

INNO-Policy TrendChart –
Innovation Policy Progress Report

SLOVENIA

2009

PREFACE

Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States.

PRO INNO Europe® is an initiative of the Directorate General of Enterprise and Industry (DG ENTR) which aims to become the focal point for innovation policy analysis, learning and development in Europe, with the view to learning from the best and contributing to the development of new and better innovation policies in Europe. Run by the Innovation Policy Directorate of DG Enterprise and Industry, it pursues the collection, regular updating and analysis of information on innovation policies at national and European level.

INNO-Policy TrendChart serves the 'open method of coordination' approach laid down by the Lisbon Council in March 2000. It supports policy makers and innovation support measure managers in Europe by providing summarised and concise information and statistics on innovation policies, performances and trends. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

INNO-Policy TrendChart products

INNO-Policy TrendChart, previously the TrendChart on Innovation, has been running since January 2000. It currently tracks innovation policy developments in all 27 European Union (EU) Member States, plus Brazil, Canada, China, Croatia, Japan, Iceland, India, Israel, Norway, Switzerland, Turkey and the US. The INNO-Policy TrendChart website (¹) provides access to the following services and publications, as they become available:

- a database of innovation policy measures in the 39 countries;
- a news service and related innovation policy information database;
- annual policy monitoring reports for all countries covered;
- the European Innovation Progress Report, an annual synthesis report bringing together key points in the INNO-Policy TrendChart.

This document has been prepared within the framework of an initiative of the European Commission's Enterprise and Industry Directorate-General, Innovation Policy Development Unit. Official responsible: Cesar Santos (Cesar.SANTOS@ec.europa.eu).

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The report covers the period from July 2008 to June 2009.

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¹ See <http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=52&parentID=52> online.

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Executive Summary: public support for innovation – a snapshot

1. Main trends in the National Innovation System

The financial and economic crisis hit the Slovenian economy in the last quarter of 2008 and caused a serious fall in gross domestic product (GDP) growth. The projections for 2009 are quite pessimistic, because it is expected that the GDP decrease at the end of the year will be at least 4% on an annual basis (IMAD, 2009a) ⁽²⁾. This fall in GDP growth can be explained by the dependence of the Slovenian economy on foreign financing and export (OECD, 2009). In 2008, Slovenian exports represented 68.5% of GDP with about half of this concentrated in four markets only (Germany, Italy, Croatia and Austria). Any slow down in economic activity in these countries is transferred to the Slovenian economy.

The government responded to the crisis with an extensive crisis package, where special resources have been allocated to prevent a slow down of the business sector investment in research and development (R&D) and thus further delay the implementation of strategic policy documents in the research, development and innovation (RD&I) area. Several planned measures were reflected in the first revised budget for 2009 ⁽³⁾, yet since then two more revisions took place, each changing the allocations to RD&I. Also, the proposed budgets for 2010 and especially for 2011 are highly discouraging for innovation policy, since the allocations for innovation and entrepreneurial support are to be seriously reduced.

The impact of the crisis will not be expressed in the available indicators on R&D, but even these do not give ground for optimism. In 2007, the overall investment in R&D declined as a share of GDP to 1.45% with both public and private investment in R&D showing a declining trend. In its own assessment of the progress in the area of RD&I in the National Reform Programme (NRP) Lisbon progress report 2008 (Government of the Republic of Slovenia, 2008), the government acknowledges the inability to meet the 3% R&D investment target by 2010 and postpones it to 2013; which in light of the present economic crisis may also be difficult to achieve. While Slovenia is now in the group of *moderate innovators*, according to the European Innovation Scoreboard (EIS) 2008, it lost its primacy in many R&D indicators to other new EU member countries, who seem to follow more proactive innovation policy.

2. Main developments in public support for innovation

The planned increased resources for R&D and especially innovation measures, obtained through the EU Structural Funds (SFs), proved to be more difficult to channel to the end recipients than expected. Many of the 'old' measures, supporting business RD&I, were included in the Operational Programmes (Ops) for the period from 2007 to 2013 and several new ones were prepared. All this was done under the assumption that the increased financing will successfully remove the key obstacle to the higher effectiveness of innovation policy (that is the insufficient funding in previous years). Yet, by mid-2009 it was clear that the implementation process is very complex and rigid, exposing among other problems also the insufficient institutional capacity of the main actors. While the government was scheduling additional resources to prevent business from lowering investment in R&D, even already approved funds (calls launched in the second half of 2008 and early 2009) have not reached the firms. Especially smaller enterprises have voiced their concern that so called 'subsidies' are becoming simply too expensive and they no longer plan to apply for the so called 'combined' resources: i.e. the measures where co-financing from EU SFs is planned ⁽⁴⁾. Much more attractive seem to be exclusively national programmes, like the newly introduced measure to support R&D projects in small and medium-sized enterprises (SMEs).

² See http://www.umar.gov.si/fileadmin/user_upload/publikacije/eo/2009/eo0609.pdf online.

³ See

http://www.vlada.si/en/projects/measures_taken_in_response_to_global_financial_and_economic_turmoil/the_firs_t_budgetary_stimulus_measures/ online.

⁴ Interview with the consulting house, assisting small businesses in preparing the project applications.

In the period from 2008 to 2009 several new/ modified instruments and measures were introduced by different actors in RD&I policy. While each of them responds to a particular need in the RD&I community, they also point to the unresolved problem of the support measures' fragmentation and frequent changes. These relate especially to the support measures focused on the innovation environment, like technology parks/ incubators, technology centres, platforms and the new idea of the logistics-research-development centres. In spite of a relatively clear division of labour between the Ministry of Higher Education, Science and Technology (MHEST) and Ministry of Economy, this does not translate well into the programmes of their respective implementation agencies – the Slovenian Technology Agency (TIA) and the Public Agency for Promotion of Entrepreneurship and Foreign Investment (PAEFI). In particular, the latter has increased its activity in innovation policy with instruments, which would be more suitable if coordinated by TIA. The insufficient coordination and cooperation among the ministries as well as among the intermediary support organisations remain one of the key challenges for the Slovenian innovation policy; this was observed also in the first Organisation for Economic Cooperation and Development (OECD) Report on Slovenia (OECD, 2009).

The original state budget for 2009 increased the allocation of resources to RD&I to EUR 310 million, the first revision of the budget (April 2009) added new resources, so the total allocation was planned at EUR 370 million. Yet due to the deepening of the economic crisis, the second revision of the budget for 2009 took place in July 2009, and the amount for RD&I was revised downward to EUR 335 million. This figure still represents an increased amount available for technological restructuring of the business sector.

3. Appraisal of national innovation policy

Over the years Slovenia developed a rather complex system in support of RD&I, partly as a reaction to the available resources in public R&D and, especially in the innovation area, as seen in more advanced EU countries. The impact of so called Europeanisation of the policy and the measures has been significant over the years, both in introducing instruments, observed as good practice in EU, as well as more recently, by applying the SFs in co-financing of RD&I programmes. Since the number of measures and the amount of available funds for innovation and entrepreneurship are increasing, the challenge for the Slovenian innovation system is to apply these resources effectively and further improve the coordination of different agents in the national innovation system. Several new programmes were met enthusiastically by the recipient community (see high application rate both for SMEs' R&D projects as well as applications for centres of excellence), suggesting that policy makers have responded well to the needs of both the public and the business research community.

If the innovation policy design has been under significant influence of the good practices seen in the EU, the implementation is still subject to serious problems of efficiency of public administration and the processes within. The already complicated process of budget negotiations and re-negotiations, which had often postponed due to the approval of support programmes and has resulted in changes in the instruments, has been additionally complicated by the fact that so many of the RD&I measures are co-financed by the SFs. A careful appraisal of the delivery system is needed, where the needs of the recipients should be of primary concern. All the necessary legal and administrative changes should be geared to this end.

Many of the challenges, faced by the NIS, are of the structural character and therefore require a prolonged, stable and well coordinated policy response. One of the areas where continuous policy attention should be focused is the large segment of non-innovative SMEs. The lack of interest in some industrial sectors for RD&I, and especially SMEs in these sectors, is the results of several, sometimes conflicting reasons: from lack of competition (certain services) to lack of financial and human resources in long-neglected sectors, which were traditionally not considered as R&D important (like textiles, food processing etc.).

One of the key policy documents in the RD&I area, the National Research and Development programme is ending in 2010, so preparations are likely to start soon for the new programme. This could be a good opportunity for the overall assessment of the policies and instruments with an ambition to redesign the policy mix, where the comprehensive system of institutions, policies and measures would be better combined in a more coherent and complementary manner. Currently, there is some duplication and overlapping of the relatively similar support instruments in the system, as well

as some contradictory policies ⁽⁵⁾. The system should encompass all the different instruments in support of public R&D, business R&D, innovation and entrepreneurship promotion as well as promotion of the participation of Slovenian R&D in the European Research Area (ERA), regardless of the government office responsible for the particular segment.

⁵ On the one hand the R&D policy calls for increased socioeconomic relevance of publicly-funded research, while at the same time the selection and promotion criteria focus exclusively on bibliometric data.

1. Main trends and challenges in the National Innovation System

1.1 Recent economic trends and market developments

If 2007 was successful in terms of economic growth for Slovenia, in 2008 growth almost halved (from 6.8 % in 2007 to 3.5 % in 2008) (Eurostat, 2009). The financial and economic crisis hit the Slovenian economy in the last quarter (Q4) of 2008 and caused a serious fall in gross domestic product (GDP) growth. Compared to Q3, the fall in the last quarter of 2008 rested at -4.1% (SURS, 2009) ⁽⁶⁾, while in 2009 GDP continued its decline quite rapidly (-6.4 % in comparison to Q4 2008) (SURS, 2009a). The projections for 2009 are quite pessimistic, because it is expected that the GDP decrease at the end of the year will be at least 4% on an annual basis (IMAD, 2009a) ⁽⁷⁾. This fall in GDP growth can be explained by the dependence of the Slovenian economy on foreign financing and export (OECD, 2009). In 2008, Slovenian exports represented 68.5% of GDP, while in Q1 of 2009 the share of export fell to 59% of GDP (SURS, 2009b). According to the data of the Bank of Slovenia, the export of goods and services recorded a solid growth of 7.8% in the first half (H1) of the year, but slowed down significantly in the second half of the year, particularly in the final quarter, when exports were down 6.2% on year-by-year basis (BSI, 2009) ⁽⁸⁾. Slovenian exports to Austria, Germany, Italy and Croatia represent almost 50% of the country's total exports. The economic slow-down in trade partners thus resulted in low demand for Slovenian exports.

The decrease of industrial output in Q4 of 2008 caused an increase in unemployment rates. In December 2008, the unemployment rate was 4.2% of the total labour force, while in May 2009 the percentage increased to 5.9%. This figure would probably be much higher if the government had not introduced the measure by which it compensates part of the lost income to the employees in the enterprises where they had decided on shorter working hours for the crisis period.

The transfer of the crisis and world recession in the real sector caused a decrease of inflation rates in 2009. After the introduction of the euro in 2007, the inflation rate rose from 3.8% in 2007 to 5.7% in 2008. The inflation rate from January 2009 to June 2009 was 2.3%, in part generated by the higher excise duties on alcohol, crude oil derivatives and cigarettes. The current IMAD predictions (IMAD, 2009b) predict a decrease in the inflation rate to about 0.4% at the end of the current year ⁽⁹⁾.

During the last years, labour productivity per person employed rose slightly; from 81% (EU-27 average = 100) in 2004 to 84% in 2008. Yet in 2008, labour productivity decreased by 1.3% compared to 2007 (SURS, 2009a) ⁽¹⁰⁾. This decline in labour productivity can be attributed to the drop in economic activity and to the level of employment, which was slightly above compared to 2007. The data of the Bank of Slovenia shows that the largest increases in value-added in Slovenia during 2008 were recorded by construction (14.1%) and certain service sectors, particularly financial intermediation (11.9%) and retail (5.5%), while value-added was down 1.5% in manufacturing (BSI, 2009). This data has been especially influenced by high growth in the first six months of 2008.

Slovenia's price competitiveness deteriorated in 2008 due to the appreciation of the euro and the unfavourable relationship in the movement of domestic and foreign prices. The year-by-year appreciation of the euro rose until April 2008 when it reached 1.8%, and then started to gradually decrease from that point until December as a result of the depreciation of the euro against the US dollar and other currencies (BSI, 2009).

If taking into the consideration the continued worsening of the economic climate in 2009 (IMAD Fall 2009 Report) ⁽¹¹⁾, the framework conditions have significantly deteriorated and one could speculate

⁶ See <http://www.stat.si/indikatorji.asp?ID=12> online.

⁷ See http://www.umar.gov.si/fileadmin/user_upload/publikacije/eo/2009/eo0609.pdf online.

⁸ See http://www.bsi.si/iskalniki/letna_porocila_en.asp?Mapald=711 online.

⁹ On a year-by-year level, the prices of services rose 3.2%, while the merchandise prices lowered an average of 1%.

¹⁰ See http://www.stat.si/novica_prikazi.aspx?id=2336 online.

¹¹ A fall in GDP of 7.3% on an annual basis is estimated for 2009

(http://www.umar.gov.si/informacije_za_javnost/obvestila_in_sporocila_za_javnost/obvestilo/zapisi/zaradi_krize_1)

business research and development and innovation (RD&I) investment in 2009 will suffer considerably. Yet, looking at the number of applications for government research and development (R&D) subsidies (which require co-financing), this assumption may be overly pessimistic.

The R&D expenditures in 2007 declined to 1.45% of GDP compared to the 1.58% of GDP in 2006 (SURs, 2009c). Spending on R&D in all four sectors amounted to EUR 500.5 million, which is EUR 16.2 million more than a year before. The highest share among sources of funding R&D was represented by funds from enterprises (EUR 291.6 million), followed by government funds (EUR 178.2 million), funds from abroad (EUR 28.8 million), funds from higher education institutions (HEIs) (EUR 1.8 million) and funds from private non-profit institutions (EUR 0.062 million). The share of government budget appropriation or outlays on R&D in relation to the GDP fell to 0.52% in 2007, compared with 0.57% in 2006 and 0.59% in 2005⁽¹²⁾. Similarly, there was a decline in share of R&D investments from the business sector in GDP. The business R&D investments represented a 0.85% of GDP, far from the target of 2% of GDP as specified in strategic policy documents like Slovenian Development Strategy by 2013 (IMAD, 2009c). According to the IMAD Development Report (2009c) the impact of the tax relief on investments in R&D⁽¹³⁾ was positive, but this instrument alone will not suffice for a more radical and durable R&D investment increase.

In 2007, 573 more people (calculated on a basis of full time equivalents (FTE)) worked in R&D than a year before and, among them, the percentage of women amounted to 36.9%. The highest share of researchers (in FTE) was employed in the business sector (41.5%), followed by the researchers from the government (32%). Expressed in FTE, the share of researchers in HEIs was (26.5%)⁽¹⁴⁾, (SURs, 2009c)⁽¹⁵⁾. The patent applications to the EPO almost doubled in 2005/06 and represented 51 applications per million inhabitants in 2006 (comparing to 32 applications in 2005) (EIS, 2008). There was a slight growth in export of high-tech products in the year 2006 (4.66% of the total export), compared to 2005 (4.26% of the total export) (Eurostat, 2009)⁽¹⁶⁾.

Nevertheless, the slow progress is not in line with the objectives set forth in several Slovenian policy documents or the National Reform Programme (NRP) for achieving the Lisbon Strategy Goals. This observation is confirmed also by the Development Report (IMAD, 2009c: 9), which emphasises that 'insufficient progress was made in the last few years, particularly in terms of the volume, structure and efficiency of R&D expenditure, innovation activities, efficiency and quality of tertiary education, foreign direct investments (FDI), and restructuring of public finance sources and expenditure'. In its first report on Slovenia, the Organisation for Economic Cooperation and Development (OECD) emphasised that there is a lack of a 'coherent innovation system' in Slovenia, especially in the field of implementation of adopted measures and programmes and in enhancing effectiveness of these measures (OECD, 2009).

In spite of various measures, introduced in the last years (e.g. VEM, SI51) to enhance the competitiveness of the Slovenian economy, the Global Competitiveness Report (GCR) 2008-2009 (WEF, 2009) classified Slovenia in 42nd position (in 2007-08, Slovenia was situated 39th position and in 2006-07 in 37th position), which means that the business environment in Slovenia has deteriorated during the last few years. The key problems listed in the GCR 2008-2009 are: (i) Lack of cooperative and effective institutions and (ii) goods and labour market efficiency. As a separate problem, the 'foreign market size' is mentioned in relation to the extensive concentration of Slovenian export and import trade partners, which proved to increase Slovenian vulnerability in terms of export shocks.

[etos vec kot 7 odstotni padec bdp prihodnje leto skromna 09 odstotna rast/31/?tx_ttnews\[syear\]=2009&tx_ttnews\[smonth\]=9&cHash=ba8d4e79d6](http://www.stat.si/eng/novica_prikazi.aspx?ID=2466).

¹² According to the preliminary figures on R&D expenditures in 2008, total government budget appropriations or outlays on R&D (GBOARD) in 2008 amounted to EUR 202 824 000 and increased by 12% compared to 2007. SURs, 2009c (http://www.stat.si/eng/novica_prikazi.aspx?ID=2466).

¹³ See TrendChart Report on Slovenia 2008 for details on the tax subsidy.

¹⁴ The HEI sector is somewhat specific, since there exists a significant difference between the absolute number of researchers (3 623) and the FTEs (1 657), since many are employed as teaching staff and dedicate only part of their working hours to research.

¹⁵ See http://www.stat.si/eng/novica_prikazi.aspx?ID=2179 online.

¹⁶ See http://epp.eurostat.ec.europa.eu/portal/page/portal/structural_indicators/indicators/innovation_and_research online.

Exhibit 1: Comparable indicators of economic performance

Indicator	National performance		EU-27 average	
	2004	2007	2004	2007
GDP per capita in PPS (EU-27=100)	86.4	89.3	100*	100*
Real GDP growth rate (% change previous year)	4.3	6.8	2.5	2.8
Labour productivity per person employed (EU-27=100)	81.9	84.5	100*	100*
Total employment growth (quarterly % change) (1)	0.7	0.8	0.6	0.5
Inflation rate (average annual)	3.7	3.8	2.0	2.3
Unit labour costs (growth rate)	0.3	-1.5	-1.4	-0.8
Public balance (net borrowing/lending) as a % of GDP	-2.2	0.5	-2.9	-0.8
General government debt as a % of GDP	27.8	23.4	62.2	58.7
Unemployment rate (as % of active population)	6.3	4.9	9.0	7.1
Foreign direct investment intensity	1.7	3.7	0.9	3.4
Business investment as a % of GDP	21.5	23.8	17.2	18.8

Source: Eurostat - Structural Indicators and Long-term Indicators (<http://epp.eurostat.ec.europa.eu>).

Key: (*) EU-25 average, (^) or latest available year (for example: 2005); (:) not available

The problem of market effectiveness mentioned by the GCR is also addressed in the OECD Report (OECD, 2009). According to the OECD, the key inhibitors for fostering competitive forces in the Slovenian economy are still significant presence of the state-owned enterprises (SOEs) and their slow privatisation (OECD, 2009). The OECD recommends that their privatisation should be completed after the end of the current crisis. The next recommendation of the OECD is to enhance a greater influx of FDI and to create a stronger competition policy (OECD, 2009).

There is no new data available on innovation activity of Slovenian firms. During the period from 2004 to 2006 almost a third of Slovenian enterprises registered an increase in innovation activity. The analysis done by the Slovenian Chamber of Industry and Commerce has shown that Slovenian firms have not yet reached a breakthrough in innovation activity. According to the survey, carried out among 112 enterprise representatives (the respondents ranked 19 key indicators that influence future R&D innovations in Slovenia), the average grade for innovation capability was 2.5 (on a scale from 1 to 5). The results of the survey showed that enterprises with higher innovation activity registered a smaller decline in their turnover in comparison to their competitors. The characteristics of these firms were also that (i) they were more export oriented and (ii) the value-added per employee was higher than that of the non-innovative firms of comparable size (Chamber, 2009) ⁽¹⁷⁾.

1.1.1 The credit crisis and its effect on innovation activity

The first budgetary stimulus measures were adopted already in December 2008. The objective of the policy package was to limit the negative impact of lower external demand on existing production capacity and jobs. The estimated size of the fiscal stimulus package at the time was 2.1% of GDP. Several planned measures were directed to help business R&D investment and were reflected in the first revised budget for 2009 ⁽¹⁸⁾.

The original state budget for 2009 already increased the allocation of resources to RD&I to EUR 310 million, while the first revision of the budget (April 2009) added new resources especially in the area of technological development, so total allocation was planned at EUR 370 million for the RD&I programme. Comparing these figures to the revised budget of 2008, the amount for RD&I was increased by 30%. The largest part of increased funds for RD&I was attributed to matching funding from the European Regional Development Fund (ERDF), since as mentioned in previous TrendChart Reports, Slovenia has included several RD&I policy measures in the Operational Programmes for 2007-13.

¹⁷ See <http://www.izvoznookno.si/novice/?id=12805> online.

¹⁸ See

http://www.vlada.si/en/projects/measures_taken_in_response_to_global_financial_and_economic_turmoil/the_first_budgetary_stimulus_measures/ online.

Yet due to the deepening of the economic crisis, the second revision of the budget for 2009 took place in July 2009 and, according to the agreed figures, the total amount for RD&I was revised downward to EUR 335 million, still representing an increase over 2008 as well as the first proposal for 2009. While the first revised budget provided EUR 87.5 million for innovation and technology development, the recent revision provides EUR 47 million. The decrease is especially high in the item of ERDF and European Social Fund (ESF) co-financing, to a large extent caused by the delays in processing the programmes, where co-financing is required, thus making it nearly impossible for the recipients of the funding to claim the reimbursements within the current budget year (if the first revised budget provided EUR 50 million, the last revision allocates EUR 10 million). However, at the same time, the allocation for co-financing business R&D increased by EUR 6 million (Ministry of Finance, 2009).

Even though these measures were adopted and several public calls issued, the processing time seems to be too slow to have significant impact on the enterprises at this stage. At the same time, the macroeconomic situation in Slovenia as a whole worsened in the last year and prospects for the coming months remain fairly uncertain (IMAD, 2009) ⁽¹⁹⁾.

1.2 Recent trends in the national innovation performance

Looking at the European Innovation Scoreboard (EIS) data (EIS, 2009), Slovenia is making slow, but continuous progress in its innovation performance. It belongs to the group of *moderate innovators*, with several indicators close to the EU average. This is also the outcome of the Community Innovation Surveys (CIS), where the number of innovation-active enterprises has increased significantly from the 2002 to 2004 period to the 2004 to 2006 period (SURS, 2008). Similar conclusions can be drawn also from the ranking of the world's most innovative countries, carried out by the Economist Intelligence Unit (EIU, 2009), where the value of the overall innovation performance indicator has increased from the 2002 to 2006 period to the 2004 to 2008 period, even if the ranking hasn't changed, Slovenia maintained its 24th position.

A more detailed examination of the figures, however, reveals certain structural problems, which in spite of the innovation policy measures undertaken by the government haven't changed. For years now, the analysts have observed the gap between relatively high innovation inputs/ enablers and innovation outputs (See, for example, previous TrendChart Country Reports on Slovenia, IMAD's Development Reports etc). If, according to EIS, Slovenia achieved a 6% rate of growth in enablers, the progress on the output side shows only 0.5% growth during the observed period ⁽²⁰⁾. Similarly, EIU ranks Slovenia 21st on the *direct inputs in innovation* index (R&D by public and industry sector, educational attainment, information technology (IT) development), but assesses the *innovation environment* (political environment, market opportunities, tax system, policy towards entrepreneurship and competition, trade, policy towards FDI, finance etc.) as low as 45th among the 82 countries compared (EIU, 2009). A possible interpretation of these data is that while innovation policy measures can have relatively quick impact on the input side (increased R&D investment by business sector, for example), translation of the inputs into significant change on the output side, especially in altering the economic structure (employment in high-tech manufacturing & services, export share of high-tech), requires a significantly longer time frame. Also, RD&I policies are not yet (in spite of declarations in Slovenian Development Strategy) considered as the key policies to rely on in the process of restructuring the economy. The 2009 budget re-negotiations give some hope for optimism, since the budget allocation for R&D, especially for the measures promoting business R&D have not experienced the faith of many other governmental expenditures; in fact, in some areas the allocation of resources has been increased.

Exhibit 2: European Innovation Scoreboard: Slovenia

	2001	2002	2003	2004	2005	2006	2007	2008	Growth
SII				0.388	0.393	0.412	0.429	0.446	3.3%
ENABLERS									6.0%
Human resources									3.6%
1.1.1 S&E and SSH graduates	27.1	31.8	31.5	35.2	36.4	41.0	--		6.6%

¹⁹ See http://www.umar.gov.si/fileadmin/user_upload/publikacije/eo/2009/sem0609s.pdf online.

²⁰ One also needs to take into consideration the fact that several output indicators have no (recent) data available.

1.2.2 S&E and SSH doctorate graduates	0.78	0.86	0.93	1.00	0.97	0.96	--		2.6%
1.1.3 Tertiary education	14.1	14.8	17.7	18.8	20.2	21.4	22.2		5.8%
1.1.4 Lifelong learning	--	--	13.3	16.2	15.3	15.0	14.8		2.7%
1.1.5 Youth education	88.2	90.7	90.8	90.5	90.5	89.4	91.5		0.2%
Finance and support									10.2%
1.2.1 Public R&D expenditures	0.61	0.57	0.45	0.46	0.59	0.62	0.60		7.5%
1.2.2 Venture capital (3-year average)	--	--	--	--	--	--	--		--
1.2.3 Private credit	0.39	0.40	0.43	0.50	0.59	0.67	0.81		17.3%
1.2.4 Broadband access by firms	--	--	--	62.0	74.0	75.0	79.0		6.2%
FIRM ACTIVITIES									3.3%
Firm investments									1.6%
2.1.1 Business R&D expenditures	0.87	0.88	0.81	0.94	0.85	0.94	0.94		3.8%
2.1.2 IT expenditures	--	--	--	2.1	2.1	2.2	--		1.2%
2.1.3 Non-R&D innovation expenditures	--	--	--	--	--	1.12	--		0.0%
Linkages & entrepreneurship									1.5%
2.2.1 SMEs innovating in-house	--	--	--	--	--	--	--		--
2.2.2 Innovative SMEs collaborating with others	--	--	--	10.5	--	15.1	--		9.5%
2.2.3 Firm renewal (SMEs entries + exits)	2.9	2.3	2.2	--	--	--	--		-6.7%
2.2.4 Public-private co-publications (2-year avg.)	--	23.3	18.8	20.3	28.5	28.2	--		2.4%
Throughputs									6.0%
2.3.1 EPO patents	24.1	37.7	38.2	55.0	32.2	--	--		3.7%
2.3.2 Community trademarks	1.0	9.0	20.5	38.6	15.5	30.4	68.7		7.5%
2.3.3 Community designs	--	--	5.5	26.1	23.0	51.5	50.5		8.6%
2.3.4 Technology Balance of Payments flows	--	0.39	0.36	0.41	0.38	0.46	--		4.4%
OUTPUTS									0.5%
Innovators									0.0%
3.1.1 Product/process innovators (SMEs)	--	--	--	--	--	31.7	--		0.0%
3.1.2 Marketing/organisational innovators (SMEs)	--	--	--	--	--	--	--		--
3.1.3 Resource efficiency innovators									
3.1.3a Reduced labour costs	--	--	--	28.4	--	--	--		--
3.1.3b Reduced use of materials and energy	--	--	--	17.2	--	--	--		--
Economic effects									0.7%
3.2.1 Employment in medium-high/high-tech manuf.	8.78	9.27	8.97	8.44	9.67	8.67	9.09		0.3%
3.2.2 Employment in knowledge-intensive services	9.40	9.08	10.12	9.97	10.54	10.59	10.89		1.9%
3.2.3 Medium/high-tech manufacturing exports	--	52.2	53.0	54.0	54.8	54.2	--		0.9%
3.2.4 Knowledge-intensive services exports	--	16.9	17.2	19.8	20.8	20.7	--		5.2%
3.2.5 New-to-market sales	--	--	--	7.4	--	5.8	--		-5.7%
3.2.6 New-to-firm sales	--	--	--	6.9	--	7.5	--		2.1%

Source: EIS. 2009: country pages.

Key: S&E – Science and education; SSH – social sciences and humanities; SMEs – small and medium-sized enterprises; EPO – European Patent Office.

In its own assessment of the progress in the area of RD&I in NPR Lisbon progress report 2008 (Government of the Republic of Slovenia, 2008), the government acknowledges the inability to meet the 3% R&D investment target by 2010 and postpones it to 2013, which in light of the present economic crisis may also be difficult to achieve. The figures for 2007 do not give ground for optimism since public allocation has slightly declined as a percentage of GDP, while the business sector experienced stagnation in the investments ⁽²¹⁾, in spite of the fact that the tax subsidy scheme was

²¹ Both the EIS and Lisbon Progress report still cite the preliminary R&D data for 2007. The final data shows a more worrying picture: the total R&D investment declined to 1.45% of R&D, with real drop in business R&D to 0.85% of GDP, while the public R&D spending maintained its level. (IMAD Development Report, 2009).

available for the full year ⁽²²⁾. The report also noticed some progress in the area of restructuring of public support to R&D in favour of technology components (or to be more precise, in favour of co-financing business R&D investment), which had continued in 2008 and especially 2009 (See pages 5 and 6 of this report on the response to financial crisis). This shift is in line with the policy documents on RD&I. As for the output, a successful increase in the number of publications and international scientific cooperation had been noted, as well as an increase (small, but positive) in the number of patents registered with the European Patent Office (EPO) ⁽²³⁾.

Less impressed with the progress achieved in the RD&I area is the analytical team at IMAD ⁽²⁴⁾ in its annual Development Report (IMAD, 2009). While noticing (minor) improvements in some innovation indicators, they are particularly critical of the inability of the business sector to use the years of relatively high growth for technological restructuring.

1.3 Identified Challenges

Exhibit 3: Main innovation policy challenges

Description of challenge	Relevant indicators and trends
1. Maintain the level of R&D investment, both in the public and business sector: in spite of declared targets to pursue the Barcelona target of 3% by 2013, Slovenia witnessed a stagnation of public R&D investment and decline in business investment in 2007, even prior to the economic/ financial crisis. Much expected positive impact of resources obtained through the Structural Funds has so far had a highly limited impact due to serious delays in the issuing of the calls as well as highly complex administrative procedures.	R&D investment as a share of GDP declined in 2007 and showed limited signs of improvement in 2008. While the trend from 2000 had been positive due to effective growth of business R&D, it is precisely this category which in spite of tax subsidies and other measures started to decline.
2. Better coordination and transparency of the innovation support network: in spite of various support institutions, the rate of innovation activity in small enterprises is still low. The business sector often complains of insufficient and complicated instruments for RD&I support.	National statistics on innovation show that only 7.3% of innovation-active enterprises have received information from different support institutions (SURS, 2008). An OECD Report (2009) identified lack of systemic support to enterprises as one of the key deficiencies of the National Innovation System (NIS).
3. Low innovation activity among small enterprises as observed by CIS, EIS and national data.	The number of innovation-active small enterprises has increased slightly in the period from 2004 to 2006 (CIS, 2006) to 27.7%, but remains relatively low. In spite of the fact that several measures/ institutions were designed specifically for innovation activity of small firms, this target group uses innovation infrastructure least (SURS, December, 2008).

Strong growth of business R&D investment in the beginning of this decade gave ground to optimism in view of technological restructuring of Slovenian business towards higher value-added. It was believed that the existing support measures are working in the right direction and the key problem is only securing more financial resources for their implementation. With this in mind, it was decided to allocate the resources from Structural Funds (SF) in the period from 2007 to 2013 through two main Operational Programmes in large part to top-up the existing measures. The Operational Programme

²² The tax scheme was introduced in mid 2006, so it was expected that the business sector will take full advantage of the new stimuli in 2007. See TrendChart Country Report Slovenia 2008.

²³ Here a discrepancy is noticed between the NRP Progress report, citing European Patent Office data with 57 patents per 1 million inhabitants for 2007 and no data on patents in EIS for the same year. EIS gives a much lower figure of 32.2 patents for 2005.

²⁴ Institute of Macroeconomic Analyses and Development is a government think-tank, monitoring and analysing effects of different macroeconomic policies (<http://www.umar.gov.si/en>).

for Strengthening Development Potential (Competitiveness of Enterprises and Research Excellence, Promoting Entrepreneurship, and Economic Development Infrastructure in the total amount of EUR 558.71 million) and the Operational Programme for the Development of Human Resources (Fostering Entrepreneurship and Adaptability – Experts and Researchers for Corporate Competitiveness in the total amount of EUR 39.54 million) were approved in 2007.

First public calls, where the support measures were expanded with the use of SF were issued in 2008 by Technology Agency (TIA) and Slovene Enterprise Fund (SEF) ⁽²⁵⁾. The measures planned to be implemented by TIA have experienced serious administrative problems. Due to the fact that financing is coming both from national as well as EU sources, the procedure is rather complex even at the stage of preparing the call which needs to be coordinated by the ministry responsible for the specific measure, the Government Office of Local Self-Governance and Regional Development ⁽²⁶⁾ and the implementing agency. This alone had in some cases taken more than 10 months. Once the contracts are awarded, the Slovenian system for reporting and claiming the EU funding proved to be extremely complicated, requiring not only a very detailed cost reporting but also several phases of controls: the end result is that the actual disbursement of funds has been seriously delayed ⁽²⁷⁾. As reported on the EU SF web site (www.euskladi.si), within the Operational Programme Strengthening Development Potential, where funding from the ERDF is concentrated, public calls were issued by summer 2009 for 93.2% of planned resources, 74.5% of which have already been approved and for which 68.6% of contracts have been signed. Yet only 21% of funds have been paid to the recipients and as little as 8.8% have been reimbursed. Even worse is the situation with the Operational Programme Development of Human Resources (co-financed by ESF), where public calls were issued for 45.6% of the planned amount, approved 73.4% and contracts signed for 71.2%. The end users received 6.9% of approved resources and Slovenia reimbursed from EU budget only 1.3% of the funds so far (August, 2009).

Especially problematic seem to be the procedures where the approved projects have a large segment of labour costs like the scheme for financing young researchers from the business sector ⁽²⁸⁾. The enterprises complain that instead of receiving increased financial support they are overburdened with administrative tasks and very late refunds (which in the mean time they have to fund by bank credits!), where even the approximate date of payment is impossible to predict. On the other hand, the implementing office is unable to cope with the complex monitoring of the projects and timely reporting to its controllers, further delaying the distribution of funds ⁽²⁹⁾. In spite of the early warnings (TrendChart Report 2007 and 2008) that maybe all of the support measures are not suitable for co-financing via SF and that Slovenia needs to re-think its monitoring and control system for drawing on EU money (Bucar et al., 2007), the government is remarkably slow in introducing any change in this area.

Long-term consequences of such a system may be particularly harmful in the area of business R&D investment. Due to the ongoing economic and financial crisis, many enterprises find it difficult to maintain the existing level of R&D investment. While the government is promising additional resources to prevent this from happening, even already approved funds (calls launched in the second half of 2008 and early 2009) have not reached the firms. Especially smaller enterprises have voiced their concern that so called 'subsidies' are becoming simply too expensive and they no longer plan to apply. It seems like the key task of the Ministry of Higher Education, Science and Technology (MHEST) and the Ministry of Economy is to push for a more effective distribution system of resources, if business R&D is to be supported more successfully.

The public resources for R&D have so far avoided major cuts in the budget renegotiations for 2009. It remains to be seen if the MHEST will be able to defend its resources for its science and technology

²⁵ Detailed description of the measures is provided in Sections 2.3.1 and 2.3.2.

²⁶ The Office is in charge of coordination of the overall programme for the allocation of Structural Funds.

²⁷ For the programme period 2007-13, the government has by spring 2009 approved EUR 1.1 billion worth of projects, or 84.6% of drawing rights for the 2007-08 period. The contracts have been signed for EUR 845.8 million. From the national budget, EUR 228 million were paid and reimbursement claims issued by the Ministries to the Ministry of Finance for EUR 50.2 million only. No money had been received yet from the EU budget for the 2007 to 2008 period (Source: www.euskladi.si, report by the minister).

²⁸ Details described in the Annual Report of TIA, 2008.

²⁹ TIA, for example, was planning to disburse EUR 35 million in 2008 and succeeded in disbursement of only EUR 8 million.

(S&T) programmes, which in nominal terms have increased with the first budget revision for 2009. While there was some reprogramming of the allocations due to the reassessment of ability to place sufficient resources through the public calls, overall allocation for RD&I still, even after the second budget revision, is higher than in the first budget proposal in 2009. Ironically, with the downward trend in GDP, should the public R&D budget remain untouched, Slovenia will approach a 1% figure of public investment in R&D.

As described in the past TrendChart reports, Slovenia has built a relatively extensive R&D, innovation and entrepreneurship support network. Several institutions were introduced with the aim of improving knowledge flows from public R&D institutions to business enterprises, while others were initiated to promote cooperation in industrial R&D or to assist small enterprises in their development (Bucar and Stare, 2007). The government support has varied through the years, both in terms of what was co-financed as well as in the amount of support provided; this affected the programmes of the work and the survival rate of the network institutions. In many ways, the fragmented and sometimes overlapping network is a reflection of numerous actors involved in innovation policy at the level of government: MHEST, Ministry of Economy, government office for local self-governance and regional development and the Office for Development and European Affairs. This has been recognised by the government in the Lisbon report (Government of Slovenia, 2008) as well as by the OECD analysis of the Slovenian innovation system, where it is suggested that 'administrative dispersion should be reduced by merging innovation support programmes' (OECD, 2009: 143). Since strengthening of the entrepreneurial support is an important development policy orientation, the challenge of a coordinated approach to design the most efficient network, combining the roles of university incubators, technology parks, technology centres, platforms, centres of excellence, regional development agencies, clusters, business promotion centres etc., in a coherent and transparent support system should be given more policy attention. Parallel to the coordination of the support institutions, a better coordination and synchronisation of public financing of R&D, innovation and entrepreneurship should be carried out as well.

When establishing the innovation support institutions it was often said that their prime objective is assistance to the small entrepreneurs. Yet the figures from CIS 2006 (SURS, December, 2008) show that even the relatively small share of innovation-active small businesses (27.7%) rarely use these institutions as a source of information or support. Their innovation cooperation is focused on their suppliers and customers and much of the innovation activity is carried out internally. This would suggest that there is still significant room for improvement in the policy design for the small businesses.

In spite of a complex set of support measures, the segment of so called *throughputs* seems to be largely neglected. The patents are important when a project group applies for funding with the Slovenian Research Agency (SRA) as one of the references (just as bibliometric results), but little support is systematically made available to the patenting process itself⁽³⁰⁾. The two large institutes (Jozef Stefan Institute and Chemical Institute) both have sufficient skills and resources to be active in this area, but the smaller institutes and the research units at the HEIs lack both the suitable legal framework as well as human and financial resources. The process of commercialisation of R&D results is insufficiently developed, reflecting often mentioned insufficient cooperation between public R&D and the business sector. Indirectly, some of the recent calls for various support measures (for example, strategic R&D projects or centres of excellence) address this issue requesting the applicants to describe the commercialisation potential of their research. Still, important channels of stimulating researchers in public sector to focus on this issue, like the promotional criteria in HEIs or the selection criteria applied by the SRA remain underutilised⁽³¹⁾. While quick results in addressing this challenge are impossible to achieve, a comprehensive innovation policy should develop systemic direct and indirect support to the production and transfer of research results. The close cooperation and coordination of the government units concerned with public R&D support and those focusing more on

³⁰ PAEFI announced a call for 'Innovation vouchers' for the support to SMEs in transferring knowledge and technology and registering patents with the Slovenian IP authority. While the text of the call is quite promising, the resources available are so small that it is difficult to expect any major impact. Individual recipients can expect support between EUR 900 and EUR 4 200, and total funding available is EUR 100 000 (<http://www.japti.si/index.php?t=Razpisi&id=56&l=sl>).

³¹ Recent draft of the promotion criteria at one of the main Slovenian universities does not even mention the commercial effect or the socio-economic relevance of the conducted research; it focuses exclusively on publications and citations data.

business R&D and technological/ entrepreneurial development is needed if such measures are to have positive effect.

Besides the highlighted main challenges, there are, however, other areas in the innovation system which require policy attention. Some of the challenges mentioned in the earlier TrendChart Country Reports on Slovenia (better exploitation of public R&D, the absorption capacity of small and medium-sized enterprises (SMEs), slow down in information communications technology (ICT) investment, insufficient interest in science and technology (S&T) studies) have been addressed by some of the recent policy measures, but the impact of these has yet to be fully recognised in the future. Many of the challenges are of a structural character and therefore require a prolonged, stable and well coordinated policy response. The lack of interest in some industrial sectors for RD&I is a result of several, sometimes conflicting reasons: from lack of competition (certain services) to lack of financial and human resources in long-neglected sectors, which were traditionally not considered as R&D important (like textiles, food processing etc.). To promote innovation in such difficult settings, where absorption capacity is low, is a challenge not only for Slovenian innovation policy, but for the EU as well. Here in particular, the design of support instruments needs to be very careful; measures need to be flexible, user-friendly and sufficiently attractive to persuade SMEs that they can benefit from participation. Based on the few calls published in 2008/09, this does not seem to be the main preoccupation of the policy maker.

2. Public support to innovation

2.1 Main objectives for innovation policy

Exhibit 4: Main innovation policy documents

- **Slovenian Development Strategy** 2006-13, SDS;
(<http://www.gov.si/umar/aprojekt/asrs/ssd.php>)
- **Resolution on the National Research and Development Programme** 2006-10, NRDP;
(<http://www.uradni-list.si/1/ulonline.jsp?urlid=20063&dhid=80293>)
- **National Reform Programme for Achieving the Lisbon Strategy Goals** 2005-10 (with 2008 revision) (NRP); (<http://www.svr.gov.si/fileadmin/srs.gov.si/pageuploads/Dokumenti/SI-NRP2008-en.pdf>)
- **Programme of Measures for Entrepreneurship and Competitiveness** 2007-13;
(http://www.mg.gov.si/fileadmin/mg.gov.si/pageuploads/DPK/Program_ukrepov_angl_071009.pdf)
- **National Strategic Reference Framework** (NSRF) with the three Operational Programmes;
(http://www.svlr.gov.si/fileadmin/svlrsp.gov.si/pageuploads/KOHEZIJA/Programski_dokumenti/NSRO_Slovenija_POTRJENO.pdf)

Different strategic documents in the area of research and development and innovations (RD&I), which were adopted by the Slovenian government during the period from 2005 to 2008, reflect the general trends in policy making. The most important policy documents that form the RD&I policy are (as specified in Exhibit 4) the Slovenian Development Strategy 2006-13 (SDS), the Resolution on the National Research and Development Programme (NRDP), and the National Reform Programme for Achieving the Lisbon Strategy Goals (NRP). Also, the National Development Programme 2007-13 (NDP) and the National Strategic Reference Framework (NSRF), which are the basis for the allocation of structural funds (SF), need to be included since several measures focusing on the promotion of cooperation between science and industry have been financed through the European Regional Development Fund (ERDF).

These documents are novel in a sense that both research and development (R&D) results and increased innovation efforts by the business sector are seen as the key inputs into increased competitiveness and therefore more dynamic economic growth. This clear linkage of R&D and economic policy has not been so explicitly pronounced in the past. Also important is the stress on the socioeconomic relevance of research and expectations that increased public investment in R&D should be aimed at increasing the innovation activity of the business sector.

One can observe a significant level of coherence in the documents in part because the SDS and NRDP were prepared simultaneously and with reference to one another. The NRP and Framework built on the objectives and priorities of SDS and NRDP and expanded into the level of specific measures.

SDS defines five development priorities:

- a competitive economy and faster economic growth;
- effective generation, two-way flow and application of the knowledge needed for economic development and quality jobs;
- an efficient and less costly state;
- a modern social state and higher employment;

- integration of measures to achieve sustainable development.

For each development priority, measures to achieve the set objectives are specified. In relation to R&D policy, the SDS stresses the need for research to be more integrated with the needs and capabilities of the business sector. The Strategy calls for an increase of R&D expenditures to 3% of gross domestic product (GDP) following the Lisbon target and to achieve this, special measures to promote business R&D investment should be designed. Attention should be paid to raising the absorption capacity for R&D results in the business sector, particularly of small and medium-sized enterprises (SMEs). Organisational structure of the public R&D system should be restructured as well and more effective placement of public R&D resources assured. The mobility of researchers from the public to private sector should be stimulated. With all the planned measures, the SDS aimed at making RD&I one of the key drivers of growth.

Key objectives of the NRDP include:

- increasing of public R&D investment to 1% of GDP by 2010;
- shifting balance of public research funds from basic non-targeted research in favour of targeted (and applied) research;
- introduction of support measures to stimulate growth of investment of business sector in R&D to help achieve a 2% of GDP target;
- growth of number of researchers with Ph.D.s in the business sector;
- higher rate of establishment of new high-tech firms, including promotion of spin-offs from universities;
- continuous participation in international research, especially in European Research Area (ERA);
- support to the growth of patents, as an indicator of business relevance of research;
- growth of high-tech exports and growth of value-added in the Slovenian economy.

The NRP 2005-10 closely follows the structure of the SDS and elaborates further on the priorities. The sections of NRP, relevant for the innovation policy, are in the First Development Priority:

- III.A.3.2. Promoting entrepreneurial development and innovation;
- III.A.3.3. Education for entrepreneurship;
- III.A.3.4. Small and medium-sized enterprises' access to financial resources.

Entire Second Development Priority: *Effective generation, two-way flow and application of the knowledge needed for economic development and quality jobs*, is in fact devoted to RD&I issues since it includes priority themes such as that of promoting R&D activities and innovation and promotion of the development of human resources and lifelong learning.

The 2008 Report and the Programme for the Implementation of the Lisbon strategy by 2010 follows the structure of the 2005 Reform Programme and for each priority and goal describes the current status. It lists the priority measures and objectives, the activities already taken as well as the reasons for possible delays in the implementation. In terms of priority measures in the RD&I area, the key points for implementation in the period from 2008 to 2010, are (NRP 2008: part II; pp. 20-24):

- increase in public expenditure on R&D by approximately 0.1% of GDP yearly and achieve 3% target by 2013, which in fact represents a postponement of the original goal;
- gradually change the structure of public R&D investments in such a way that the additional public funds for R&D will be distributed between the technology and scientific sphere at a ratio of 80:20.
- changes in tax and industrial policies and in the system of financing research.

The 'Programme of Measures to Stimulate Entrepreneurship and Competitiveness 2007-13', which was approved by the Slovenian government in July 2006, serves as a clear guideline for a comprehensive and transparent design and implementation of measures to improve entrepreneurship and competitiveness and for a targeted use of budgetary and structural funds. In 2007, the document was supplemented in order to allow a more transparent and simple implementation of the measures by taking into account all regulations on state aid for the allocation of finance.

Slovenia's strategic thematic and territorial priorities for the period from 2007 to 2013, as set out in the NSRF, are to: promote entrepreneurship, innovation and technological development; improve the quality of the educational system, training and research and development activities; improve labour market flexibility along with guaranteeing employment security in particular through job creation and the promotion of social inclusion; ensure conditions for growth by providing sustainable mobility, improving the quality of the environment and by providing the appropriate infrastructure; and promote a balanced regional development. Emphasis is also given to the improvement of institutional and administrative capacity, in particular of the public sector, as this is a necessary condition in order to accelerate economic growth in Slovenia.

Slovenia translated the broad priorities contained in the NSRF into three operational programmes (OPs). The OP for Strengthening Regional Development Potentials (SRDP) is receiving funding from the European Regional Development Fund (ERDF). The OP for Human Resources Development is funded by the European Social Fund (ESF). Finally, the OP for Environmental and Transport Infrastructure Development is funded by both the ERDF and the Cohesion Fund (CF).

The OP SRDP consists of four development priorities ⁽³²⁾, each with specific measures:

1. Competitiveness and research excellence:
 - 1.1. Improvement of competitive capabilities of enterprises and research excellence: direct subsidies for joint development-investment projects, strategic research projects, R&D centres of excellence and development of research infrastructure of the centres of excellence.
 - 1.2. Promotion of entrepreneurship: subsidies for investment in new technical equipment for enterprises with one to nine employees, subsidies for investment in new technical equipment for other SMEs.
2. Economic development infrastructure:
 - 2.1. Economic-developmental-logistical centres: co-financing of regional entrepreneurship training centres.
 - 2.2. Information society. Co-financing of R&D projects in e-services and e-content, support in construction and maintenance of broad-band networks in local communities.
3. Integration of natural and cultural potentials:
 - 3.1. Development of tourist capacities, regional tourist services, youth tourism etc.
 - 3.2. Renovation of cultural monuments at local level.
 - 3.3. Sport and recreational facilities.
4. Development of regions:
 - 4.1. Regional development programmes.
 - 4.2. Development of boarder regions with Croatia.

The policy documents are the basis for the annual programmes of the implementing agencies in the area of innovation policy. The measures, introduced over the last five years, are aimed at achieving the targets set in them.

³² See http://www.svlr.gov.si/fileadmin/svlr.gov.si/pageuploads/KOHEZIJA/kohezija-200207/OP_SRDP_en.pdf online.

As observed in the beginning, the existing policy documents, relevant to innovation policy, have a significant level of coherence due either to their simultaneous preparation (NRDP, SDS) or hierarchical structure (NSRF and OPs). They address the challenges of the Slovenian RD&I system well and set forth clear objectives. From a bird's eye perspective, RD&I policy looks well formulated even if maybe a bit too optimistic in setting the goals. But policy documents are only the broad framework; it is the implementation which reflects the efficacy of innovation policy. Here, Slovenia has experienced several problems: from insufficient coordination of the measures to slow and complex administrative system in delivery of support to business RD&I.

2.2 Innovation governance system

2.2.1 Governmental bodies

The innovation policy is the responsibility of two ministries and to some extent also the following two government offices: the Office for Development and European Affairs and the Office for Local Self-management and Regional Development. Within the Ministry of Economy, it is the Directorate for Entrepreneurship and Competitiveness which, among others, looks after the promotion of entrepreneurship and innovation activity of businesses with a special focus on SMEs. An advisory body to the government in the R&D area is the National Science and Technology Council⁽³³⁾, with members from the research community, higher-education institutions (HEIs), the business community and the government⁽³⁴⁾. Within the Ministry of Higher Education, Science and Technology (MHEST), the Directorate of Technology is in charge of promoting R&D and technology development activity of business units, especially SMEs. Each of the ministries has its executive agencies through which most of the policy measures are executed. The Ministry of Economy directs the implementation of its programme through the Public Agency for Entrepreneurship and Foreign Investment (PAEFI), through Technology Agency (TIA) and Slovene Enterprise Fund (SEF). MHEST has transferred most of its measures to TIA and SRA.

The coordination of RD&I policies as well as other policies affecting economic development, especially the implementation of the Lisbon strategy is to be the task of the Government Office for Growth. The Office has been reorganised with the new government, which took office in November 2008, and will also cover European affairs. In the first half of 2009 the main preoccupation of the Office has been the preparation of various measures in response to the financial and economic crisis, focusing thus only partly on the coordination of RD&I.

Especially in the implementation process, the role of the Government Office of Local Self-governance and Regional Development needs to be stressed. This Office coordinates the OPs and, as such, monitors all the public calls issues either by the ministries or the agencies, where co-financing by the ERDF or the ESF is envisaged. In practice, it means that no public call can be issued until it is cleared with this Office, which makes sure that the requirements set forth in the call are in compliance with the regulations set up by the Slovenian government and approved by the European Commission for the withdrawal of EU SFs.

The overall coordination of the strategic policies and priorities is still one of the main deficiencies of the Slovenian National Innovation System (NIS), in spite of the formal coordination procedures, installed by the government. Here, the Office of Growth has not played its coordinating role well in spite of its establishment of the Competitiveness Council in 2008 (See TrendChart Country Report on Slovenia, 2008). Part of the problem lies in the fact that the Competitiveness Council was established by the previous government and its role in the current organisational framework remains vague. This can be, partly explained by many other more pressing issues on the government's agenda due to the financial/ economic crisis.

2.2.2 Main bodies managing implementation of policies

³³ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=org.document&UUID=1686F32D-0661-2236-95DF8D150AB32B38&hwd> online.

³⁴ See ERAWATCH Research Inventory Slovenia (<http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&topicID=4&countryCode=SI>).

The 2007-08 period has brought some consolidation of the innovation governance system with a bit clearer organisational set-up in terms of division of labour between the two ministries and their executive agencies. The Ministry of Economy and MHEST have decided, in principle, which of the measures are going to be implemented through PAEFI, what is to be the overall programme of TIA and where should the focus be for the SEF. Among these three main executive agencies, the division of the programmes under the Financial Perspective 2007-13 had also been prepared. The latter was supposed to help in coordinating the calls under each of the planned measures and expedite the process of accessing the European funds.

In compliance with the 2002 Law on R&D, Slovenia established two agencies in the field of RD&I: the SRA⁽³⁵⁾ and the TIA⁽³⁶⁾. While SRA is focused on financing public R&D resources primarily to public research institutes and HEIs, TIA is the central agency in support of business sector R&D and technology development.

The SRA's main programme is the long-term financing of research programmes known as 'Research programme groups' (three to seven-year contracts awarded to a group of researchers for their programme of basic research)⁽³⁷⁾. Other measures include basic and applied research projects' funding, funding of the Young Researchers programme, support for research infrastructure, participation in international research networks and organisations etc.

TIA expanded its activity significantly in 2008 and further, rather ambitious growth is planned for 2009. Most of the newly allocated resources by the government for business R&D are to be channelled through TIA, which is already facing a serious human resources problem since the number of its staff has not grown at the same pace as its activity. TIA has now been recognised as the implementing agency in the area of innovation and technology development programmes of the MHEST, Ministry of Economy and Ministry of Defence. TIA's 2009 programme includes (www.tia.si):

- promoting and supporting technological platforms (a minimum of 10 platforms will be supported);
- promotion of the further involvement of Slovenian enterprises in defence R&D;
- development and investment projects;
- support to strategic R&D projects in the business sector;
- supporting the strengthening of the NIS;
- funding of the Programme for Young Researchers from the business sector;
- participation in various international projects like VALOR, NATO, DEFINE, STARNETREGIO, TARGET, GLOVAL etc.;
- internal organisation of the TIA, including quality monitoring and building a user-friendly monitoring system for the public calls the TIA is carrying out.

The overall operational budget of the TIA for the year 2009 is EUR 1.66 million. For the programmes to be coordinated and carried out by the TIA, MHEST, Ministry of Economy and Ministry of Defence are participating with their resources. Several of the programmes are co-financed by the ERDF so the total amount of financial resources available for 2009 was planned initially at EUR 88.9 million, with the largest share of money going to development & investment projects and for the support of strategic R&D projects. The latter was supposed to be the single largest TIA programme with more than EUR 109 million for the period from 2009 to 2012, but the second budget revision severely scaled the amount available for 2009 downwards: in part also as a consequence of serious delays in processing the call and claiming the reimbursements (See discussion on challenges).

³⁵ See ERAWATCH Research Inventory Slovenia

(<http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&topicID=4&countryCode=SI>).

³⁶ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=org.document&UUID=9E507280-9779-CCF5-A96457625F3A7247&hwd> online.

³⁷ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=prog.document&UUID=7D87B479-BAD1-C57F-1B12AB4FE1C719C5&hwd> online.

Several planned support measures of the Ministry of Economy are to be carried out by PAEFI (www.japti.si), which is under its 'umbrella'. PAEFI is thus involved in support to technology parks, university incubators, small business voucher schemes, mobility schemes etc. Among relatively new measures, the support to the mobility of researchers to and within the business sector (EUR 4 million from 2009 to 2012) as well as support to the interdisciplinary development groups in the business sector (for a total amount of EUR 10 million for the period from 2009 to 2011) need to be mentioned. Also, provision of special training for the entrepreneurs and special target groups (from elementary school to university-level students) is supported, even though at a rather modest level⁽³⁸⁾. Several activities planned by PAEFI seem to collide with the activities of TIA and MHEST (support to R&D projects of SMEs, support to innovative environment and promotion of innovation activity/ education), yet most of the programmes, in comparison with the other actors, are at a relatively low financial level. PAEFI's total budget for 2009 is planned at EUR 25.8 million, while its running costs are planned at EUR 2.5 million. This does not compare well with TIA, and neither does the number of staff: while PAEFI manages its programmes for entrepreneurship and foreign investments with 54 people, TIA has to do with 21 staff members.

Another increasingly important actor in innovation policy is the Slovenian Enterprise Fund (SEF). SEF played a minor role in supporting innovation-related measures until 2005 due to serious limitations in terms of financial resources. With the ERDF's contribution and with the European Investment Fund, SEF has successfully expanded its operation and is now growing as a national financial organisation for support to SMEs with different forms of favourable financing. Besides various subsidised credit lines, SEF has a special programme of loan guarantees in connection with private banks. The support measures executed via SEF are subsidised loans to SMEs for expansion/ modernisation of production capacities, subsidies for the establishment and start up of innovative firms in innovative environments such as technology parks, business or university incubators and technology equipment subsidies for SMEs to enhance firms' productivity and growth and consequently improve their position in a global market. Since under the new financial perspective 2007-13, SEF plans to continue to provide financial support to SMEs for the same as well as several new programmes, one can expect further growth of the importance of SEF.

Their programme for 2009 includes (www.podjetniskisklad.si):

- favourable bank investment loans with a low interest rate (EUR 43 million);
- direct investment loans of the Fund for start-ups in technology parks and incubators (EUR 2 million);
- supplementary guarantees for regional guarantee schemes (supplementary guarantee of the Fund, EUR 1 million);
- co-financing (subsidies) of tourist projects;
- co-financing (subsidies) of new technical equipment in SMEs (EUR 35 million).

SEF had a total of 1 248 applications in 2008, and approved 598 different projects in total amounting to EUR 87.7 million. Most of the financial resources were distributed as subsidies (EUR 72.9 million). The total amount of investment supported was nearly EUR 215 million. The plan for 2009 is to support projects with resources of EUR 97 million (without tourist projects). In comparison to the level of activity in 2004, when less than 300 projects were supported and the total amount of funding available to SEF was below EUR 30 million, one can see how the importance of the Fund has increased. In spite of the fact that the programmes supported by SEF are also co-financed with resources from the SFs, the nature of co-financing (primarily investment costs) seems to be the reason why fewer problems in reimbursement exist than in the case of TIA's programmes.

A promising new activity of the SEF is a Holding Fund Programme comprised of several different instruments of financial engineering. The main instrument in the first stage will be the venture capital (VC) fund introduced through the fund of funds scheme. The holding fund and fund of funds will be

³⁸ The public call for support to the organisation and implementation of entrepreneurial education for the young for 2009, ranging from support for the education programmes in elementary schools, vocational high schools, high schools (*gymnasium*) to the university, was issued in June 2009 for the total value of (only) EUR 150 000 (<http://www.japti.si/index.php?t=razpisi&id=51>).

managed through SEF. The programme of the holding fund was approved by the government in the middle of October and it is expected to be fully operational in the beginning of 2010.

A relatively new actor in the area of providing financial support is the SID Bank (Slovenian Export and Development Bank) ⁽³⁹⁾. With its financial services, SID Bank supports investments in R&D of technological environment and technology. SID Bank refinances credits of banks and other financial institutions, co-finances transactions and investments or SID Bank finances projects directly. SID Bank carries out financing of these projects through commercial banks. All the Slovene companies (small, medium and large) are eligible for these resources. For SMEs, SID Bank had recently developed two special products: financing of SMEs' investments in RD&I and sharing of risks arising from financing of SMEs' investments in RD&I. The major role played by SID Bank was in providing the bridging and supplementary financing. Within the framework of these purposes the companies can: acquire financial resources for the time from approval of resources from public tender until the disbursement of funds (bridge financing) or finance the part of the project not covered by resources acquired by public tender.

Another novelty in the field on national innovation governance system is the already mentioned establishment of the Competitiveness Council by the Government's Office for Growth in 2008. The main objectives of the Council were ⁽⁴⁰⁾:

- improvement of cooperation between the government, knowledge institutions and the business sector in the area of design and implementation of the policies to promote technology development;
- stimulate technology development in Slovenia by selection of research and technology areas within the priorities defined in strategic government documents to enable the concentration of resources and search for synergies among the selected fields;
- through concentration of public and private resources to priority areas increase the share of resources for research in technology development (RTD) as a share of GDP as well as increase their efficiency.

The objectives have also been translated in measurable targets:

- achievement of the 3% R&D investment by 2013 to 2015;
- increase the number of innovation-active SMEs to minimum 40% from 27% (2002-2004) ⁽⁴¹⁾;
- increase the number of patents at the European Patent Office (EPO) to at least 110 patent applications per million population;
- increase the share of high-tech exports to 16% (EU-27 average).

The Competitiveness Council has 10 so called *development groups*, each with 16 members, representatives of the research and higher education (HE) and business sector. Seven groups follow the sectors (life and health, information communications technology (ICT), materials and nanotechnologies, environment and construction, energy and renewable energy sources, communications, transport and vehicles, process technologies), while three are meant to be horizontal (creative industries, business-finance and public research and HE governance). The groups prepared by the fall of 2008 inputs in terms of priority research areas/ themes both for basic and applied research, identifying business interest and research capabilities as well as assessing the absorption capacity of Slovenian business. The result of their work is published on the web page of the Council, but, as predicted in the Country TrendChart 2008 Report, so far no uptake has been carried out and no clear decision of what the role of the Council should be in the future has been made.

³⁹ See <http://www.sid.si/about-sid-bank> online.

⁴⁰ See http://www.svr.gov.si/si/delovna_podrocja/svet_za_konkurencnost/ online.

⁴¹ From the time of setting these objectives, the Statistical Office has already published the results on innovation activity during the 2004 to 2006 period, according to which 35.1% of enterprises are innovation-active (SURS, April 2008).

2.3 Public funding to innovation

2.3.1 Review of the current range of support measures for innovation

Most important in terms of the numbers and the budget are the measures focusing on support to R&D. In this category, several programmes relate mostly to R&D in the public sector: Research programme/groups funding, Applied Projects and Targeted Research Programmes, are all executed by the SRA and receive an important share of public R&D resources. During the last two years, Slovenia is witnessing a more substantial increase of the resources for promotion of RTD in the business sector. This coincides with two important events: the establishment of TIA as an executive agency (drawing on funds from various ministries) and, even more importantly, by the allocation of SFs to the innovation measures. Several new measures, addressing strategic business R&D, development and investment projects and support to start-ups and technological upgrading need to be mentioned here. The following programmes are the most important: two large programmes executed by TIA (Development and investment projects (SI50); Support to strategic R&D projects in business sector (SI54), the new programme by MHEST SMER SI55, and SEF's programmes for investment credit with subsidised interest rates and the one on co-financing new technologies should be placed here. All together, the resources planned for these programmes for 2009 amount to approximately EUR 160 million ⁽⁴²⁾.

For the development of human resources, several measures have been introduced over the last few years, focusing on improvement of research cadres in the business sector. Besides the largest traditional programmes of support to Young Researchers and Young Researchers from the business sector, PAEFI has two main programmes: the mobility scheme SI23 (EUR 4 million) and the co-financing of the interdisciplinary development teams SI53 (EUR 10 million) as well as smaller ones focusing on entrepreneurial education of different target groups. While the Young Researchers' programmes have been well established and quite successful in the area of human resources, the mobility schemes and the interdisciplinary teams are relatively new and have only in 2009 received more substantial allocation of resources. As such, their impact can only be assessed in the future. The promotion and sustainability of the creation and growth of innovative enterprises is the focus of the programmes run by all intermediary agencies: TIA, PAEFI and SEF as well as directly by the MHEST.

The number of measures in a particular priority area does not reflect their importance; it is the budget allocation where the strength of the measure is reflected. There is no doubt that in the innovation system so far, the support to R&D, especially public R&D, has been seen as most important, with gradual development of other measures. With the additional resources coming from the CFs, the business-related R&D measures have gained in their importance. Still, some of the financially less prominent measures may have important long-term consequences in the area of awareness building. Two can be singled out as particularly interesting: first relates to the entrepreneurial education at all levels (from elementary school to university level) and the second one to the new clause in the Young Researchers' contracts on a compulsory course on entrepreneurship.

Within the first measure, PAEFI provides financial support to the educational institutions that want to develop special programmes for entrepreneurial education. There is some money ⁽⁴³⁾ available for the preparation and the pilot execution of the programme as well as training of the mentors. More important than the financial input is the general notion of introducing the content of entrepreneurship and innovation in educational programmes. Hopefully this measure will be picked up by the Ministry of Education and translate into more systematic support.

The criticism that the Young Researchers' programme doesn't provide sufficient options for employment after the contracts are ended led to a small but important addition to the contract. The organisation, where the young researcher is during his/her studies, will provide training on the basics of entrepreneurship. This should provide the young researchers with the basic information on setting up a firm and on the available support provided by university incubators or other intermediary institutions, and thus hopefully stimulate them to enter entrepreneurial careers.

⁴² This figure is based on the information given to enterprises at the joint event of major intermediary institutions, called 'Entrepreneurial Slovenia' in April 2009. Since then two revisions of the budget were undertaken and certain resources have been downscaled and certain re-programmed.

⁴³ The call in 2009 provides EUR 150 000.

The support measures for innovation reflect well the relatively complex organisational scheme for the implementation of innovation policy. The policy mix does cover most of the identified challenges: from the promotion of R&D activity in the business sector to increased cooperation between the public R&D institutions and business to the measures supporting human resources (mobility/training) and financial support to start-ups. The impact of EU innovation policy is evident in the Slovenian case since policy priorities often coincide. With multiple actors, insufficient coordination and cooperation and limited resources (at least until the channelling of the SFs in the support measures), the overall structure of the support measures and the allocation of resources to each one of them may not be optimal but over the years has developed towards a relatively comprehensive system. That does not mean that there is no room for improvement, both of the system as well as that of individual measures.

An unresolved problem of the support measures is their fragmentation and frequent changes in the conditions applied for the target audience. These relate especially to the support measures focused on the innovation environment, like technology parks/ incubators, technology centres, platforms and the new idea of the logistics-research-development centres. Some of the changes were necessary due to the different financing scheme (decision not to finance their existence, but rather their activity), some happened due to the changed implementing agency, but seldom were they welcomed by the recipients. No progress has been made so far by any of the implementing agencies in terms of improved administrative requirements, which in fact have in some cases become so complicated as to lower the interest of potential applicants.

Therefore, the overall assessment of the current range of the support measures has to acknowledge their wide range and rather extensive coverage of different challenges; a closer look reveals overlapping and poor coordination, a relatively high level of user unfriendliness, especially towards the small businesses as well as other 'delivery' problems. So instead of designing new measures, Slovenian innovation policy should focus on streamlining the existing ones.

2.3.2 New or modified support measures

MHEST introduced two new programmes in 2009 and renewed two. The first one, called SMER (Small and Medium Enterprises Research- SI56), was developed to address specifically the RTD in SMEs. The two programmes executed through TIA (SI50 and SI55) are both more suitable for larger projects and it was felt that a special measure addressing the efforts of the smaller firms needed to be introduced. The call was announced in March 2009 with the total amount of resources available equal to EUR 6.5 million ⁽⁴⁴⁾. Due to very high interest among SMEs, the available resources were increased twice so at the end, the total amount of financing available is EUR 21 million, MHEST received 600 applications and selected 191 projects.

Exhibit 5: New innovation policy support measures (since the last report)

IPM No	Title	Innovation policy framework category	Organisation responsible
SI55	Strategic R&D projects for enterprises	2.3.1. Direct support to business R&D	MHEST/TIA
SI56	Promotion of R&D Projects in SME- SMER	2.3.1. Direct support to business R&D	MHEST
SI 22	Financial Assistance to institutions supporting innovation activities	4.2.1 Support to innovation management and advisory services	MHEST
SI57	Development of Centres of excellence	2.1.2. Public Research Organisations	MHEST
SI54	Innovation vouchers	5.3.2.	MoE/PAEFI

The second programme (SI22) merges two previous measures: one supporting technology parks and the other one providing support to innovators or organisations that support them. The new measure talks about 'technology & innovation hubs': organisations which, either independently or through a consortium, support technology development and innovation activity of other legal or physical persons and thus help create a supportive national innovation environment. The support activities include:

⁴⁴ The money was allocated to MHEST within the first renegotiation of the 2009 budget as part of the economic crisis package.

services and consultancy in industrial RTD in transfer of research results to business sector and in preparation of the R&D projects, services and consultancy in the area of intellectual property rights (IPR), education and training, organisation of thematic conferences and workshops, participation in various EU initiatives, provision of information on business fairs, workshops and seminars, access to information databases, preparation of competitions and award events, promotion of non-technical innovation etc. The measure was allocated EUR 3.5 million with a maximum of amount of EUR 65 000 awarded to a single applicant.

The previous programme on support of R&D projects in the business sector (SI38) was replaced by a new programme called 'Strategic R&D projects in Enterprises' (SI55). The programme is supporting strategic R&D projects in the areas identified by the Slovenian technology platforms (⁴⁵). The overall value of the call was EUR 26 million.

The public call for the major support measure aimed at public R&D institutions, the centres of excellence (SI57), was finally published in the spring of 2009 and the evaluation was completed by fall. As many as 61 proposals for the creation of the centre of excellence were received, even though the MHEST selected eight for the support. The financial support, coming in 85% from the ERDF, for the period from 2009 to 2013 is planned at EUR 84 million, with an individual centre receiving between EUR 9 million and EUR 10 million.

PAEFI announced a new pilot measure, called *Innovation Vouchers* in July 2009. The measure (SI54) was created by the Ministry of Economy with the objective of promoting technological upgrading of micro and small enterprises and stimulating cooperation of these firms with public R&D units. As promising as it sounds, considering the amount of resources available for the overall measure (EUR 100 000) as well as for individual recipient of the support (EUR 900), it is difficult to expect any major impact of this measure.

2.3.3 Strengths and weaknesses in the innovation policy support system

As already mentioned, the current innovation policy support system is relatively comprehensive, especially if the narrow approach to innovation is taken. It provides support to business R&D, helps with development of human resources, promotes start-ups and new entrepreneurs and tries to build a supportive innovation environment through intermediary institutions. Several new programmes were met enthusiastically by the recipient community (See high application rate both for SMEs R&D projects as well as applications for centres of excellence), suggesting that the policy makers have responded well to the needs of both the public and the business research community.

Still, the programmes are not well known to SMEs, many are administratively very demanding and often suffer from long processing times. The complex functioning of public administration, additionally complicated by the drawing on resources from the SFs with a relatively short period for the implementation of their projects (in case of a single year programme) since they have to file their reports and financial claims by October to meet the budget year. The revolving projects are somewhat less restrictive in this sense, yet there are reports and claiming then the reimbursement is again not only a highly time-consuming activity, but is additionally complicated by the fact that the recipients have very limited information on dynamics of the reimbursement. This seriously affects the scheduling of their financial flow and ability to execute the activities in timely fashion. The latter has caused problems, particularly in long-awaited large projects where the value of the approved project may surpass EUR 3 million. To conclude, it isn't the comprehensiveness of the measures which is a weakness, but the coordination and implementation of the current ones that limits the effectiveness of the innovation policy support system.

⁴⁵ Establishment and functioning of the Slovenian platforms has been the subject of two measures: SI27 and SI28, the latter being run by TIA.

3. Innovation policy and competitiveness: an appraisal

3.1 The ability of policy to address challenges

The long-term strategic policy documents, relevant to the innovation policy (See description in Section 2.1. of this report), address adequately the role and the challenges of research, development and innovation (RD&I). They recognise the importance of more dynamic investment in RD&I as the key strategy to restructuring of the Slovenian economy and thus achieving higher value-added and improved competitiveness. This is especially true for the Slovenian Development Strategy (SDS) ⁽⁴⁶⁾, which stresses the need for research to be more integrated with the needs and capabilities of the business sector. Also in the National Research and Development Programme (NRDP) ⁽⁴⁷⁾ several challenges are well identified, like the insufficient prioritisation of public research, more balanced public financing, where resources need to be increased for applied research projects and technology development, but not on the account of funding of basic research, lack of cooperation between public R&D units and the business sector or the stress on the improvement of human resources in research. As a significant novelty, the NRDP calls for continuous evaluation of its implementation, both at the level of overall results as at the level of specific instruments.

The EU policy papers and especially the Lisbon Strategy had significant impact on the topics covered by the policy documents, on the targets as well as on the measures. More specifically, this is reflected in the National Reform Programme (NRP) for the achievement of the Lisbon Strategy ⁽⁴⁸⁾, which incorporates the country-specific EU recommendations. The NRP also suggested several mechanisms for improved cooperation between higher education (HE) and R&D institutions and better mobility of human resources, thus addressing the identified challenges ⁽⁴⁹⁾.

Both the challenges identified by the policy papers as well as the measures proposed, can be assessed as the right ones. Part of the reason lies in the fact that the policy is conceptualised in rather broad terms and even the measures remain at relatively general level. At the same time, none of the identified challenges are of a short-time character: they all require persistent, well coordinated long-term action. What requires serious attention of the policy makers is the complementarity of the measures designed to support business R&D investment and those supporting public R&D. In principle, all the programmes cite NRDP as the strategic policy paper, where science and technology (S&T) priorities are defined. A closer look, however, reveals that the priorities within the NRDP are still very general and broadly defined. To achieve an efficient RD&I policy mix, a more thorough analysis of various measures and instruments and their results needs to be undertaken, having in mind the existing scientific and technological potentials of the Slovenian science community, the production and competitive capabilities of the business sector and the ambition and opportunities, opening to Slovenian research and development (R&D) in the European Research Area (ERA). For a small country seeking for an optimal combination of various national and international resources to fund its scientific and technological development this is essential, especially if RD&I is to contribute to its economic and social development. So far, the public R&D policy and the support for business RD&I had little in common at the operational level.

3.1.1 How well does policy respond to innovation challenges?

From a policy mix perspective, the main imbalance of the current innovation policy lies in the structure of public R&D funding for two R&D communities: the public and the business one. At the top policy level, Slovenia has a single document (NRDP) for R&D regardless of the sector; in the implementation phase the two sectors have been effectively separated: the Slovenian Research Agency (SRA) mainly takes care of R&D in the public sector, while the Ministry of Higher Education, Science and

⁴⁶ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=policy.documentAjax&uuid=7D87A4CA-C30B-7F76-24B2D3F6E1735FDE> online.

⁴⁷ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=policy.documentAjax&uuid=7D87A9BB-B3F1-0959-F567E3A894EDC30B> online.

⁴⁸ See <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=policy.document&UUID=FD89615B-034B-D2FD-865A648C56CA12E5&hwd> online.

⁴⁹ See http://www.umar.gov.si/fileadmin/user_upload/projekti/04_pr-lizbona.pdf online.

Technology (MHEST) by itself and through the Slovenian Technology Agency (TIA) and the Ministry of Economy with the Public Agency for Entrepreneurship and Foreign Investment (PAEFI) and also through TIA focus on the business sector. There had been little systematic and joint policy development or coordination of instruments, so one could really not talk about a true policy mix. So while Slovenia was making some progress in RD&I (according to the S&T indicators as well as innovation data), this was not optimal from the business sector perspective. In recent years, a number of new measures have been introduced, targeting specifically business R&D to somehow offset policy bias towards public R&D. The issue, however, is not what should be getting more policy attention, public or private sector, but how to combine the (limited) resources of both to deal with the challenges in RD&I.

While the analytical parts of the strategic documents are realistic and reflect the challenges well, the action plans are in some indicators too ambitious, especially taking into the consideration past implementation record. Similar or even the same targets were incorporated in past policy papers as well and little progress was achieved. A good example of this is the plan to shift the balance of public R&D financing towards applied R&D projects. The NRDP for the period from 1994 to 1996 already specified that by its completion the ratio in public funding between science and technology will be more balanced, so that more public money will be used for focused research on new technologies. At its end, the share of resources going to basic research was even higher as at the beginning (Bučar and Stare, 2006). At the time of drafting the current NRDP, it was pointed out in the public debate that due to the already existing commitments of the SRA the planned restructuring would be impossible to achieve unless sufficient inflow of new resources is achieved. In part, the ratio was expected to change due to the increased funds for support to business RD&I measures, which are to be co-financed through the Structural Funds (SFs). Yet due to slow reimbursement of these funds, the restructuring has been delayed as well.

Key systemic challenges as identified in current and past TrendChart Reports do not differ substantially from the challenges identified in the policy papers. A need to stimulate business sector R&D investment while at the same time increase the absorption capacity of small and medium-sized enterprises (SMEs) in particular, had been addressed by various policy documents and was in the background of the policy makers when preparing the Operational Programmes (OPs) for the allocation of the Structural/ Cohesion Funds (CFs). The possible human resource bottleneck in the public and R&D sectors has also been recognised and measures designed to counteract this shortage. The entrepreneurship/ innovation support network has been addressed as an important challenge to a more efficient and effective innovation system. All these led to the introduction of several new or renewed policy measures and relatively modest impact of these measures is not the result of the wrong policies or challenges. The systemic challenges do not get removed overnight, no matter how effective a single measure is. This time lag is sometimes difficult to 'sell' to policy makers who tend to discard certain programmes/ measures without serious evaluation of its (non)impact and introduce a novel one in hope of quicker results.

3.2 Effectiveness of policy design

As already mentioned in this and previous TrendChart Reports, Slovenia developed over the years a rather complex system in support of RD&I. With several actors involved, the coordination and synchronisation of their policies and measures requires a high level of innovation governance⁽⁵⁰⁾ capability. The roles of each actor need to be clearly defined. The processes should be designed so as to stimulate and sometimes even prescribe coordination and cooperation at the level of policy design as well as at the level of programmes/ instruments to be implemented. Since the number of measures and the amount of available funds for innovation and entrepreneurship are increasing, the challenge for the Slovenian innovation system will be on one hand to apply these resources effectively and, on the other, further improve the coordination of different agents in the system.

If on paper the division of labour between the Ministry of Economy, MHEST and the two government offices, the Office for Development and European Affairs and the Office for Local Self-organisation and Regional Development looks sufficiently clear, the practice shows a more disturbing picture. Accepting

⁵⁰ Innovation governance incorporates a broad set of mechanisms, instruments and institutions in the field of R&D, education, and entrepreneurship. It focuses on the interplay between the various actors that together determine the priorities, strategies, activities and outcomes in innovation (Boekholt, 2004).

the fact that innovation policy is a horizontal one, it still remains difficult to understand why support to the innovation environment needs to be provided in a different manner from one or the other ministry. The most important issue for the coordination of the work is to achieve as good as possible complementarity of the measures among the main executing agencies. Looking at the specific programmes of PAEFI, responsible for execution of the measures designed by the Ministry of Economy, and the programmes of TIA, responsible for the implementation of the MHEST programme, several questions emerge. Let us highlight two: the coherence of the measures within the same organisation, on the one hand, and the complementarity versus competition in introducing similar measures by different agencies on the other.

PAEFI, for example, is traditionally in charge of technology parks and business and university incubators. In 2008, it started a registry of so-called 'subjects of innovative environment', where the three types of support institutions should register. Once registered, the institutions were able to apply for financial support for 2008 and 2009: technology parks for co-financing from EUR 50 000 to EUR 60 000, business incubators for EUR 30 000 to EUR 40 000 (both depending on the number of participating enterprises) and university incubators for EUR 80 000 to EUR 120 000 (depending on the number of students in their geographical coverage). All together, EUR 700 000 was planned for 2008 and EUR 900 000 for 2009 for support to at least 10 organisations. At the same time, the very same institution published a public call for co-financing of the construction of technology parks and business incubators within so-called 'regional economic-logistic-technology centres', with as much as EUR 50 million dedicated for the period from 2009 to 2012. According to the information on the Internet site, two projects were selected, one for a business incubator (EUR 1 million in 2009) and one for a technology park (EUR 10 million in 2009) only 20 kilometres from an already established and co-financed technology park covering the very same region. So, while the programme of the existing technology park could receive up to EUR 60 000 support for activities it provides to SMEs in the region, at the same time a new park will be built nearby for a substantially higher amount of resources, targeting the same community and offering at the end the same type of services. Once built and established, it will be able to register and apply for the support available to 'subjects of innovative environment'.

*The above illustration shows how non-systematic the development of the entrepreneurship/innovation support system is. The very idea of developing 'regional economic-logistic-technology centres' needs careful assessment since its vision of providing for more equitable regional development may result in further dispersion of R&D and HE capacities in Slovenia and instead of generating higher quality, provide several underutilised infrastructure facilities with limited content. As mentioned in the TrendChart Report 2008, nine such regional economic-logistic-technology centres are planned across Slovenia.

The national innovation system (NIS) will be supported by another measure, introduced in 2009 by the MHEST. In part it replaces previous measures: one supporting technology parks and the other one providing support to innovators or organisations, which support them (like Chamber of Industry and Commerce, National Alliance of innovators etc.). Up to 15 such '*technology & innovation hubs*' are to be supported with an allocated EUR 3.5 million of co-financing.

To summarise, Slovenia should thus annually support nine 'regional economic-logistic-technology centres', 15 'technology and innovation hubs' and at least 10 'subjects of innovative environment'. Also, there will be approximately 10 centres of excellence established and support (symbolic) provided for 16 technology platforms. All these make the coordination and the need for complementarity of their activities a very complex task, especially since the support measures are designed by different agencies seeking different documentation and reporting, providing highly differentiated financial support both in terms of conditions and amounts, and yet supposedly all with the same ambition of building a coherent effective NIS!

3.2.1 Process of delivery

If the innovation policy design has been under significant influence of the good practices seen in the EU, the implementation is still subject to serious problems of efficiency of public administration. The already complicated process of budget negotiations and re-negotiations, which had often postponed the approval of support programmes and resulted in changes in the instruments, has now been additionally complicated by the fact that so many of the RD&I measures are co-financed by the SFs.

During the last two years, Slovenia has experienced an array of administrative, legal and technical complications in the process of delivery that no one could hardly envisage at the time of designing the measure. One such example was the preparation of the call for the strategic R&D projects to be implemented by TIA. From the preparation of the draft text of the call to actual publishing of the call more than 10 months of coordination, negotiations and approvals took place among the Ministry of Economy and MHEST, the Office for Local Self-organisation and Regional Development and TIA. The call was finally published in December 2008, while in May 2009 the results were published. However, by July 2009 still none of the selected projects had received any co-financing (⁵¹).

In terms of efficient and friendly delivery, one of the major improvements over the last two years is the organisation of special one-day events by the Slovenian Entrepreneurial Fund (SEF), called Entrepreneurial Slovenia. The representatives of all government agencies providing support to R&D, innovation and entrepreneurship present their annual programmes, call announcements and other specific plans to the business community. The interest of the firms is very high: the central presentation in Ljubljana was actually sold out! It is a single event where complete information is available in one place, instead of having to search at each agency. Still, due to budget revisions it was impossible to present to the audience a clear time-table of the public calls or the amount of support provided by some of the measures. This, along with better coordination of the application requirements and the evaluation and reporting procedures, would contribute significantly to a more user-friendly support system. With numerous measures now existing at SRA, PAEFI, TIA, and SEF as well as through some other agencies/ ministries, transparency is of key importance for the enterprises, especially SMEs. In this way, a further development of the current portal (www.podjetniski-portal.si) through which each specific call could be accessed would be highly beneficial.

Besides the complicated procedures, one of the handicaps of the ministries/ agencies in delivery of the support measures is also limited human resources. This became especially obvious in the cases of measures where co-financing from the SFs is applied. Since Slovenia has designed an extremely complicated and long process of reporting, checking, approvals etc., of each and every report and reimbursement claim, the lack of competent people in public administration was evident already in the period from 2004 to 2006. With the current financial perspective 2007-13, more RD&I instruments are co-financed through the European Regional Development Fund (ERDF) and the ESF, adding additional responsibilities due to the complexity of the system as well as due to increased funding. The staff at many public offices has, however, remained the same or increased only marginally. This creates an additional barrier to efficient delivery and is reflected also in the low reimbursement of the EU funds.

3.3 Impact of public support for innovation

When preparing the current Slovenian Development Strategy (SDS) and the R&D programme, the insufficient contribution of RD&I to socioeconomic development of Slovenia was often mentioned in policy circles. Two main reasons were identified at the time: insufficient focus of research on relevant technologies for the Slovenian economy and poor cooperation between public R&D and the business sector. The first deficiency was to be overcome by changing the structure of public financing of R&D in favour of applied and development projects with more direct linkage to identified priorities. For the second one, several new instruments were designed in the last years (mobility schemes, interdisciplinary teams, large joint R&D projects, centres of excellence).

The IMAD analysis of sources of economic growth indicates that its acceleration prior to 2008 was mainly due to the favourable economic situation rather than structural changes. The SDS had hoped that a higher development level would be achieved by a considerable increase of total factor productivity, particularly by transition to a knowledge-based society, better state efficiency and development-oriented restructuring of public finance. The 2009 Development report, where annual evaluation of the implementation of the SDS is carried out, found that *'in most of these areas, however, insufficient progress was made in the last few years, particularly in terms of the volume, structure and efficiency of R&D expenditure, innovation activities, efficiency and quality of tertiary education, foreign direct investments, and restructuring of public finance sources and expenditure.'* Particularly critical is the report in evaluation of R&D outputs, where it states that *'the past years' insufficient consolidation of factors relating to the knowledge-based society was reflected in the low*

⁵¹ Information on the basis of the internal documentation of TIA.

share of high-technology and knowledge-based industries and, as a consequence, low competitiveness of the economy ⁽⁵²⁾ (IMAD, 2009 Development Report: p.9).

On the other hand, one needs to take into consideration also the fact that most of the RD&I policy changes and new programmes are of a newer date, so the macroeconomic evaluation of their impact is not possible yet. Also, as can be seen from past TrendChart Reports on Slovenia, RD&I policy is regularly hampered by so-called 'implementation deficit', where more is planned and proposed than actually carried out, or when implemented, the policies and measures are delayed, receive insufficient financial support or are too poorly designed to be efficient.

By examining each of the measures separately, we do see increasing interest among enterprises for R&D and technology subsidies since all the public calls opened by TIA, MHEST and SEF have been oversubscribed. The mobility and interdisciplinary teams support are less-known support instruments among the business sector, so there is still a need to promote them and maybe re-examine why they do not attract more interest. The evaluation of the economic impact of centres of excellence from the period from 2004 to 2006 (Mesl & Bucar, 2008) showed that in many centres cooperation with the business sector was intensified, especially in joint exploitation of the research equipment. This opened the door to more intensive contacts and in several cases resulted in deeper collaboration of the partners. All these positive changes are expected to have, if the support is maintained over a longer period of time, spill overs in improved technological level of the business sector.

From a long-term perspective, activities in the area of awareness-raising of RD&I are important as well. The introduction of pilot programmes on entrepreneurship and innovation to the educational institutions, support to the NIS and organisations supporting innovation, various (small) promotion events, like Innovation forums ⁽⁵³⁾, Entrepreneurial Slovenia ⁽⁵⁴⁾, Innovation Journalism ⁽⁵⁵⁾, the competitions like Gazelles ⁽⁵⁶⁾ or the Slovenian start-up competition ⁽⁵⁷⁾, all have grown in recent years. But as with the other measures, in this area too more coordination is needed to reach a wider audience and attract more media attention.

When addressing public support for innovation, the RD&I activity in Slovenia can be viewed from two different perspectives. For those involved in research and innovation, the dynamics of change are rather obvious: from developments in the institutional set up, in public policy, which is supporting this activity to the development of various and numerous instruments of supporting both public and private RD&I. Several R&D indicators have improved, the public and private financial resources have increased and become more predictable, internationalisation of the R&D sector is progressing dynamically: all in all, RD&I activity have been developing relatively steadily since Slovenian independence.

On the other hand, the impact of RD&I on socioeconomic development of Slovenia tends to go unnoticed by the general public. Other government policies attract more attention and are considered more important for the country. Science, with its slow, long-term and often unpredictable impact on economic growth, is not seen as a strategic asset. Scientists command a certain level of public respect, but have little clout in policy making. The stories of important scientific achievements nationally or even internationally seldom attract the attention of media. As one of the attempts to popularise S&T, the head of the parliament introduced in cooperation with the MHEST a series of lectures/ presentations called 'Science reaps' to the parliamentarians by top Slovenian scientists ⁽⁵⁸⁾. The 30-minute lectures are scheduled prior to the regular sessions of the Parliament and are open to the public as well. Even though these lectures are only once a month and the lectures up to now were given by internationally renowned scientists on attractive topics, the audience was remarkably small (12 to 20 people), reflecting low interest among the parliamentarians. This is just a small example of the public support for innovation.

3.3.1 Conclusions: possible future actions and opportunities for innovation policy

⁵² See http://www.umar.gov.si/fileadmin/user_upload/publikacije/pr/2009/apor09_splet.pdf online.

⁵³ See http://www.sfi.si/program_sfi08_inovacijsko-poslovni online.

⁵⁴ See http://www.pgzslo.si/attachments/046_PodjetnaSlovenija2009.pdf online.

⁵⁵ See <http://www.innovationjournalism.si/en/news.php> online.

⁵⁶ See <http://www.gazela.com/gazela-2009/> online.

⁵⁷ See <http://www.tovarnapodjemov.org/DOKUMENTI/DOKUMENT.ASP?ID=755> online.

⁵⁸ See <http://www.dz-rs.si/index.php?id=467> online.

When looking at the Slovenian RD&I policy from the perspective of correctly identified challenges and the wide scope of different instruments and support institutions, one could assess the policy as relatively well conceptualised one. Also, the innovation policy design has been under significant influence of the good practices seen in the EU. The problem lies in details: the implementation of the instruments is still subject to serious problems of efficiency of public administration and good governance. The already complicated process of budget negotiations and re-negotiations, which had often postponed the approval of support programmes and resulted in changes in the instruments, has now been additionally complicated by the fact that so many of the RD&I measures are co-financed by the SFs. A careful appraisal of the delivery system is needed, where the needs of the recipients should be of primary concern. All the necessary legal and administrative changes should be geared to this end.

In many ways, the Slovenian RD&I framework needs certain stability in terms of measures and instruments. This would give the companies a chance to get used to the offered support which is available to them on a regular, sustained basis. It would provide an opportunity to analyse the impact of the measures over a medium-term period and see where the barriers to its efficiency are most pronounced. The corrections and changes could then be designed, instead of simply discarding the measure, where maybe development of some positive impact simply required more time (⁵⁹).

This, however, does not mean that new measures are not going to be needed since new challenges may result from the current schemes. This requires close monitoring of the absorption capacity of the business sector and the ability of public R&D to deliver effectively the support under existing policy measures. An evaluation and reporting practice has significantly improved over the recent years, even though not at the same pace or by all the important actors.

Many of the challenges faced by the NIS are of the structural character and therefore require a prolonged, stable and well-coordinated policy response. One of the areas where continuous policy attention should be focused is the large segment of non-innovative SMEs (72.3% of small enterprises are non-innovative according to the Community Innovation Survey (CIS) for the period 2004 to 2006 (SURs, 2008). The lack of interest in some industrial sectors for RD&I, and especially SMEs in these sectors, is the result of several, sometimes conflicting reasons: from lack of competition (certain services) to lack of financial and human resources in long-neglected sectors that were traditionally not considered as R&D important (like textiles, food processing etc.).

One of the key policy documents in the RD&I area, the NRDP is ending in 2010 so preparations are likely to start soon for the new programme. This could be a good opportunity for overall assessment of the current policies, documents and instruments. The ambition of policy makers in RD&I should be to design a policy mix where the comprehensive system of institutions, policies, documents and measures would be combined in a coherent and complementary manner. This should encompass all the different instruments in support of public R&D, business R&D, innovation and entrepreneurship promotion as well as promotion of participation of Slovenian R&D in the ERA. In assessing the RD&I system today, one has a feeling that different institutions are so concerned with their own activities and measures (trees) that no one really sees the system as a whole (the forest). To paraphrase: while the 'trees' are important, it is the 'forest' which really makes an impact on socioeconomic development of a country. On the other hand, in designing innovation policy, it is not enough to identify the 'right' challenges, not even to design appropriate measures; one also needs to implement them efficiently if the results are to be forthcoming. And what the Slovenian innovation story tells is that too often it is the gritty bitty detail which gets insufficient attention and 'ruins' an overall effect of otherwise well-thought policy measure.

⁵⁹ An example of such unreasonable change of measures was discontinuation of the support to the formation of clusters (See TrendChart Report Slovenia 2007).

Annexes

Annex 1: Country pages – Innovation Policy Support factsheet

Table and Figure 1: Main priorities addressed by the support measures in Slovenia in a comparative perspective

	% of policy measures in EU27	% of policy measures in SI
1.2.2 Innovation strategies	4%	0%
1.3.1 Cluster framework policies	7%	0%
1.3.2 Horizontal measures in support of financing	6%	0%
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	3%	0%
3.1.2 Relation between teaching and research	3%	0%
3.2.2 Career development (e.g. long-term contracts for university researchers)	6%	0%
4.3.2 Support to risk capital	8%	0%
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	4%	0%
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)	1%	0%
5.2.3 Impact assessments (on research and innovation issues) of new legislative or regulatory proposals in any policy field	0%	0%
5.3.1 Measures to raise awareness and provide general information on IPR	3%	0%
5.3.2 Consultancy and financial incentives to the use of IPR	4%	0%
1.1.1 Strategy policy documents (official documents, policy consultation papers, green or white papers, Operational Programmes of Structural Funds)	2%	4%
1.1.2 Activities of official advisory and consultative forum	1%	4%
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)	2%	4%
1.3.3 Other horizontal policies (ex. society-driven innovation)	3%	4%
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	15%	4%
2.1.3 Research and Technology Organisation (private non-profit)	6%	4%
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	4%	4%
5.1.2 Innovation prizes incl. design prizes	2%	4%
5.3.3 Support to the innovative use of standards	1%	4%
2.1.2 Public Research Organisations	15%	9%
2.1.4 Research Infrastructures	8%	9%

INNO-Policy TrendChart

2.2.1 Support infrastructure (transfer offices. training of support staff)	4%	9%
3.1.1 Awareness creation and science education	4%	9%
3.1.3 Stimulation of PhDs	7%	9%
3.3.2 Recruitment of skilled personnel in enterprises	4%	9%
4.2.2 Support to organisational innovation incl. e-business. new forms of work organisations. etc	7%	9%
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	7%	13%
3.2.3 Mobility of researchers (e.g. brain-gain. transferability of rights)	9%	13%
4.1.2 Support to innovation in services	6%	13%
4.2.1 Support to innovation management and advisory services	11%	13%
4.2.3 Support to technology transfer between firms	7%	13%
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows. awareness campaigns)	5%	13%
2.2.2 Knowledge Transfer (contract research. licences. research and IPR issues in public/academic/non-profit institutes)	12%	17%
4.1.1 Support to sectoral innovation in manufacturing	8%	17%
4.3.1 Support to innovative start-ups incl. gazelles	16%	17%
1.2.1 Strategic Research policies (long-term research agendas)	16%	22%
2.2.3 R&D cooperation (joint projects. PPP with research institutes)	27%	22%
2.3.1 Direct support of business R&D (grants and loans)	15%	26%

Explanation: Percentages refer to the share of measures addressing a given policy priority in Slovenia (n=23) and the overall EU innovation policy mix (N=952). Only policy priorities indicated by more than 5% of measures are included to the chart. A single support measure could be assigned up to four policy priorities.

Policy priorities addressed by the support measures in Slovenia and EU27

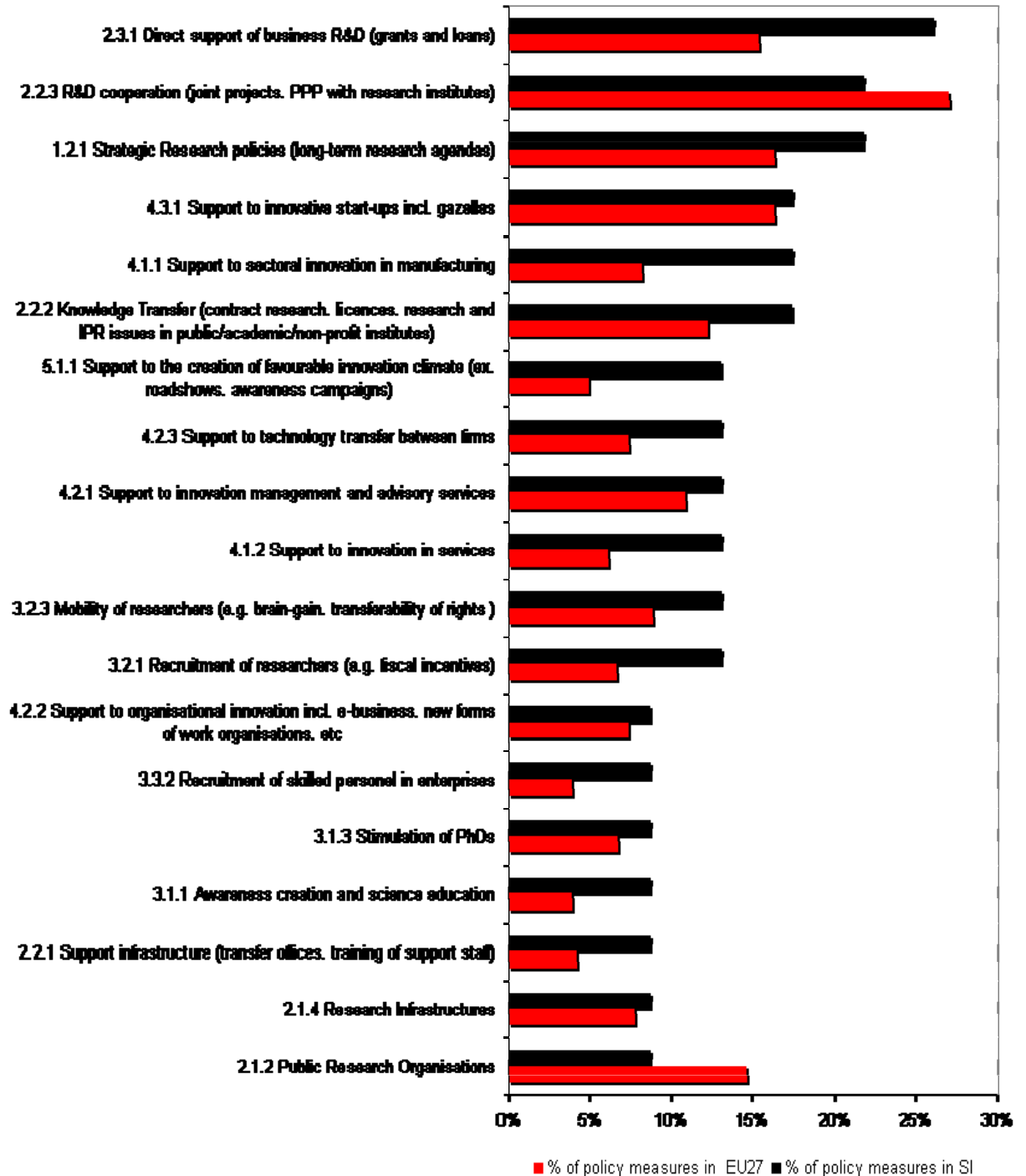
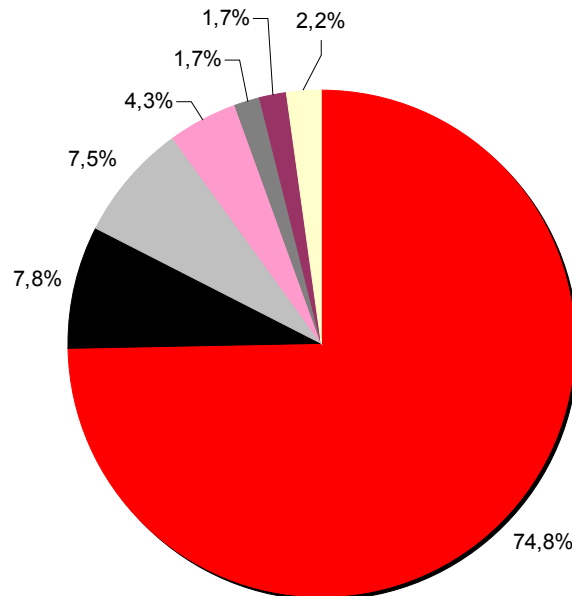


Table and Figure 2: Estimated annual budget allocations per policy priority in SLOVENIA

	Estimated annual budget per category (EUR)	% over the total estimated annual budget
2.1.4 Research Infrastructures	514.172.926	74.8%
1.2.1 Strategic Research policies (long-term research agendas)	53.354.655	7.8%
4.1.1 Support to sectoral innovation in manufacturing	51.666.667	7.5%
3.1.3 Stimulation of PhDs	29.604.393	4.3%
2.2.3 R&D cooperation (joint projects. PPP with research institutes)	11.983.333	1.7%
4.3.1 Support to innovative start-ups incl. gazelles	11.405.000	1.7%
Other	15.221.469	2.2%
Total	687.408.443	
<p>Explanation: Percentages refer to the share of estimated annual budget devoted to policy priorities. Annual budgets were estimated based on the information provided by the TrendChart correspondents in the support measure descriptions. The calculations include both the already executed and planned budgets (e.g. allocations for SF 2007-2013 programmes). In order to estimate an annual budget, overall budgets -or budgets available for indicated periods- were divided by the duration of the measure. In absence of the overall budget, average of annual budgets provided was taken into account. In cases when only one annual budget was provided, this was included in the analysis. Non-financial support measures were not included in the calculations. Estimated annual budgets of support measures were attributed only to main policy priority (one priority per measure). Estimated total annual budget is the sum of annual budgets of all support measures, for which budget information was provided.</p>		

Estimated annual budget per policy priority in Slovenia



- 2.1.4 Research Infrastructures
- 1.2.1 Strategic Research policies (long-term research agendas)
- 4.1.1 Support to sectoral innovation in manufacturing
- 3.1.3 Stimulation of PhDs
- 2.2.3 R&D cooperation (joint projects, PPP with research institutes)
- 4.3.1 Support to innovative start-ups incl. gazelles
- Other

Table and Figure 3: Estimated annual budget spent on policy priority and number of support measures in SLOVENIA

	% of budget per priority	% measures per priority
Other	2.2%	47.8%
4.3.1 Support to innovative start-ups incl. gazelles	1.7%	8.7%
2.2.3 R&D cooperation (joint projects. PPP with research institutes)	1.7%	8.7%
3.1.3 Stimulation of PhDs	4.3%	4.3%
4.1.1 Support to sectoral innovation in manufacturing	7.5%	8.7%
1.2.1 Strategic Research policies (long-term research agendas)	7.8%	13.0%
2.1.4 Research Infrastructures	74.8%	8.7%

Estimated annual budget spent on policy priority and number of support measures in Slovenia

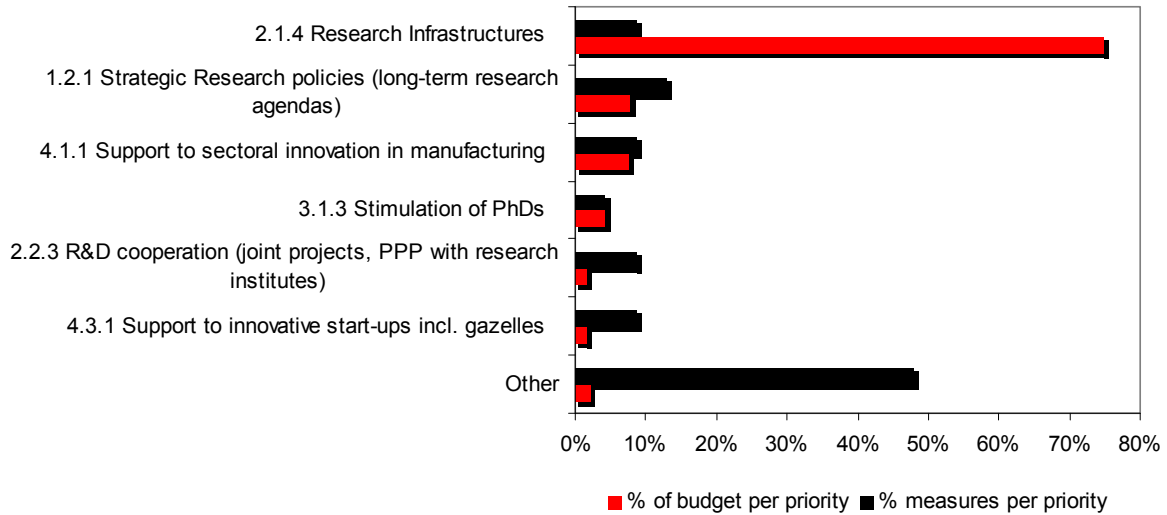


Table and Figure 4: Targeted Research and Technology fields

	% of total number of measures SI	% of total number of measures EU27	Frequencies SI	EU27 Frequen
Food. agriculture and fisheries	0%	0%	0	
Industrial production	0%	2%	0	
Services	0%	1%	0	
Transport	0%	1%	0	
Space	0%	1%	0	
Security and defence	0%	1%	0	
Other	0%	4%	0	
ICT	4%	7%	1	
Biotechnology	4%	6%	1	
Nanosciences and nanotechnologies	4%	3%	1	
Materials	4%	3%	1	
Socio-economic sciences and humanities	4%	2%	1	
Health	4%	5%	1	
Energy	4%	3%	1	
Environment (including climate change)	4%	5%	1	
Government and social relations	4%	1%	1	
Total number of measures			23	

Explanation: Percentages refer to the share of measures indicated as targeting a specific research and technology fields in Slovenia (n=23) and the overall EU innovation policy mix (N=952). A single support measure could be assigned to more than one field.

Targeted R&T fields by support measures in Slovenia compared to EU27

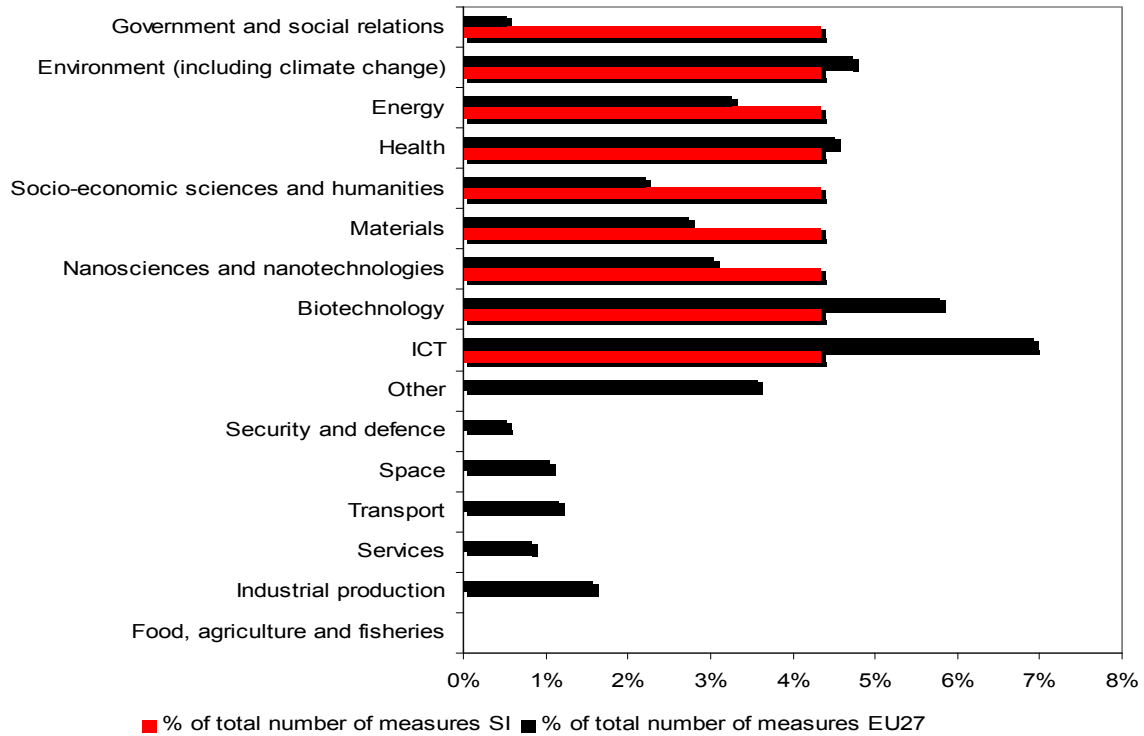


Table and Figure 5: Targeted Groups of support measures

	% of total number of measures SI	% of total number of measures EU27	Frequencies SI	EU27 Frequencies
Other public education institutions (secondary etc. ...)	0%	0%	0	
Trade Unions	0%	9%	0	
Private institutions for education / lifelong learning	4%	4%	1	
Consultancies and other private service providers (non-profit)	9%	11%	2	
Business organisations (Chambers of Commerce...)	13%	9%	3	
SMEs only	17%	22%	4	
Higher education institutions (education function)	17%	16%	4	
Other	17%	17%	4	
Scientists / researchers (as individuals)	30%	27%	7	
Technology and innovation centres (non-profit)	30%	21%	7	
Other non-profit research organisations (not HEI)	35%	33%	8	
All companies	48%	40%	11	
Higher educations institutions research units/centres	52%	46%	12	
Total number of measures			23	

Explanation: Percentages refer to the share of measures indicated as addressing a specific target group in Slovenia (n=23) and the overall EU innovation policy mix (N=952). A single support measure could be assigned to more than one target group.

Target groups of support measures in Slovenia compared to EU27



Table and Figure 6: Aspects of innovation processes targeted by measures

	% of total number of measures SI	% of total number of measures EU27	Frequencies SI	EU27 Frequencies
Co-operation promotion and clustering	17%	11%	4	
Industrial design	22%	15%	5	
Innovation management tools (incl. quality)	22%	16%	5	
Improving the legal and regulatory environment	22%	7%	5	
Promotion of entrepreneurship/start up (including incubators)	26%	13%	6	
Pre-competitive research	26%	11%	6	
Awareness raising amongst firms on innovation	30%	17%	7	
Applied industrial research	30%	21%	7	
Commercialisation of innovation (including IPR)	30%	20%	7	
Development/prototype creation	35%	24%	8	
Diffusion of technologies in enterprises	39%	22%	9	
Total number of measures			23	

Explanation: Percentages refer to the share of measures indicated as addressing a specific aspect of innovation process in Slovenia (n=) and the overall EU innovation policy mix (N=952). A single support measure could be assigned to more than one 'aspect'.

Aspects of innovation process targeted by measures in Slovenia compared to EU27

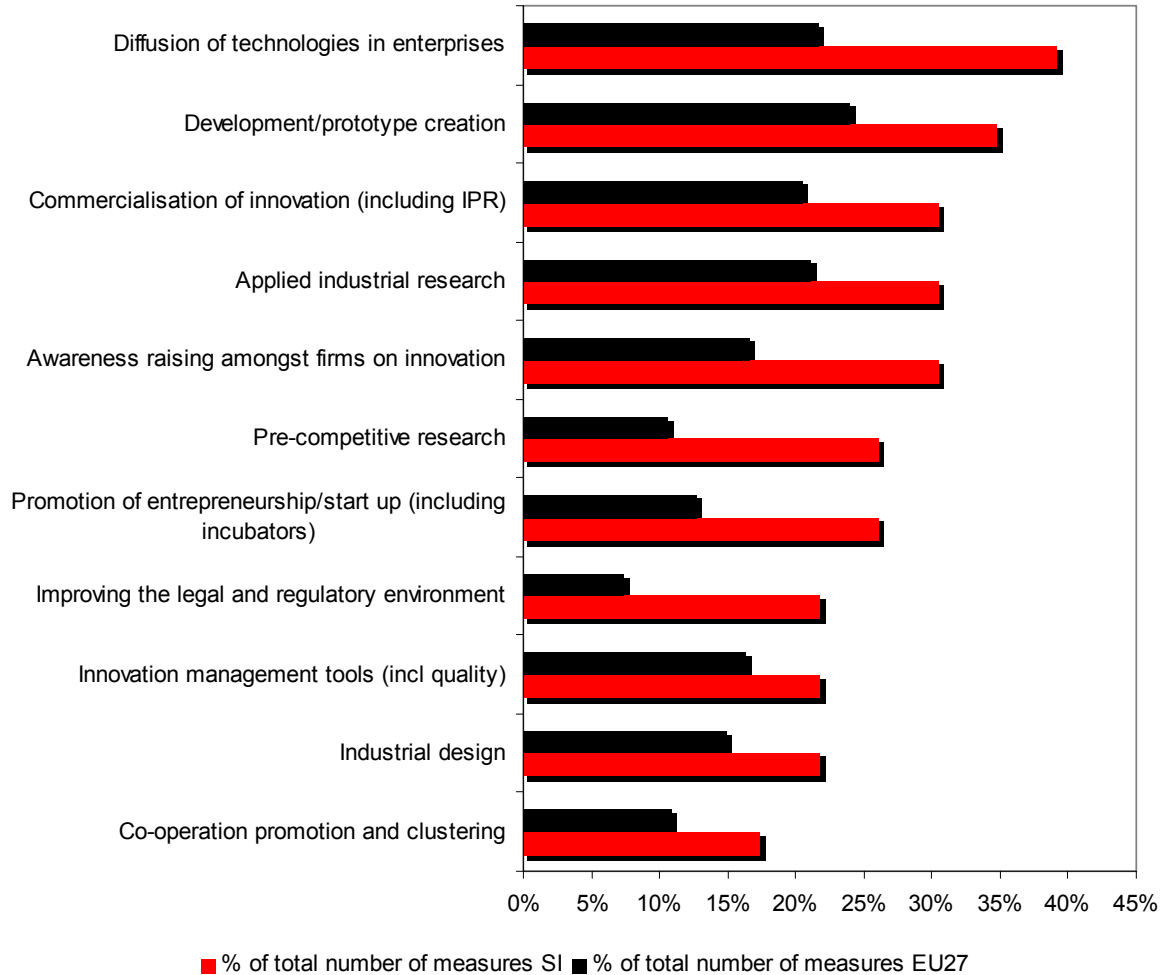


Table and Figure 7: Forms of funding of support measures

	% of total number of measures SI	% of total number of measures EU27	Frequencies SI	EU27 Frequen
Venture capital (including subordinated loans)	0%	5%	0	
Subsidized loans (including interest allowances)	4%	8%	1	
Guarantees	4%	3%	1	
Tax incentives (including reduction of social charges)	9%	6%	2	
No direct funding provided	9%	7%	2	
Other	13%	7%	3	
Grants	83%	72%	19	
Total number of measures			23	

Explanation: Percentages refer to the share of measures indicated as using a specific form of funding in Slovenia (n=23) and the overall EU innovation policy mix (N=952).

Forms of funding of support measures in Slovenia compared to EU27

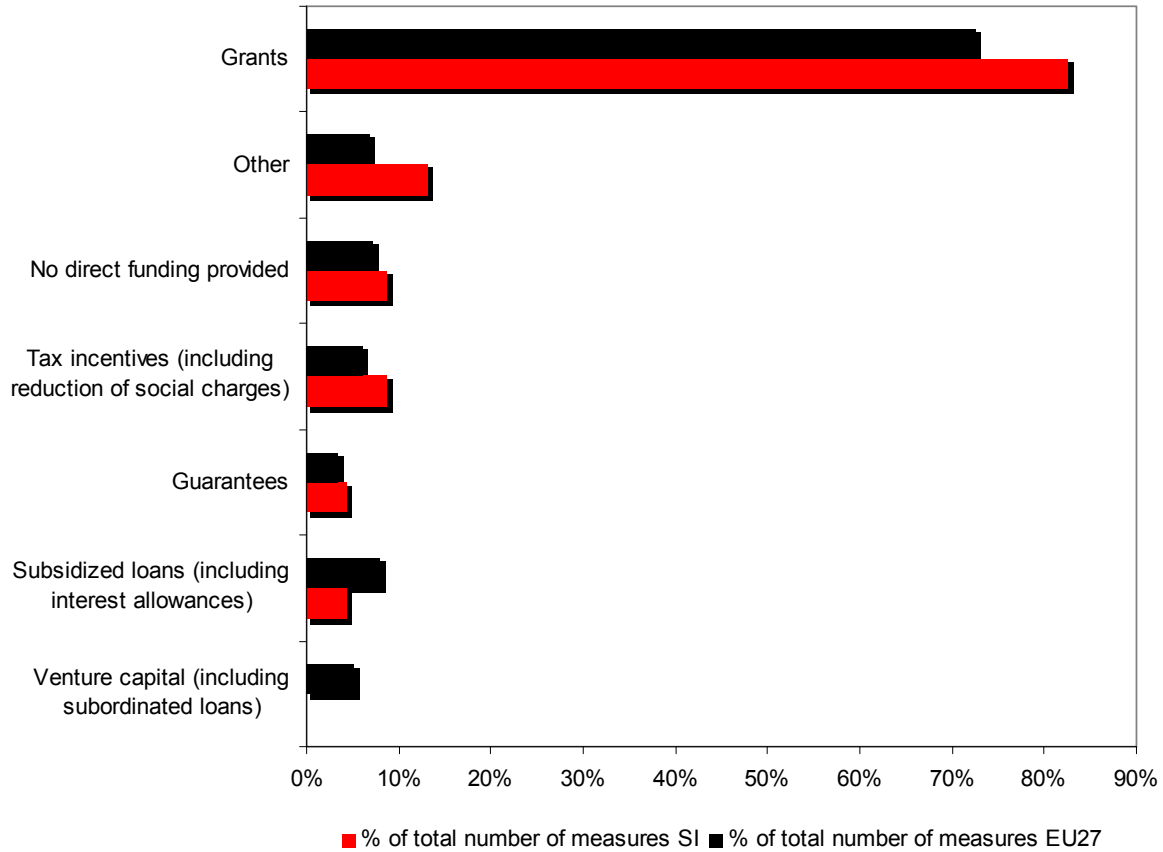
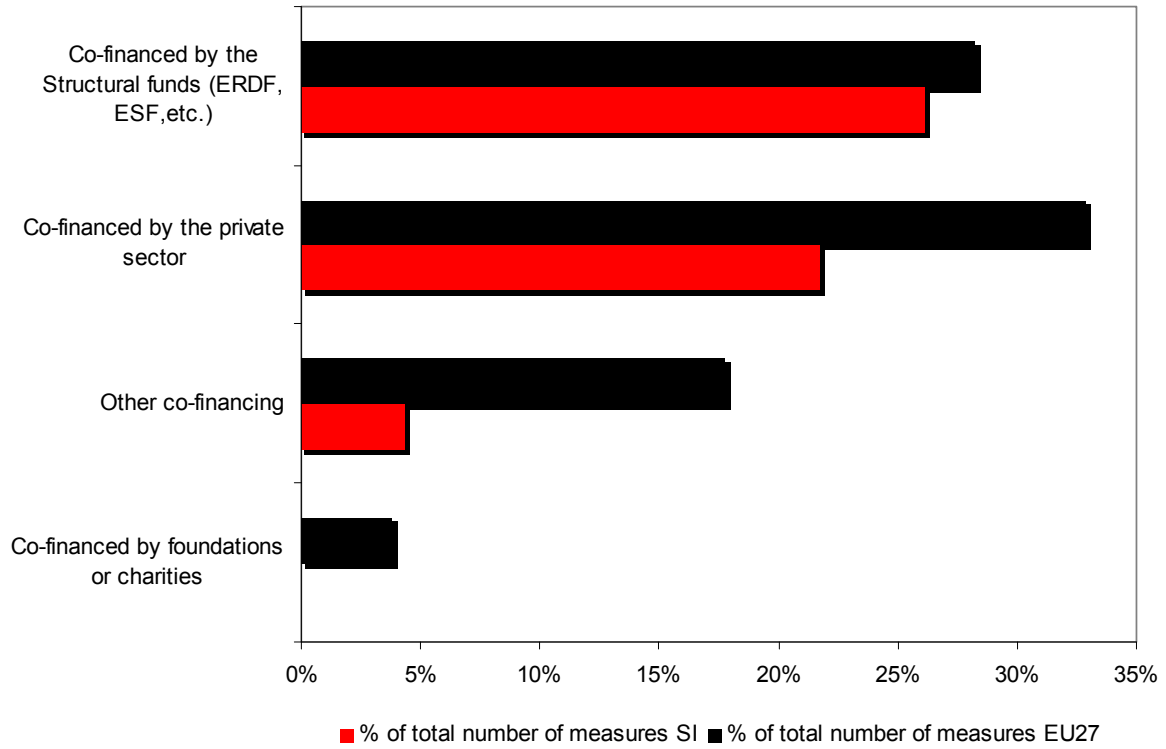


Table and Figure 8: Sources of co-financing of support measures

	% of total number of measures SI	% of total number of measures EU27	Frequencies SI	EU27 Frequencies
Co-financed by foundations or charities	0%	4%	0	
Other co-financing	4%	18%	1	
Co-financed by the private sector	22%	33%	5	
Co-financed by the Structural funds (ERDF, ESF etc.)	26%	28%	6	
Total number of measures			23	

Explanation: Percentages refer to the share of measures indicated as being co-financed from a specific source in Slovenia (n=23) and the overall EU innovation policy mix (N=952). A single support measure could be co-financed from more than one source.

Sources of co-financing of support measures in Slovenia compared to EU27



Annex 2: Websites of key innovation organisations

Type of organisation	Name of organisation (in English)	Website (where available)
Government and legislative bodies		
Ministry	Ministry of Higher Education, Science and Technology (Directorate for technology)	www.mvzt.gov.si
Ministry	Ministry of Economy (Directorate for entrepreneurship)	http://www.mg.gov.si/index.php?id=2159&L=1
Ministry	Ministry of Defence	http://www.mors.si/index.php?id=home&L=1
Special government office	Office of the government for local self-government and regional policy	http://www.svlsrcp.gov.si/index.php?id=558&L=1
Special government office	Office of the government for development and European affairs	http://www.svr.gov.si/index.php?id=874&L=1
Agency	Slovenian Research Agency	http://www.arrs.gov.si/en/index.asp
Agency	Slovenian Technology Agency	http://www.tia.si/
Agency	National Agency for Regional Development	http://www.gov.si/arr/aindex.html
Agency	PAEFI- Public Agency for Entrepreneurship and Foreign Investment	http://www.japti.si/
Private sector organisations and entrepreneurship promotion		
Business association	Slovenian Chamber of Industry and Trade (section for tech. development & innovation)	www.gzs.si
Business association	Chamber of Small Business and Crafts of Slovenia	http://www.ozs.si/eng/
Knowledge institutes (R&D and education bodies)		
Higher education	University of Ljubljana	www.uni-lj.si
Higher education	University of Maribor	www.uni-mb.si
Higher education	University of Koper	http://www.upr.si/sl/
Higher education	Polytechnics Nova Gorica (private)	http://politehnika.50megs.com/
Science	Academy of Arts and Sciences	www.sazu.si
Science	Jozef Stefan Institute	www.ijs.si
Industrial research centres and innovation intermediaries (sample)		
Innovation Relay Centre	IRC Slovenia (at Institute of Jozef Stefan) and University of Maribor. Centre for Interdisciplinary and Multidisciplinary Research and Studies – CIMRS	http://www.irc.si/slo/welcome.asp
Technology Centre ⁶⁰	TECOS- technology Centre for Tools Industry of Slovenia	http://www.tecos.si/
Technology park	Technology park of Ljubljana	www.tp-lj.si
Regional Development Agency	Maribor Development Agency	http://www.mra.si/
University incubator	Ljubljana's University incubator	http://www.lui.uni-lj.si/inkubator.asp
University incubator	Venture factory Maribor	http://www.tovarnapodjemov.org/intr_o.htm
Financial system		
Financial institution (SMEs)	Slovene Enterprise Fund	http://www.podjetniskisklad.si/About.html
Venture capital fund	Horizonte Venture Management d.o.o.	http://www.horizonte.at/offices/office_s.htm#slovenia

⁶⁰ There are currently 27 technology centres across Slovenia, most of them organized according to the needs in their industrial branch.

List of Abbreviations

BSI	Bank of Slovenia
CF	Cohesion Fund
CIS	Community Innovation Survey
EIS	European Investment Scoreboard
EPO	European Patent Office
ERA	European Research Area
ERDF	European Regional and Development Fund
ESF	European Social Fund
FDI	Foreign Direct Investments
FTE	Full-time equivalent
MHEST	Ministry of Higher Education, Science and Technology
IMAD	Institute for Macroeconomic Analysis and Development
NDP	National Development Programme
NRDP	National Reform and Development Programme
NRP	National Reform Programme
NSRF	National Strategic Reference Framework
OP	Operative Programme
PAEFI	Public Agency for Entrepreneurship and Foreign Direct Investments
R&D	Research and Development
SDS	Slovenian Development Strategy
SEF	Slovenian Enterprise Fund
SMEs	Small and Medium Enterprises
SRA	Slovenian Research Agency
SURS	Statistical Office of Slovenia
TIA	Slovenian Technology Agency

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