, a financial participation of the private sector is often included in the budget while public or semi-public organisations usually contribute to the project "in kind" through the allocation of working time of relevant collaborators.

12. As we saw earlier, one of the motives for the establishment of the RIS programme was to prepare regions to absorb Structural Funds in a more effective way.

13. The Commission corrects GDP figures on the basis of purchasing power parity. However, this data is still missing in Cyprus and is eagerly awaited since only member countries registering a GDP which is 75% below EU average will qualify for Structural Funds under Objective 1. Having said this, it is reasonable to assume that at least support for rural areas under the new Objective 2 programme may be applicable in the case of Cyprus.

14. This issue has become particularly relevant in recent years when the government had to face the stiff opposition of various workers' unions and some political parties, in its efforts to liberalise large segments of the economy and to press ahead plans for deregulation and privatisation. In sensitive fields such as telecommunication and air transportation, public monopolies are in urgent need of restructuring if the process of European integration is to be followed smoothly.

15. These cross-European networks have been designed with territories like Cyprus in mind.

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Table 1: RIS projects in Europe

Country	*1994-96*	*1997-99*	*1998-2000*
Austria		Niederosterreich	
Belgium		Limburg	Wallonie
Spain	Castilla y Leon	Aragón	Cantabria
		Castilla-La-Mancha	Huelva§ (with Algarve)
		Extremadura	
		Galicia	
		Pais Vasco	
Finland		Northern Ostrobothnia, Kainuu and Lapland (with Norbotten) §	
France	Lorraine	Auvergne	
Germany	Halle-Liepzig-Dessau	Weser Ems	Altmark-Harz-Magdeburg
Greece	Kentriki Makedonia	Dytiki Makedonia	Ipeiros
		Sterea Ellada	
		Thessalia	
Ireland		Shannon	
Italy		Abruzzo (former RTP)	
		Calabria	
		Puglia	
Netherlands	**Limburg**		
Portugal		**Norte**	Algarve§ (with Huelva)
Sweden		Norbotten (with Northern Ostrobothnia, Kainuu and Lapland)§	
United Kingdom	Wales	**West Midlands**	
		Western Scotland	
		Yorkshire & the Humber	

§ Cross-border RIS

Source: European Commission, 1999.