Country Profile: Slovenia

1. Political, institutional and economic framework and important actors

The Slovenian political, institutional and economic framework went through considerable changes during its transition and the EU enlargement process. Slovenia's economic growth of 4.6 per cent in 2004 was a sign of favourable economic trends. Macroeconomic progress is satisfactory, while the progress on a microeconomic level (flexibility of labour market, entrepreneurship, tacit knowledge, etc.) lags behind some other new member countries.

The European Innovation Scoreboard confirms that Slovenia performs well in terms of innovativeness and certain other indicators, compared with the other new EU member countries. However, countries like the Czech Republic and Hungary rank higher than Slovenia on the technology index, because they have benefited more from technological transfer in recent years. For example, Estonia, the Czech Republic and Hungary have re-oriented their economies towards attracting foreign direct investments (FDI), which has fuelled technological progress in these countries. By comparison, Slovenia suffers from an absence of FDI and of multinational companies which create momentum for the development of a knowledge- and technology-intensive environment and thus contribute to accelerating the change towards a knowledge economy and increased enterprise involvement in research and innovation policy decision processes.

Slovenia's research intensity has increased from 1.42% of GDP in 1999 to 1,61% in 2004. The Private Sector contributed 59.3 to the total R&D investment in 2003. The Slovenian government has made an increased public R&D expenditure a priority, in line with its ambition to work towards the EU's 3% target.[1]

The institutional framework for research and innovation policy has gone through a multitude of changes since Slovenia became independent, reflecting attempts to find the most efficient distribution of tasks among the different ministries and the influence of both the scientific and business communities. Figure 1 depicts the structure of the Slovenian Research and Innovation System whose major actors are described in the following section.

a. Political and Governmental authorities

On a parliamentary level, the *Parliamentary Committee for Science and Technology* is responsible for the political evaluation of every law or act which is related to science, technology and innovation policy and which needs to pass through a parliamentary procedure.

The new *Ministry of Education, Science and Sport*[2] is the main governmental body responsible for science policy in Slovenia as well as for research and development activities on a national level. Private Sector enterprises are engaged in a general dialogue, informal involvement and joint activities with this ministry. The Ministry of Education, Science and Sport has a strong influence on national research programmes.

In a complementary responsibility, the *Ministry of the Economy* determines the priorities for technological development and innovation policy. Innovation-related issues were transferred to an expanded Ministry of the Economy, which also gained responsibility for enterprise policy. The Ministry of the Economy is the coordinator of the Slovenian Technology Foresight Programme.[3]

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1 Sources of data in this paragraph: European Trend Chart on Innovation, *Annual Innovation Policy Trends and Appraisal Report Slovenia 2004-2005*; Eurostat, *Science and Technology in Europe*, Data 2000-2004, European Innovation Scoreboard 2005

2 Created after the merger of the former Ministry of Science and Technology and the Ministry of Education and Sport in January 2001.

3 Golob, 2004

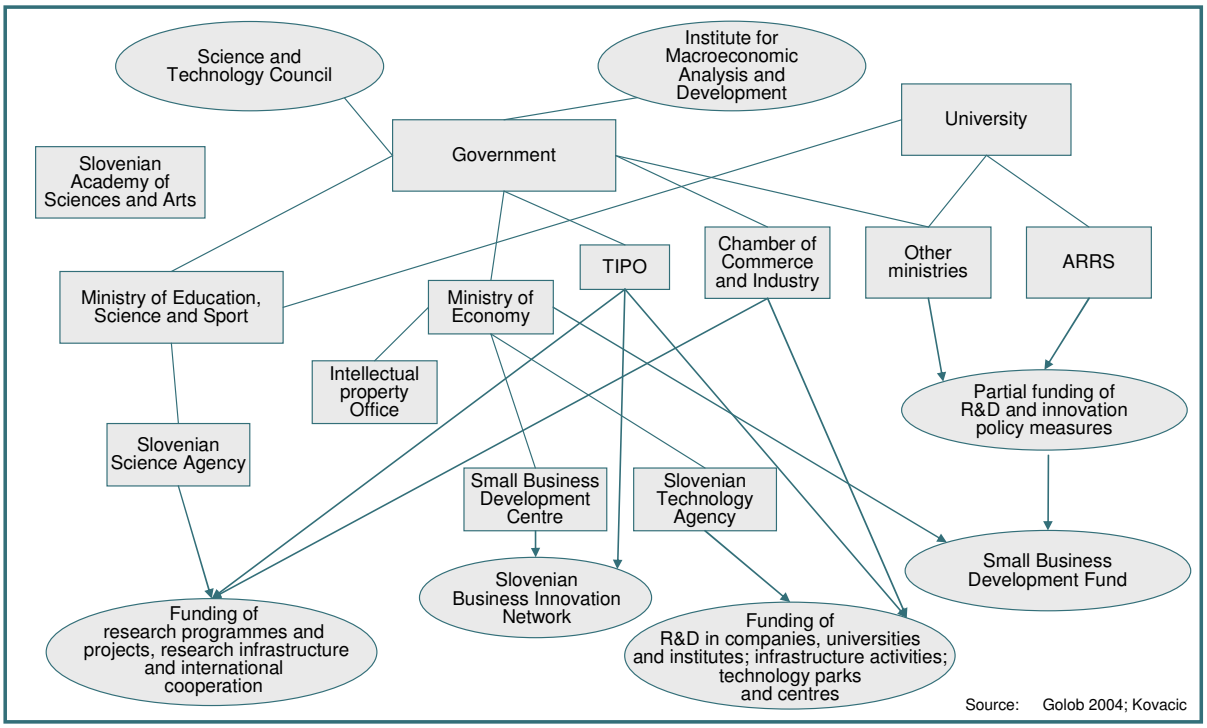

Figure 1: Structure of the Slovenian Research and Innovation System

A further important institutional actor in the science and innovation policy making is the *Science and Technology Council* of the Republic of Slovenia. Several members of this Council have a business background. These are working in the business sector, but at the same time they pursue complementary responsibilities in the research sector. Their council membership is based on their scientific performance and not on their position in the Private Sector.

b. Intermediate bodies

Various institutions are involved in the promotion of research and entrepreneurship among Slovenian managers and the wider population. These include the *Small Business development Centre* (SBDC), the three *Euro Info Centres* in Ljubljana, Koper and Maribor, regional and local *entrepreneurship centres* (REC and LEC).

The *Slovenian Science Agency* was set up by the government and by sixteen other founders (financial and industrial firms and high-ranking scientific organisations). It is financed by donations and sponsorships. Its task is to provide support for the development of science, scientific education and the promotion of science in society.[4] However it is very science-orientated (supporting conferences, publications) therefore it has no real connection to the Private Sector.

c. Research performing institutions

There are basically four types of research organisations in Slovenia: a) universities (Ljubljana, Maribor and Koper), b) public research institutes, c) private non-profit institutes and d) research units in the business sector. Although the government supports the improvement of the linkages between the Public and the Private Sector, in reality the two sectors have remained separated so far. Occasionally, the most important Private Sector enterprises sponsor international conferences.

Policy makers, Private Sector actors and public research institutes are committed to strengthening the links between the national science base and Private Sector enterprises. For example, an increasing number of broad alliances between universities and firms occur and research results are increasingly commercialised through licensing of intellectual prop-

[4] Bučar, Stare, 2001

erty and spin-off companies. The government supports strategic alliances between enterprises, research institutions and the universities, for example by founding business incubators within the framework of the universities. But the achievable impact is still limited because the Slovenian universities do not yet have enough strong relations with industry. Technical faculties usually have the participation in decision-making bodies (observer status). Other faculties don't have a formal decision involvement.

d. Private Sector

The *Chamber of Commerce and Industry of Slovenia* (CCIS) with its thirteen regional chambers participates in the debate on the research and innovation policy framework. In these debates, the Chamber stresses the need for a more development-oriented economic policy to help enterprises restructure not only in terms of ownership but also on the basis of new technologies, products and marketing methods.

Other Private Sector actors are the *Association of Entrepreneurs of Slovenia*, the *Association of Small Businesses*, the *Chamber of Craft* with its sixty-two local chambers, the GEA College and the Entrepreneurial Training Centre, Ljubljana. The scope of interest of these organisations is wide – following the needs of their membership –, so they are more active in general fields, like economic or competitiveness policy. But for example the CCIS has a specialised department for Technology Development or Information Technology.

Some Private Sector enterprises have developed stronger links with institutions through European projects. Slovenian institutes are now also increasing their efforts to be more integrated in European research programmes. However, this requires typically the support of strong Private Sector enterprises. Large companies have their own communication platforms (e.g. conferences; some of them are opened to institutions and to ministries) and are more involved in general dialogue, informal involvement and joint activities as an instrument for investigation and for implementation. Some of the biggest Slovenian enterprises have a participation in some of the bodies mentioned in section a) and b) with co-decision right; but they have little influence and they regard their collaboration/meetings with policy-makers as an idle time. Foreign companies have only a very limited impact on Slovenian decision processes in research policy making.

SMEs are involved in the decision processes of public research and innovation policy through three instruments: conferences, informal consultations and formal consultations.[5] All companies that are part of the survey are involved on these levels. Ministries, chamber of commerce and industry, faculties have different types of conferences.

In general, large enterprises have easier direct access to national public research and policy makers, often based on personal relations. The representation of SMEs' interests takes place mostly via associations, but reaching an appropriate level of interaction in this sector remains a challenge.

Example: Private Sector – Public Sector interaction at the enterprise level in the pharmaceutical industry

KRKA is one of the most important enterprises in Slovenia. This pharmaceutical company has a strong relationship with government and also with research institutions because of the crucial importance of these connections for successful new drug development and market introduction in the pharmaceutical industry. This implies the Ministry for Health, Agency for Health, the Pharmaceutical Faculty, the Chemical Institute and IJS. KRKA supports for example clinical research work in hospitals. Of all companies surveyed for this report, KRKA is the company with the strongest connection with policy-makers and with the strongest influence on decision making (by participating in decision-making bodies) in fields highly relevant for the enterprise (i.e. in pharmaceutical industry, less in R&D&I).

[5] Source: Project interviews

2. National research policy decisions and Private Sector involvement

The legal framework has been adapted through several documents adopted since 2000 for better supporting the interaction between the Private Sector and Public Sector research policy makers. The law supporting innovation and industrial R&D was the result of strong pressure of enterprises to encourage innovation.[6] After an extensive debate, the Law on R&D was finally adopted in November 2002. The Law sets forth the principles and objectives of research and development policies and specifies the ways of its implementation. This law lays the ground for the transition to a knowledge-based society, where R&D is a development priority.[7] The general goals of research policy specified by this law include the following: to broaden and deepen scientific awareness; to promote the application of science; to increase the extent of research activity; and to educate top-quality experts.

A number of different reforms were undertaken in the nineties, including especially the passing of the Banking Act, the Securities Market Act and the Insurance Act in 1999 and in 2000 harmonising the Slovenian legislation with the acquis. But still, the financial sector lacks mechanisms and levers to be able to support the necessary technological restructuring of enterprises, e.g. investment banking and venture capital.

There are many documents which try to increase the weight of enterprises on the institutional level. The *National Development Plan* (NDP) 2001-2006 is a long term indicative document implementing a *Strategy for the Economic Development of Slovenia* (2001-2006), which defines the national development priorities. The *Strategy for Economic Development* (2001-2006) attempts to create a knowledge-based society with various policies (human resources development, employment, information society, and technological development). The *New Strategy for Development* (2005) is oriented towards sustainability. This strategy also tries to increase the weight of enterprises in research policy making.

Instigation and design stages

In Slovenia, the instigation, design and implementation of research policy are under the jurisdiction of two ministries, the *Ministry of Economy* and the *Ministry of Education, Science and Sport*. Slovenian companies have the opportunity to contribute to research policy making through the National Research Programme and through decision-making bodies. Both ministries have an obligation to invite participation from the Private Sector and maintain strong relations with Private Sector enterprises (especially large companies). Policy makers usually listen to Private Sector perceptions, but create public research policies by themselves. Overall, enterprises have a multitude of possibilities to interact with the institutional level to convey their perceptions, but have only very limited influence on related decision making.

Universities and institutions have been involved in defining research and innovation policies only indirectly through commenting research funding-related regulations and objection to proposed new Laws. Technological policy is based on many interactions with enterprises.

The draft Strategy for Development 2006-2013, launched for public consultation at the beginning of July 2004, focused on innovation and R&D to increase Slovenia's competitiveness. With reference to the Lisbon objectives, the Strategy calls for a stronger relationship between the Public and the private Sector. Innovation activity is the main object of strategies in the business sector. Trends are positive in the last years. Entry into the European Union has changed the institutional level in Slovenia. Ministries are now more open to companies. However, managers from Slovenian companies still have an opinion that institutions create the policies on their own.

[6] Bucar, Stare, 2001
[7] Bucar, 2004

Implementation and review stages

The National Research and Development Programme uses a system of long- and mid-term priorities for the introduction of general goals into policy and activities allowing their clear realisation, within the framework of the public funds available and the incentives for obtaining private funds. Researchers and representatives of the Private Sector work together in setting the programmes by putting together scientific knowledge (researchers) and assessment of the market potential for producing and marketing new products/processes (business representatives). The National Research and Development Programme is the basic document of Ministry of Education, Science and Sport. National Research Programme is created to increase the influence of R&D by promoting cooperation among companies, researchers and intermediaries who transfer new technology and innovations to the corporate sector.

SMEs are still less connected with the institutional level. Guided by the aim of increasing the capacities of Slovenian companies, the state supported three pilot projects of clusters in the automobile, transport-logistic and tool sector in 2001. In 2002, the state supported four new initiatives of clusters in the fields of wood processing, air-conditioning and heating appliances, plastics and geodesy. The latest attempt of the Slovenian Government to utilise the potential in the technological development of Slovenian companies is its support of technology networks comprised of the representatives of industry, science and service providers. Such networks should be able to develop and establish an exchange of resources and achievements between the academic sphere and the industry, as well as between individual activities.[8]

Centres of Excellence are another important instrument of joint activities. As a contribution to restructuring the science and technology sector, Centres of Excellence were created. The National Institute of Chemistry, the Innovation Relay Centre Slovenia, the Technology Park Ljubljana, the Technology Park Primorska and the Technology Park Štajerska are examples for this.

Observations: Possible barriers and current initiatives

The separation between public research and Private sector R&D creates a considerable barrier. Universities and research institutes do not yet have the necessary instruments, networks and relations at their disposal. And in pursuit of its commercial objectives, the Private Sector relies to a large extent on its own research activities. Results from such research activities in the Private Sector are not easily accessible for the public research sphere. And most SMEs do not have the necessary critical mass for own R&D and do not look for connections with institutes or with universities actively themselves. If they have some influence on research policy making, this happens mostly via the Chamber of Commerce and Industry.

Another related problem in Slovenia is the low level of technology transfer and of connections between the academic and industrial spheres. In countries like Estonia and Hungary with a higher level of FDI and multinational company engagement, the resulting stronger exposure to international competition enforces organisational changes on the enterprise and also on the institutional level.

3. Other important examples of policy decisions with Private Sector involvement

The development of regional research and innovation systems is still in its infancy. But there is a dedication to strengthen the links between actors involved in research and innovation on the operative level.

One of the main documents produced by the Ministry of the Economy is a programme to promote Entrepreneurship and Competitiveness 2001-2006. The Law on Entrepreneurship (2004) was created to institutionalise the actors of technology transfer and the innovation process (e.g. clusters, technology centres, technology parks) and to provide them with long-term financing. The single programming document (2003-2006) presents a programme of

[8] Regional Innovation Strategy of Slovenia as an EU Region, 2004.

measures for the implementation of the EU structural policy and a plan for using the *European Regional and Development Fund* structures.[9]

Technology networks try to represent the main technological fields where there is a strong interest in innovation. On the basis of a detailed analysis of technological fields in which Slovenia has comparative advantages in know-how and competences, four technology networks were identified which offer possibilities for the future development of products and processes: (1) biotechnology and pharmaceutics, (2) information - communication technology, (3) environmental technologies and new materials and (4) control, operation and management of processes and systems.[10]

4. Overview: Types and extent of Private Sector involvement

General discussion & networks which do not focus on specific decisions involve large enterprises more than SMEs on the level of informal relations. Individuals from companies and from ministries meet for example at the Chamber of Commerce and Industry. A broader involvement is achieved through three instruments: conferences, informal consultations and formal consultations.[11] The Ministries, the Chamber of Commerce and Industry and faculties have different types of conferences.

Informal involvement is used for example to make amendments to the National Development Programme. Some large enterprises undertake also studies with ministries or with institutions.

Joint activities gain importance with the emergence of broad alliances between universities and firms and the increased commercialisation of results through licensing of intellectual property and spin-off companies.

Slovenian ministries invite the business sector to participate in decision-making bodies. This creates a certain level of *(co-)design and decision-making.*

Co-financing of projects/programmes is the most common instrument used for Private Sector involvement.

5. Selected useful examples of transferable approaches and experiences

In view of the very early development stage of the Slovenian Science and Innovation System, measures with enhanced potential for Private Sector interaction in research policy making are underway. But there are not yet proven good practices to be reported.

[9] Bučar, 2004.
[10] Regional Innovation Strategy of Slovenia as an EU Region, 2004.
[11] Source: Project interviews.

Appendix 1: Overview of identified instruments for Private Sector involvement and their use in Slovenia

Instrument		Intensity of use	Initiated by	Used for	Used in				Examples and remarks
					Instigation	Design	Implement.	Review	
General discussion & networks	Informal contact / consultations	Occasional	Either side	Call for opinion	✓		✓		Agency for Health
	Conferences	Growing	Either side	Exchange of views	✓		✓		KRKA, Chemical institute
	Discussion platforms								
	Networks								
	Staff mobility & exchange								
Awareness & influence	Ad hoc studies	Occasional	Either side	To find the key challenges	✓		✓		IJS, Pharmacy Faculty
	Position papers	Occasional	Either side	Studies	✓		✓		Chemical institute
	Ad hoc meetings and workshops	Occasional	Either side	To find new ideas	✓	✓	✓		Development, seminars
Advice	Formal consultations	Occasional	Either side	To analyse changes in law	✓		✓		Agency for Health
	Advisory groups & committees	Occasional	Both sides	Getting a permission for a production	✓			✓	Ministry for Health Agency for Health
(Co-)design & decision making	Evaluation studies	Growing	Both sides	Evaluation of existing programmes			✓	✓	KRKA
	(Steering) committee participation	Not common	Public Sector	To influence policy creation	✓		✓		Pharmacy Faculty
	Board memberships								
	Task force								
	(Co-)funding of research	Occasional	Both sides	Developing new products	✓		✓		IJS, Chemical institute

Table 1: Overview of instruments used for Private Sector involvement (continued)

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Further information and feedback

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