Strategic Evaluation on Innovation and the Knowledge Based Economy in relation to the Structural and Cohesion Funds, for the programming period 2007-2013

Contract n° 2005 CE.16.0.AT.015

A report to:

The European Commission
Directorate-General Regional Policy
Evaluation and additionality

Country Report: LATVIA

Version: Final

Report produced by:
Janis Kristapsons
Inga Ulnicane
Anda Adamsone-Fiskovica

TECHNOPOLIS

In association with

ISMERI EUROPA

LACAVE, ALLEMAND & ASSOCIES CONSULTANTS

LOGO TECH Innovation & Development

7 July 2006

Legal Notice

Neither the European Commission, nor any person action on behalf of the Commission is responsible for the use which might be made of the following information.

The views of this study are those of the authors and do not necessarily reflect the policies of the European Commission.

CONTENTS

Executive Summary i

1 Introduction 1

2 Investing in innovation and knowledge: a comparative overview of regional performance 3

2.1 Country overview: innovation and the knowledge economy 3

2.2 Regional disparities and recent trends 6

2.3 Conclusions: innovation and knowledge performance 9

3 Innovation and knowledge: institutional context and policy mix at national and regional levels 10

3.1 Institutional and legal framework for innovation and the knowledge economy 10

3.2 Policy mix assessment 14

3.3 Conclusions: the national innovation system and policy mix 18

4 Structural Funds interventions to boost innovation and create a knowledge economy: 2000-2006 20

4.1 Strategic framework for Structural Fund support to innovation and knowledge 20

4.1.1 Strategic approach to innovation & knowledge in Structural Fund programmes 20

4.1.2. Specific measures in favour of innovation and knowledge 23

4.2. Learning from experience: the Structural Funds and innovation since 2000 26

4.2.1. Management and coordination of innovation & knowledge measures 26

4.2.2 Effects and added value of Structural Fund support for innovation and knowledge 27

4.3 Conclusions: Structural Funds interventions in favour of innovation and knowledge 30

5 Regional potential for innovation: a prospective analysis 31

5.1 Factors influencing regional innovation potential 31

5.2 A prospective SWOT appraisal of regional innovation potential 34

5.3 Conclusions: regional innovation potential 36

6 Future priorities for Structural Fund support for innovation and knowledge: options for intervention 37

6.1 Strategic orientations for Structural Fund investments in innovation and knowledge 38

6.2 Operational guidelines to maximising effectiveness of Structural Fund interventions for innovation and knowledge 39

Executive Summary

Latvia is catching-up transition economy. Its GDP per capita is still one of the lowest in the EU, but its growth rates are among the highest in the EU. Since 2000 the average annual growth of GDP was 7.7% but in 2004 – 8.5%. The high growth levels are achieved due to the stable dynamics of domestic demand and increase in exports. Steady growth has also taken place with respect to labour productivity. If in 1996, labour productivity per person employed was 32% of the EU-25 average, then in 2004 it was already 42.8%.

Latvia is lagging behind the EU-25 average on a majority of key knowledge economy indicators. The European Innovation Scoreboard 2005 ranks Latvia's innovation performance as 24th out of 25 Member states. In Latvia, one of the main problems is low level of R&D expenditures. In 2004, total expenditures on R&D equalled 0.42% of GDP. **Since 2005 government has started to increase public R&D funding**. New Law on Research Activity adopted in 2005 stipulates that annual increase in public R&D funding should be 0.15% of GDP until it reaches 1% of GDP.

However, this does not solve the problem of **very low R&D funding in private sector**. Enterprise sector embodies one of the major weaknesses of the national system of innovation due its weak innovative capacities especially in respect to SMEs. According to the results of Community Innovation Survey in 2001-2003, only 18.6% of enterprises in Latvia have conducted innovative activities.

The National Lisbon Programme for Latvia 2005-2008 emphasises that **one of the main goals of Latvia's economic policy is to establish an effective and competitive sectoral structure**. According to the Programme, the present dominant model of Latvia's economy, which is characterised by using the advantages of cheap labour and available natural resources, as well as manufacturing products with low value added, will not be able to ensure high economic development rates and promote the achievement of higher prosperity level in the future.

The main problems mentioned above, i.e., low R&D funding, little interest in RTDI in enterprise sector, sectoral structure of economy based on cheap labour and natural resources, etc., are addressed in the National Lisbon Programme 2005-2008. In order to address these challenges, the Programme defines its main tasks in area of knowledge and innovation as follows: increase public investment and foster private investment in R&D, ensure renewal of intellectual potential in science, promote transfer of knowledge and technologies in production, etc.

Latvia as a single region is classified as a member of cluster **"Eastern (or Manufacturing) Cohesion"**. This cluster covers regions where manufacturing industries is the dominant sector, whereas services and agriculture are rather small sectors. In the case of Latvia**,** capital city **Riga** stands out from the rest of country as a member of cluster **"Southern (or Services) Cohesion"**. The general Latvian characteristics are lower scores in Private Technology, as well as higher scores in Public Knowledge and Urban Services. Very low scores in Private Technology can be explained by de-industrialization process during the social and economic transformation in the 1990s. One of main challenges for RTDI policy-makers is to

provide incentives for transformation of educational and R&D resources in industrial activities, stimulating interest in RTDI issues among entrepreneurs and promoting linkages between business and R&D organizations.

While according to the NUTS classification Latvia is considered to be a single region, at the national level country is divided into five planning regions: Riga, Zemgale, Kurzeme, Vidzeme and Latgale. There are **considerable differences in socio-economic development among these regions**. However, there are no systematic data on regional disparities in terms of innovation and knowledge economy potential. Only the capital city Riga stands out of the rest of the country, as most of RTDI activities, organizations and human resources are concentrated in Riga. The regional elements of the national innovation system are still very weak and underdeveloped.

Since 2004 EU Structural funds constitute an important source of RTDI funding in Latvia. It is possible to distinguish between two main types of Structural Funds funded innovation and knowledge measures in the programming period 2004-2006. Firstly, these are RTDI measures to support research and infrastructure in public research institutions, which heavily deteriorated during the last 15 years due to very low RTDI funding. Secondly, funding from the Structural Funds facilitated introduction of first national enterprise-oriented innovation support measures. As Latvia had no previous experience with such measures, the programming period 2004-2006 was also important learning process for public administration how to design innovation support measures, which are appropriate and interesting for enterprises.

One of the problems with draft documents and instruments for the next programming period 2007-2013 is that **very little attention is paid to the needs of specific sectors and regions**. The NSRF states that "one of the main economic policy objectives of Latvia is the establishment of an efficient and competitive structure of sectors". However, NSRF and OPs address the idea of "efficient and competitive structure of sectors" in a rather general way without specifying what kind of sectoral structure will be promoted in terms of the role of traditional sectors vs. high-tech or in terms of industrial/service/agricultural sectors. Moreover, as Latvia is a small economy with a limited number of sectors, specific needs and growth potential of concrete sectors (e.g., wood processing and food processing) could be addressed in some depth. Similarly, NSRF aims at "balanced territorial development". However, specific socio-economic development needs of concrete regions and territories are not identified and addressed despite existing disparities in regional development of Latvia.

1 Introduction

In March 2000, the EU Heads of State and government launched an ambitious political initiative for the European Union to become "the most competitive, dynamic, knowledge-based economy by year 2010". The agenda, which has become known as the 'Lisbon Strategy', has included a broad range of policies and regulatory measures to achieve this goal.

At the 2005 Spring Council of European Union, Heads of State and government concluded that all appropriate national and Community resources, including those of Cohesion Policy, should be mobilised in order to renew the basis of Europe's competitiveness, increase its growth potential and its productivity and strengthen social cohesion, placing the main emphasis on knowledge, innovation and the optimisation of human capital. In short, the Council recognised that while some progress has been made since 2000 in moving towards the goals enshrined in the Lisbon Strategy there remains a need to create "a new partnership for growth and jobs"[1]

In launching the discussion on the priorities for the new generation of cohesion policy programmes, the Commission published on 6 July 2005 draft Community Strategic Guidelines entitled "Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013". One of the specific guideline is to improve the knowledge and innovation for growth. More specific areas of interventions, which are proposed by the Commission, include: improve and increase investment in RTD, facilitate innovation and promote entrepreneurship, promote the information society for all, and improve access to finance.[2]

Innovation is an important factor in releasing the potential of the Lisbon agenda. The knowledge captured in new technologies and processes can drive growth and competitiveness and create new jobs. But knowledge must be treated as part of a wider framework in which business grow and operate. Developing knowledge-based economy requires adequate levels of investment in R&D, education, and ICT as well as creating a favourable environment for innovation.

Less developed areas of the Union are also confronted with this new competitiveness challenge. Increasing cohesion leads to improvements in living standards and the reduction of economic and social disparities, which depend to an important extent on increases in productivity. Increasing competitiveness implies economic change through the introduction of new technologies and new methods of production as well as the development of new skills. Innovation is at the heart of this process. Technological and organisational change and new demands generated by rising income levels and factors which create new economic opportunities and therefore, contribute to the growth potential of these countries.

---

[1] Communication to the Spring European Council (2005) "Working together for growth and jobs: A new start for the Lisbon Strategy", COM(2005) 141. Available at: http://www.europa.eu.int/growthandjobs/key/index_en.htm.

[2] Communication from the Commission (2005) "Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013", COM(2005) 0299. Available at: http://www.europa.eu.int/comm/regional_policy/sources/docoffic/2007/osc/index_en.htm.

Structural Funds are the main Community instruments to promote economic and social cohesion. In the past and current programmes, they have contributed to enhance the research potential and innovation in businesses and to develop the information society, particularly in the less developed areas. Cohesion policy has also promoted the development of regional innovation strategies and other similar initiatives in the field of the information society.

The overall objective of the strategic evaluation study, as set out in the terms of reference, is that the study should provide conclusions and recommendations for the future of Structural Fund and Cohesion policy. In particular, the Strategic Evaluation will be used to prepare the negotiations with the Member States for 2007-13, to prepare the next operational programmes and to provide input into the 4th Economic and Social Cohesion Report.

In line with the tender specifications, this country report addresses the following issues:

- An analysis of the current situation in the field of innovation and the knowledge-based economy at national and regional level. For the national level, performance is compared to the average performance for the EU25 Member States plus Romania and Bulgaria; and at regional level, where possible given available statistics, compared to a typology of EU regions;
- Lessons from the past and current experience of implementing innovation and knowledge economy measures in the Structural Funds, both in terms of priorities and strategic approaches; as well as in terms of operational implementation;
- Main needs and potential for innovation in the eligible regions drawing on available studies, strategy development and future and foresight studies; and
- Recommendations on main investment priorities for Structural Funds over the programming period 2007-2013 and their implications for regional development.

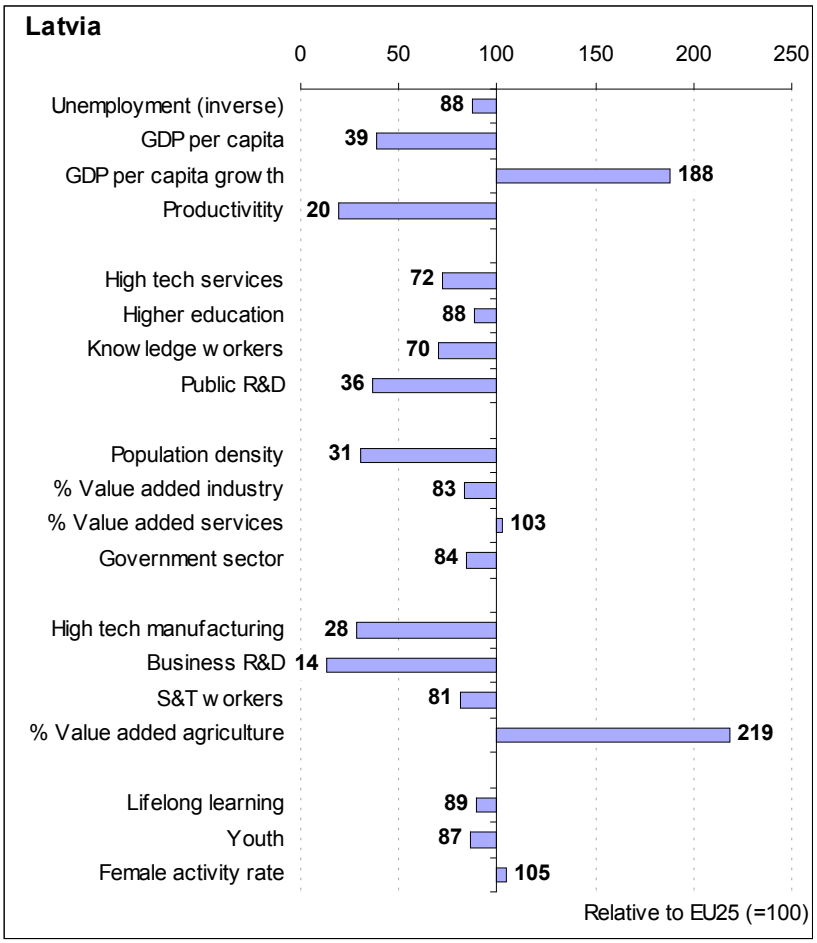
2 Investing in innovation and knowledge: a comparative overview of regional performance

This section provides a synthetic overview of the relative performance of the country, and where relevant main regions, with respect to the EU25 average for a number of selected key structural indicators of innovation and knowledge. The analysis aims to identify **main disparities and needs** at national, and wherever possible, regional level with a view to supporting the definition of priorities for future Structural Funds interventions (see sections 5 and 6 of this report).

2.1 Country overview: innovation and the knowledge economy

Exhibit 1 below provides a snapshot picture of the relative position of Latvia compared to the EU-25 average for a series of key knowledge economy indicators.

Exhibit 1: Relative country performance for key knowledge economy indicators



Source: calculations of MERIT based on available Eurostat and national data from 2002-2003 depending on indicator. Detailed definitions and data for each indicator are provided in Appendix B.

Latvia is a catching-up transition economy. Its GDP per capita is still one of the lowest in the EU, but its growth rates are among the highest in the EU. Since 2000 the

average annual growth of GDP was 7.7% and in 2004 – 8.5%[3]. These high growth levels are achieved due to the stable dynamics of domestic demand and the increase in exports. Steady growth has also taken place with respect to labour productivity. If in 1996, labour productivity per person employed was 32% of the EU-25 average, in 2004 it was already 42.8%[4].

The Exhibit 1 shows that Latvia is lagging behind the EU-25 average on most of the key knowledge economy indicators. Such results were also confirmed by the 2005 European Innovation Scoreboard, which ranked Latvia's innovation performance as 24th out of 25 Member states[5]. In Latvia, one of the main problems is the very low level of R&D expenditures. In 2004, total expenditures on R&D equalled 0.42% of GDP, of them 0.23% were public R&D investments, while the rest (0.19%) came from the private sector. Since 2005 government has started to increase public R&D funding. The new law on research activity adopted in 2005 stipulates that annual increase in public R&D funding should be 0.15% of GDP until it reaches 1% of GDP. Thus, in the recent years considerable increase in public R&D funding has taken place. If in 2003 the public R&D funding was approximately 16 MEUR, then three years later in 2006 it is already approximately 38 MEUR. In Latvia, a rather high share of GERD is financed from abroad. In 2002, 35.6% of GERD was financed from abroad[6]. However, due to increased public R&D funding in recent years, the relative share of funding from abroad has decreased to approximately 20% of GERD.

However, increased public R&D funding does not solve the problem of the very low R&D funding coming from the private sector. Enterprise sector embodies one of the major weaknesses of the national innovation system due its weak innovative capacities especially for the SMEs.[7] According to the results of Community Innovation Survey in 2001-2003, only 18.6% of enterprises in Latvia have engaged in innovative activities.[8] The industrial sector has been relatively more innovative than the service sector; in industrial sector 21.9% of enterprises had conducted innovation during this period, against 14.8% of enterprises in the service sector. One of the most innovative sectors has been the financial sector where 41.2% of enterprises have conducted innovation.

In 2003, more than half of the total innovation expenditure was spent on machinery and equipment acquisition and only about 10% of total innovation expenditure was spent on R&D. The structure of innovation expenditure suggests that innovative activities in enterprise sector are still at a rather early stage of development when purchase of machinery and equipment is a priority and, potentially, a precondition for R&D activities in the future. At 81%, Latvia has the highest share of non-innovative

[3] If not indicated otherwise, figures in this section are based on the following report: Ministry of Economics (2005) "Economic Development of Latvia", Report, December 2005, Riga.
[4] Eurostat http://epp.eurostat.cec.eu.int
[5] Available at: http://trendchart.cordis.lu/scoreboards/scoreboard2005/index.cfm
[6] Central Statistical Bureau of Latvia (2005) "Research and Development and Innovation Statistics", Statistical Data Collection, Riga.
[7] Watkins, A., Agapitova, N. (2002) *Creating a 21st Century National Innovation System for a 21st Century Latvian Economy*. World Bank.
[8] Central Statistical Bureau of Latvia (2005) "Research and Development and Innovation Statistics". Statistical Data Collection. Riga.

firms in the EU.[9] The low innovation capacity of companies is explained by the lack of such elements as basic management competence, insight on internal barriers to growth, knowledge of the innovation-supporting resources available as well as collaborative relations with external partners.[10] While innovative companies mention the lack of finance sources, too high innovation costs, too high economic risk, lack of qualified personnel, and organisational rigidities among factors hampering innovation. Non-innovative companies often point to market conditions and prior innovations that do not push for innovation.[11]

The National Lisbon Programme for Latvia 2005-2008[12] emphasises that one of the main goals of Latvia's economic policy is to establish an effective and competitive sectoral structure. According to the Programme, the present dominant model of Latvia's economy, which is characterised by using the advantages of cheap labour and available natural resources, as well as manufacturing products with low value added, will not be able to ensure high economic development rates and promote the achievement of higher prosperity level in the future.

The structure of economy is dominated by low- and medium-tech sectors. In 2004, the share of high-tech exports in total Latvian exports was 3.2%, which is well below the EU-25 average of 18.2%[13]. In 2004, 30.5% of Latvia's commodity exports were wood and wood products, 14.1% - metals and metal products, 11.4% - light industry products, 9.7% - agricultural and food products, 7.9% - products of chemical industry and plastics, 7.9% - machinery, 5.3% - mineral products, 2.5% - transport vehicles and 10.7% - other products. Consequently, employment in high- and medium-high-technology manufacturing sectors is well below EU average. In 2004, 24.6% of total employment in Latvia was employed in high- and medium-high-technology manufacturing sectors, while the EU-25 average was 33.14%[14]. Similarly, in 2004, employment in knowledge-intensive service sectors in Latvia at 1.34% of total employment is lagging behind the EU-25 average of 5.7%[15].

Another problem addressed in the National Lisbon Programme is the incompatibility of the education structure with long-term labour market requirements. Although the supply of science and technology graduates has been growing since 1999 and in 2003 reached 8.6 per 1000 of population aged 20-29 years, it is still bellow the EU-25 average (12.3) and does not satisfy demand of national research and industry[16]. Participation in life-long learning is also below the EU-25 average. In 2005, 7.6% of Latvian adult population aged 25-64 participated in education and training, while in the EU-25 the average share was 10.8%[17].

---

[9] Arundel, A., Hollanders, H. (2005) "Innovation Strengths and Weaknesses". Available at www.trendchart.org

[10] RIS Latvia (2004) *The Latvian Innovation System: Strategy and Action Plan 2005-2010*. Riga. pp. 9-15.

[11] Central Statistical Bureau of Latvia (2005), op cit. p.17.

[12] Available at: http://www.em.gov.lv/em/2nd/?cat=11619

[13] Eurostat http://epp.eurostat.cec.eu.int

[14] Eurostat http://epp.eurostat.cec.eu.int

[15] Eurostat http://epp.eurostat.cec.eu.int

[16] Eurostat http://epp.eurostat.cec.eu.int

[17] Eurostat http://epp.eurostat.cec.eu.int

The main problems mentioned above, i.e., low R&D funding, little interest in RTDI in enterprise sector, sectoral structure of economy based on cheap labour and natural resources, etc., are addressed in the National Lisbon Programme 2005-2008. In order to address these challenges, the Programme defines its main tasks in area of knowledge and innovation as follows: increase public investment and foster private investment in R&D, ensure renewal of intellectual potential in science, promote transfer of knowledge and technologies in production, etc.

2.2 Regional disparities and recent trends

In order to analyse and describe the knowledge economies at regional level in the EU, the approach adopted was to reduce and condense all relevant statistical information available for a majority of regions. The approach involved firstly reducing the information from a list of selected variables into a small number of factors by means of factor analysis. These factors are:

- Public Knowledge (F1): human resources in science and technology combined with public R&D expenditures and employment in knowledge intensive services is the most important or common variables in this factor. Regions with large universities will rank high on this factor.
- Urban Services (F2): The most important variables for this factor are value-added share of services, employment in government administrations and population density. A key observation is that academic centres do not necessary co-locate with administration centres.
- Private Technology (F3) This factor is most strongly influenced by business R&D, occupation in S&T activities, and employment in high- and medium-high-tech manufacturing industries.
- Learning Families (F4). The most important variable in this factor is the share of the population below the age of 10. The Learning Families factor could also be interpreted as an institutional factor indicating a child-, learning- and participation- friendly environment, or even a 'knowledge-society-life-style' based on behavioural norms and values that are beneficial to a knowledge economy.

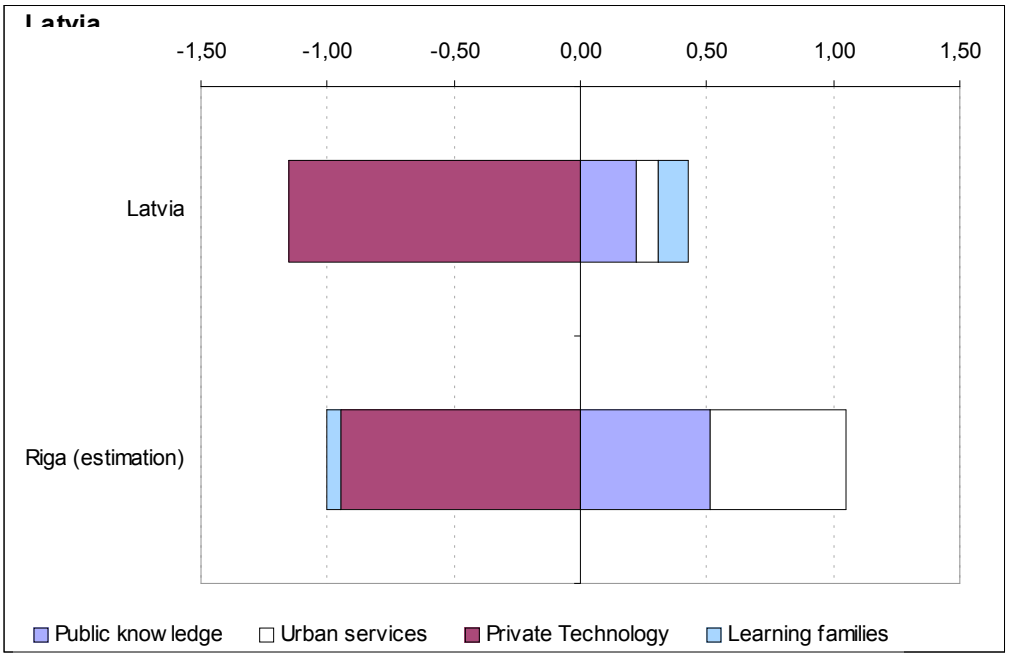
In a second step, the 200 plus EU27 regions were grouped into 11 types of regions (see appendix A) displaying similar characteristics by means of a cluster analysis. In the case of Latvia the regions are grouped as follows (see Exhibit 2):

- **Latvia** as a single region is classified as a member of cluster **"Eastern (or Manufacturing) Cohesion"**. This cluster covers regions where manufacturing industries is the dominant sector, whereas services and agriculture are rather small sectors. However, Latvia in some respects differs from this cluster, as for Latvia Public Knowledge score is higher, while Private Technology score is lower than for other regions in this cluster.
- However, as in most other smaller countries, the capital city **Riga** stands out from the rest of country and could be earmarked as a member of cluster **"Southern (or Services) Cohesion"**. Southern cohesion regions mostly show low scores on the Private Technology factor, they hardly have any high-tech manufacturing nor business R&D, and the share of manufacturing industry in value added is very limited. Services are the most important sector. In the case of Riga, financial

services may substantially contribute to the high score on this factor. In some respects Riga significantly differs from this cluster as for Riga population density is high but agriculture is a minor sector.

The general Latvian characteristics are lower scores in Private Technology, as well as higher scores in Public Knowledge and Urban Services. Very low scores in Private Technology can be explained by de-industrialization process during the social and economic transformation in the 1990s.

Exhibit 2: Regional factor scores per region



Source: MERIT. The bars are stapled factor-scores showing the deviation (1=standard deviation) per factor from the average of 215 EU regions (0.00). The longer the bar, the bigger is deviation.

While according to the NUTS classification Latvia is considered to be a single region, at the national level country is divided into five planning regions: Riga, Zemgale, Kurzeme, Vidzeme and Latgale. The planning regions have established their own development agencies aimed at the promotion of balanced and sustainable development, its planning and implementation. These agencies develop their own regional development strategies and coordinate and promote the elaboration, implementation, monitoring and evaluation of support measures for regional development.

There are considerable differences in socio-economic development among five regions. While the distribution of population in the 4 planning regions outside Riga is around 15% in each, the rest 40% reside in the capital of Latvia. The capital city (Riga) and its surroundings produce 68% of GDP. In 2002, GDP per capita in the capital city was 182% against the national average, while in the surroundings of the capital city it was 66% against the national average, in western region Kurzeme – 83%, in north-east region Vidzeme – 58%, in central region Zemgale – 56%, but in the poorest eastern region Latgale – 48% against the national average[18]. Similar regional disparities can be seen with respect to unemployment. In 2003, average unemployment rate in Latvia was 8.6% but its regional distribution was quite uneven: in Riga - 5%, in Vidzeme, Kurzeme and Zemgale – around 9%, but in Latgale – 17.8%[19].

There are no systematic data on regional disparities in terms of innovation and knowledge economy potential. Only the capital city Riga stands out of the rest of the country as most of RTDI activities, organizations and human resources are concentrated in Riga. This also explains higher score of Riga in Public Knowledge in the above mentioned Exhibit 2. Rough estimates suggest that only around 10% of all R&D activities in Latvia take place outside Riga, e.g., in 2003, 622 out of a total 699 project grants distributed by the Latvian Council of Science were carried out in Riga; only 20% of professorship are located out of Riga; and 124 out of 145 Latvian projects within the 5th Framework Programme were carried out in Riga[20].

Despite the fact that there are several major higher educational establishments (Liepaja Academy of Pedagogy, Ventspils University College, Vidzeme University College, Latvia University of Agriculture, Rezekne Higher Education Institution, and Daugavpils University) and a range of industrial and technology parks in the regions (e.g., Zemgale Technology Park (Jelgava), Jekabpils Technology Park, Madona Business Innovation and Information Centre, Latgale Machinery Engineering Technological Centre), the regional elements of the national innovation system are still very weak and underdeveloped[21]. Most of the accredited higher education establishments (36 in 2005) are located in Riga. Similarly, according to an innovation survey, more than half of the innovative enterprises are located in Riga and more than half of total expenditure for innovation is spent in Riga[22]. However, despite the fact that Riga scores well above average in Public Knowledge, it is still well below average in Private Technology which demonstrates that educational and R&D potential is not transformed into economic and especially industrial activities.

[18] Ministry of Economics (June 2005) *Economic Development in Latvia*. Riga.
[19] Central Statistical Bureau of Latvia (2004) *Latvia's Regions in Figures 2004*, Riga, p.45.
[20] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia*. European Commission, Enterprise Directorate-General, p.6.
[21] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia*. European Commission, Enterprise Directorate-General, p.6.
[22] Central Statistical Bureau of Latvia (2003) *Innovation Survey Results*. Statistical Bulletin, Riga, pp.39-40.

Exhibit 3: recent trends per region in key indicators

		Unemployment	Per capita GDP	Industry share	Agriculture share	Population density	Tertiary education	R&D intensity
		1996-2003	1996-2002	1996-2002	1996-2002	1996-2002	1999-2002	1996-2002
		%-pnt ch.	% growth	%-pnt ch.	%-pnt ch.	% growth	%-pnt ch.	%-pnt ch.
EU25		--	--	--	--	--	--	--
Latvia		-3,80	8,96	-5,70	-2,87	-6,22	1,79	0,00
Latvia	LV	-3,80	8,96	-5,70	-2,87	-6,22	1,79	0,00

Source : MERIT based on Eurostat data for period indicated

Problems with transformation of knowledge in growth potential are also demonstrated in Exhibit 3. For Latvia as a whole despite the increase in educated population R&D expenditures did not increase for a long time. Share of both agriculture and industry has shrunk in favour of services.

2.3 Conclusions: innovation and knowledge performance

To sum up, one of the main characteristics of the innovation and knowledge economy potential in Latvia is the discrepancy between above average score in Public Knowledge and below average score in Private Technology. Thus, one of main challenges for RTDI policy-makers is to provide incentives to transform educational and R&D resources into industrial activities, stimulating interest in RTDI issues among entrepreneurs and promoting linkages between business and R&D organizations. Another characteristic of Latvia is above average score on Urban Services. However, the needs of service sector are largely neglected in RTDI policy which still maintains a traditional focus on industrial sector.

In Exhibit 4 distinction is made between Riga and the rest of Latvia because, while most of RTDI resources are concentrated in Riga, other 4 regions (Vidzeme, Kurzeme, Latgale and Zemgale) are lagging behind on innovation and knowledge economy performance and face similar problems and needs with respect to building up RTDI potential.

Exhibit 4: summary of key disparities and needs per region

Region / group of regions	Key factors explaining disparity of performance (weaknesses)	Key needs in terms of innovation and the knowledge economy
Latvia	• Inadequate infrastructure • Brain-drain • Underdeveloped entrepreneurship	• Strengthen innovation friendly environment • Set up institutional and financial pre-conditions • Reinforce RTDI organisations and human capital
Riga	• RTDI resources have not been utilized for economic development • Insufficient private R&D expenditure • Incompatibility of educational structure with labour market requirements	• Developing cooperation between business and R&D • Promotion of technology transfer • Incentives for business to invest in R&D

3 Innovation and knowledge: institutional context and policy mix at national and regional levels

Structural Fund support for innovation and knowledge is contingent on and seeks to generate strengthen the existing national (and/or regional) innovation system[23] in each Member State. In particular, institutional, legal and financial factors in the innovation system can limit the potential for certain types of intervention. Moreover, within the framework of the EU "Lisbon objectives", Structural Fund interventions are expected to complement and provide added value to national (or regional) policy framework. In some Member States, Structural Fund interventions in favour of innovation and knowledge are marginal with respect to the national investment and policy effort, in others Structural Funds provide a main source of funding for such interventions. In both cases, there is a need to identify relevant national and EU policies, which can have an impact on decisions on funding priorities.

3.1 Institutional and legal framework for innovation and the knowledge economy

This section of the report appraises two broad factors that condition the potential for coordinated intervention of EU and national (regional) policies in favour of innovation and knowledge:

- The first concerns the organisational structures of public and semi-public bodies responsible for the design, implementation and monitoring of innovation and knowledge economy policies. In particular, the analysis considers the responsibilities for funding or managing specific types of measures liable to be considered for support under the Structural Funds;
- The second concerns the institutional, legal and financial frameworks, which condition the linkage of national (regional) financing with EU financing.

The responsibility for developing and promoting R&D and innovation policies in Latvia is currently divided between several main institutions. R&D related issues are mainly dealt with at the Department of Higher Education and Science of the **Ministry of Education and Science**, while the **Ministry of Economics** with its Innovation division holds the overall responsibility for elaborating and implementing the innovation policy. In addition, the Latvian Investment and Development Agency is currently responsible for administering state support programmes to attraction of EU Structural Funds and for implementing a range of innovation policy measures.

Over the last couple of years one can trace an increased awareness, coordination and implementation of innovation policy in Latvia, though the overall innovation governance system is still experiencing a range of inefficiencies. Its main inefficiency is insufficiant coordination among stakeholders. In order to improve innovation governance, by 2007 the Ministry of Economics is planning to establish a technology

[23] The network of organisations, individuals and institutions, located within or active within national or regional boundaries, that determine and shape the generation, diffusion and use of technology and other knowledge, which, in turn, explain the pattern, pace and rate of innovation and the economic success of innovation.

agency, the main task of which would be to encourage private sector investment in applied research, promote transfer of technologies and ensure efficient introduction of research results into production[24].

The **Ministry of Education and Science** supervises the "Market Oriented Research Support Grants" (innovative development projects on a co-financing basis) and state research programmes. In 2006, the Ministry plans to establish a Higher Education and Science Administration to separate policy making and policy implementation functions.

The **Latvian Council of Science** plays an important role as a semi-governmental decision-making and advisory body, in charge of the advancement, evaluation, financing and coordination (including international cooperation) of scientific research in Latvia. It is expected that according to the new Law on Research Activity adopted in 2005 the role of the Council will be decreased in the future.

There are several other advisory bodies that are part of national innovation system: the Latvian Academy of Sciences (advices to the Parliament and the parliamentary Commission on Education, Science and Culture and its "Futures sub-commission"), the National Economy Council and Advisory Board of Scientists (advices to the Ministry of Economics), as well as the Latvian Chamber of Commerce and Industry and the Latvian Employers' Confederation.

In addition, a number of entities participate in the **innovation policy implementation**: Latvian Investment and Development Agency, Mortgage and Land Bank of Latvia, Latvian Guarantee Agency, Latvian Technology Centre, IRC of Latvia, Latvia Technology Park (affiliated to the Riga Technical University), technology transfer centres, Latvia Electrical Industry Business Innovation Centre (LEBIC), Universities, Higher Education institutions and research institutes.

Main research performers in Latvia are public universities and research institutes. New policy documents (e.g., National Development Plan 2007-2013) envisage concentration of basic research in universities, despite the fact that strong research institutes which are not attached to universities exist in Latvia (e.g., Institute of Organic Synthesis).

[24] National Lisbon Programme for Latvia 2005-2008, Latvia 2005, p.17.

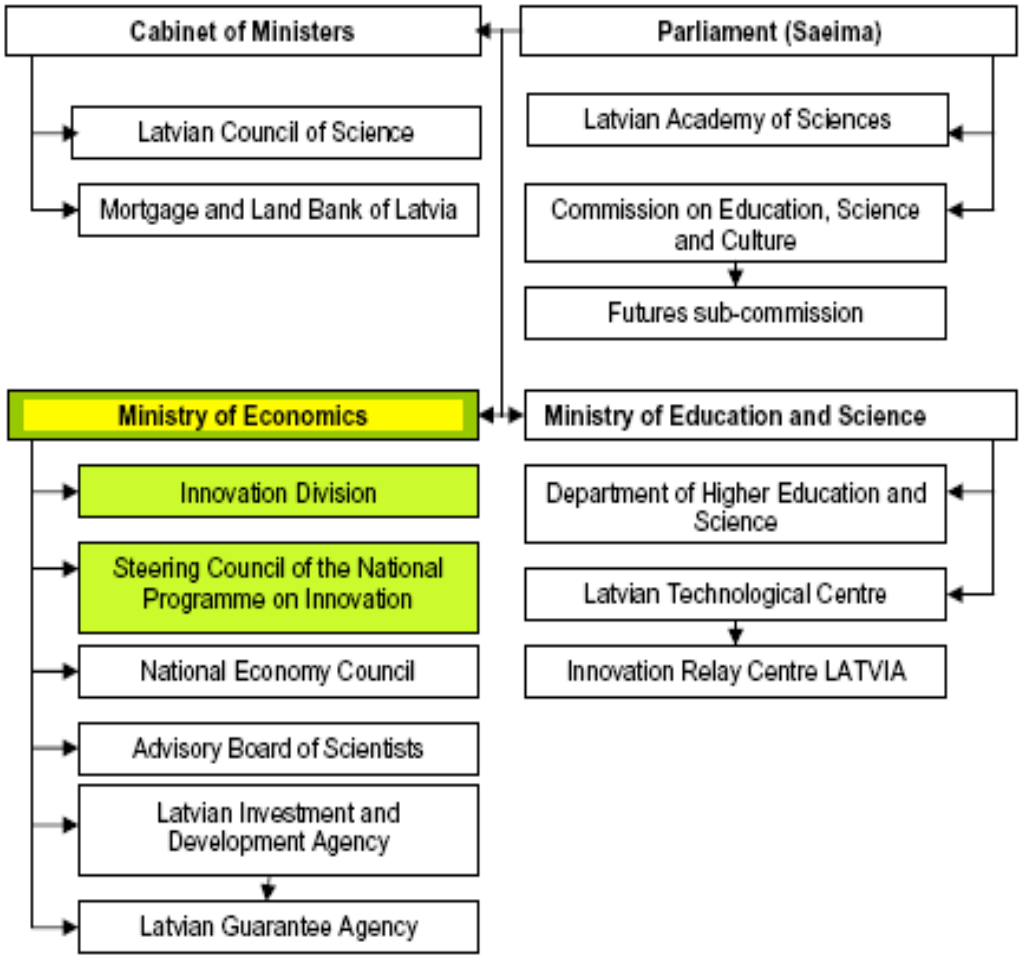
Exhibit 5: main organisations per policy area.

	Type of organisation	
Policy objectives	**National (&/or regional) public authorities and agencies**	**Key private or non-profit organisations**
Improving governance of innovation and knowledge policies	• Ministry of Economics • Ministry of Education and Science	• Universities
Innovation friendly environment	• Ministry of Economics • Ministry of Education and Science • Latvian Investment and Development Agency	• Latvian Chamber of Commerce and Industry • Latvian Employers Confederation
Knowledge transfer and technology diffusion to enterprises	• Ministry of Economics • Ministry of Education and Science	• Technology transfer centres • Latvian Technology Centre • IRC Latvia
Innovation poles and clusters	• Ministry of Economics	
Support to creation and growth of innovative enterprises	• Ministry of Economics • Latvian Investment and Development Agency • Latvian Guarantee Agency • Mortgage and Land Bank of Latvia	• Latvian Technology Centre
Boosting applied research and product development	• Ministry of Economics • Latvian Investment and Development Agency • Ministry of Education and Science	• Universities • Research institutes and centres
Investment in basic research capacities	• Ministry of Education and Science • Latvian Council of Science	• Universities

Source: study team based on national/regional policy documents, TrendChart reports, OECD reports, etc.. See appendix C for a detailed definition of the policy categories.

National Innovation System is shown in the exhibit and in the diagramme hereafter.

Institutional Framework Organigramme[25]*:*



Regional policy is largely maintained within the framework of the national development strategy, which includes among its goals the regional development by decreasing and eliminating the unfavourable regional differences. Regional matters are primarily dealt by the **Ministry of Regional Development and Local Government**. The **State Regional Development Agency** established on the basis of a Regional Fund in 2004 under the supervision of the ministry is in charge of promoting favourable changes in the social and economic conditions in the whole territory of Latvia, managing and implementing national and international programmes of regional development, distributing the Regional Fund resources, promoting studies on regional development and providing information on state support within the regional development programmes.

[25] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia. European Commission, Ent*erprise Directorate-General, p.4

Major weakness in innovation policy governance is lack of coordination between the Ministry of Economics and Ministry of Education and Science, which leads to lack of complementarities and synergies between enterprise oriented innovation policy and science policy oriented towards research institutes and universities. Moreover, funding for research is allocated to five ministries and these ministries do not coordinate their activities. There have been several attempts to establish policy coordination mechanisms. Two main coordinating bodies established so far have been the Steering Council of the National Programme on Innovation (headed by the Minister of Economics) and the Supervisory Board of the Lisbon Strategy (also chaired by the Minister of Economics and consisting of other responsible Ministers, members of the Parliament, as well as representatives of local governments and social partners). However, these coordinating institutions have mostly dealt only with the respective policy documents and positive synergies between different policy fields and initiatives have not been achieved. Moreover, main activities of above mentioned institutions have largely ceased soon after their establishment. The new draft Guidelines for Science and Technology Development 2006-2013 envisage to create a new consultative and coordinating institution – Science and Technology Development Strategy Council chaired by the Prime Minister.

At the moment, one of the concerns is that ministries might lack capacities to develop Operational Programmes and National Programmes for the next programming period 2007-2013. The Programmes still will have to be negotiated with the European Commission and it might be the case that operations might not start with the beginning of 2007.

3.2 Policy mix assessment

This section provides a summary overview and analysis of the national and regional policy mix in favour of innovation and knowledge in which the Structural Fund interventions take place. The analysis is conducted with respect to seven broad categories of objectives of innovation and knowledge policies (see appendix C for an explanation of each category).

Measures identified per category of the policy objectives are then further sub-divided in terms of the direct beneficiaries of funding (or legislative) action. To simplify, the report adopts three broad types of organisation as targets of policy intervention:

- Policies supporting academic and non-profit knowledge creating institutions;
- Policies supporting intermediary/bridging organisations involved in innovation support, technology transfer, innovation finance, etc.;
- Policies supporting directly innovation activities in private sector.

The matrix below summarises the current policy mix in at national level. A simplified coding system indicates the intensity of support (financial or political priority) for different policy areas and targets.

Exhibit 6: Policy mix for innovation and knowledge

	Target of policy action		
Policy objectives	**Academic /non-profit knowledge institutions**	**Intermediaries/bridging organisations**	**Private enterprises**
Improving governance of innovation and knowledge policies	• National Programme for Innovation 2003-2006 • RIS Latvia	• National Programme for Innovation 2003-2006 • RIS Latvia	• National Programme for Innovation 2003-2006 • RIS Latvia
Innovation friendly environment	• Modernisation of academic system	• Support for consultancy	• Support for training of employees • Support for the modernisation of business infrastructure • Support for consultancy and participation in exhibitions • Programme e-Latvia
Knowledge transfer and technology diffusion to enterprises	• Technology transfer centres	• Technology transfer centres	• Technology transfer centres
Innovation poles and clusters	• Support for clusters		• Support for clusters
Support to creation and growth of innovative enterprises	• Market oriented research •	Market oriented research	• Market oriented research • Risk capital • New product development
Boosting applied research and product development	• State research programmes • Applied research		• State research programmes
Increased investment in basic research capacities	• Modernisation of scientific infrastructure		

Top policy priority
Secondary priority
Low priority

Source: calculations of study team based on national/regional policy documents, TrendChart reports, OECD reports, etc.

Improving governance of innovation and knowledge policies

The framework for governance of innovation and knowledge policies has been set out in the National Programme for Innovation 2003-2006. Governance issues are also addressed in other documents and policy measures: National Programme for Innovation and action plan for 2005; next national programme for Innovation 2006-2010; the promotion of science competitiveness focusing on the transfer of applied research results into innovation activities; the RIS Latvia project[26]; the draft of the Strategy of Science, technological development and Innovation of the Commission of

[26] RIS Latvia (2004) *The Latvian Innovation System: Strategy and Action Plan 2005-2010.* Available at: http://www.innovation.lv/ris/Latv/Dokum/RIS_Strategy_Latvia.pdf

Strategic Analysis[27]. Still remaining weaknesses are the following: weak coordination mechanisms, insufficient integration among major policy areas (i.e., science and innovation), inappropriate financial innovation support schemes, underdeveloped evaluation culture.

Innovation friendly environment

Establishing an innovation-friendly environment is becoming an important policy subject. There are several new measures established, which are co-funded from the Structural Funds. These measures are: Support for training, retraining and continuous education of employees; Support for the modernisation of business infrastructure; Support for consultancy and participation of companies in international exhibitions and trade missions; Programme e-Latvia; Modernisation of the academic system. One of the major challenges is the need to invest more in ICT.

Knowledge transfer and technology diffusion to enterprises

Issues of knowledge and technology transfer policy are of great interest for Latvian policy makers. The innovation action plan for 2005 envisages the development of a technology transfer network (13 centres). In 2005, the first technology transfer centres were established. However, there have been a low number of applications for the programme "Support for development of new products and technologies" aimed at the promotion of international transfer and commercialisation of research results and technologies.

Innovation poles and clusters

The first cluster support initiative in Latvia was the project "Support for Industrial Cluster Restructuring" (2000-2001). Within the initial phase of this project numerous areas of business activity were analysed identifying fields where Latvia had good opportunities for the development of of enterprise clusters. The project was funded by PHARE programme. The aim of the project was to raise awareness of the concept of clusters and provide consultative support to individual clusters. On the basis of initial analysis, four potential enterprise clusters were chosen for futher consultative support: information systems cluster, forest cluster, composite material cluster, engineering cluster. The most successful of these have been information systems cluster.

New activities to promote and develop innovative clusters are envisaged in the National Lisbon Programme for Latvia 2005-2008 and the draft National Strategic Reference Framework (NSRF) 2007-2013. National Lisbon Programme states that the goal of providing support to development of clusters is to stimulate increased competitiveness and productivity of enterprises, promoting their mutual cooperation and collaboration with educational, scientific, research and other related institutions. According to the Programme, it is planned to conduct a study on the potential of the cluster creation and, through a tender procedure, provide support for the development of three most perspective clusters. On the basis of sectoral studies, draft NSRF identifies several potential clusters: forest industry, chemical industry (pharmaceuticals), metal industry, transport and logistics, communications (ICT), etc.

Support to creation and growth of innovative enterprises

For the time being measures attributable to meeting this challenge include support to market-oriented research, the national programme aimed to encourage risk-taking in

[27] Grens, E. (2004) "Science in Latvia: Potential and Possibilities". In: Commission of Strategic Analysis. *Yearbook of Politics: Latvia 2004*, pp. 104-113. Riga: Zinātne Academic Publishers.

the start-up of innovative businesses through provision of risk capital, and the state support programme aimed at promotion of new product development and commercialisation by companies[28]. There is a need for more efforts to increase the level of innovation activity in enterprises and for improving national capacities in transferring research results into innovation. Although various policy documents envisage stimulation of cooperation between academic research and private sector in the field of new technology development additional new efficient measures have still to be developed. Only a balanced and impartial analysis-based financial policy will strengthen the still weak contact and cooperation between science and business.

Boosting applied research and product development

In 2005, activities have been undertaken to promote scientific competitiveness focusing on the transfer of applied research results into innovation activities: support for the development of new products and technologies; support to research in priority field (5 state research programmes: Organic synthesis and biomedicine, Material science, Information technologies, Forestry and wood processing technology, and Latvian studies)[29].

The Ministry of Education and Science has also launched an open competition for applied research co-funded by the European Regional Development Fund. This support is aimed at state research institutions in the following priority fields: information technologies, organic synthesis and biomedicine, material sciences, forestry science and wood-pulp technologies. Eligible costs include experimental research work, protection of intellectual property generated during the project implementation, project management and attraction of resources prerequisite for the project as well as informative enterprises for the promotion of research results.

One of the issues addressed in policy discussions is the need to promote and strengthen protection of intellectual property rights (IPR). At the moment patenting activity is very low. According to the European Innovation Scoreboard 2005, Latvia has only 6 EPO patents per million inhabitants against the EU average - 133.6 and only 0.3 USPTO patents per million inhabitants against the EU average – 60. The main reasons for low patenting activity are the weakness of industrial sector, which might have been interested in IPR protection, and the lack of resources of research organisations to cover patenting costs.

Increased investment in basic research capacities

In 2004 the national programme "Modernisation of scientific infrastructure in public research institutes" co-funded by the EU Structural funds was launched in Latvia. The funding allocated for this programme is commensurable with the former R&D expenditure from the state budget[30]. The programme aims to promote international competitiveness of research institutes of Latvia, create favourable environment and preconditions for innovative entrepreneurship, modernise R&D related infrastructure.

---

[28] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia. European Commission, Ent*erprise Directorate-General, p.28

[29] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia*. European Commission, Enterprise Directorate-General, p.25

[30] Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia*. European Commission, Enterprise Directorate-General, p.34

3.3 Conclusions: the national innovation system and policy mix

It can be concluded that existing policy mix address most of the major disparities and needs identified in chapter 2. New measures have been developed to address problems of underdeveloped entrepreneurship and to promote innovation friendly environment. Activities have been undertaken to promote scientific competitiveness focusing on the transfer of applied research results into innovative activities. Still remaining weaknesses are the following:

- The very weak business involvement in the innovative development of the country;
- Weak coordination mechanisms, insufficient integration among major policy areas (i.e., science and innovation), inappropriate financial innovation support schemes, underdeveloped evaluation culture;
- Although new measures for technology transfer have been established, the problem of commercialisation of research and patenting has not been adequately solved so far;

Although various policy documents envisage stimulation of co-operation between academic research and private sector in the field of new technology development, additional new efficient measures still have to be developed.

As demonstrated in exhibit 6 above attention of policy makers has recently been concentrated on knowledge transfer and innovation friendly environment. Problems in other areas, e.g., RTDI governance and innovation poles have been discussed but implementation of adequate measures is still lagging behind. However, it has to be emphasised that policy mix is still in a rather early stage of development when important problems and shortcomings are identified and appropriate measures to address them are discussed and dynamically developed, especially after considerable increases in public R&D funding in recent years.

Exhibit 7 summarises the main opportunities for funding, in terms of current and future priorities, as well as the most important constraints which limit effectiveness of intervention.

Exhibit 7: Key opportunities and constraints for investment by the Structural Funds

Policy objectives	Opportunities for Community funding (national priorities)	Constraints or bottlenecks (factors limiting Community funding)
Improving governance of innovation and knowledge policies	• Strengthening policy making and administrative capacities at national and regional levels	• Weak coordination • Lack of a management control system • Under-developed evaluation culture
Innovation friendly environment	• Innovation financing • Development of ICT • Opportunities for lifelong learning	• Backwardness of the higher education system • Lack of dedicated infrastructure for technology transfer
Knowledge transfer and technology diffusion to enterprises	• Development of university liaison and transfer offices • Funding of infrastructure and services of technology parks, innovation centres	• Lack of coherent and professional strategy by the technology transfer mechanisms • Low transfer capacities of R&D organisations • Low demand by firms • Lack of qualified personnel
Innovation poles and clusters	• To promote development of innovative clusters	• High competition in clusters
Support to creation and growth of innovative enterprises	• Incubators and training related to entrepreneurship are still in an embryonic phase of development • Expanding provision of risk capital • Direct support to innovative SMEs	• Lack of policies to attract external investors • Stimulation of universities to raise private funding and develop new enterprises from research
Boosting applied research and product development	• Increasing perception of the need of public and business RTD • Create mechanisms to promote R&D results produced in markets • Research infrastructures • Increase international collaborations	• Low demand by firms • Low commitment and focus by universities and PRO's in industry – science collaboration
Investment in basic research capacities	• Research infrastructures • National priorities research programmes	• Weak commercialisation of research results • Artificial concentration of basic research in universities

4 Structural Funds interventions to boost innovation and create a knowledge economy: 2000-2006

This section of the reports provides an analysis the patterns of Structural Fund expenditures in the fields of innovation and knowledge-based economy during the current programming period (2000-2006 for EU-15 or 2004-2006 for the new Member States). It examines the patterns from both a strategic point of view (the policy mix pursued by the Structural Funds programmes) and at an operational level (consumption of funds, management of innovation measures, indications of relative effectiveness of measures, case studies of 'good' practice).

4.1 Strategic framework for Structural Fund support to innovation and knowledge

4.1.1 Strategic approach to innovation & knowledge in Structural Fund programmes

Financial aid from the European Union Structural funds (EU SF) became available in Latvia as of 2004. Accordingly the first planning for the utilisation and management of these financial resources was embodied in the **Development Plan of Latvia for 2004-2006** elaborated by the Ministry of Finance and approved by the Cabinet of Ministers on 18 December 2003. Latvia's main goals defined in the Development Plan are the promotion of a balanced development of the country, development of infrastructure, and development of business environment and human resources.

As of 1 May 2004 this plan officially became the **Single Programming Document** (SPD) Objective 1 Programme for Latvia 2004-2006[31] - and officially approved on 17 June 2004 and on 30 June 2004 it was the turn of the the Programme Complement (PC)[32]. Since Latvia is regarded as a single NUTS II region, the whole territory is eligible for Objective 1 SF support in the framework of the SPD cobining funds from all four European Union SFs (ERDF, ESF, EAGGF and FIFG).[33]

According to the SPD document "this *can make an important contribution to creating the conditions for new, sustainable and balanced socio-economic growth in Latvia. [..] Even if high priority will be given to support priorities of upgrading basic infrastructure necessary for fostering development of the country, the SPD is giving a start to unprecedented investments in promoting entrepreneurial activity and human resource development. The emphasis put on the human resource dimension of the SPD reflects the long-term objective of the development of Latvia – to create 'a competitive, inclusive, knowledge based economy'*".[34] Furthermore, "*when aiming at this long term objective the Structural Funds intervention in the first programming period should be concentrated on the creation of the necessary environment for the transition towards knowledge based economy. It implies providing necessary*

[31] Available at: http://www.esfondi.lv/upload/spd2003_12.pdf
[32] Available at: http://www.esfondi.lv/upload/tiesibu_akti/PC%20-%202004%2005%2014.pdf
[33] www.esfondi.lv
[34] *Latvia: Single Programming Document, Objective 1 Programme 2004-2006* (2003) Riga. p.13.

investments in the business promotion, human resources and infrastructure hence creating favourable conditions for individuals and companies to access knowledge and utilise it to the maximum benefit".[35]

The Single Programming Document altogether contains five **priorities**:

1 *Promotion of sustainable development*
2 *Promotion of business activity*
3 *Development of human resources*
4 *Promotion of development of rural areas and fisheries*
5 *Technical assistance*.

Though funding from the ERDF (375 MEUR) and ESF (134 MEUR) is provided for implementation of the first 3 priorities. Specific measures implicitly or explicitly geared towards **promotion of innovation and knowledge** can be identified:

- under priority 2 (209 MEUR), measures include: (1) support to development of innovation, (2) business infrastructure development, (3) enhancing business support measures for SMEs, (4) access to finance for SMEs, and (5) development of public research
- under priority 3 (175 MEUR), measures include (1) promotion of employment, (2) development of education and continuing training, and (3) combating social exclusion.

Funding for these two priorities make up 25.00% for the promotion of business activity and 21.22% for human resources of the total EU SF allocations in 2004-2006.[36] It should also be noted that the biggest part of financing (32.6%) is envisaged for infrastructure projects.[37]

The calculations presented below in the two exhibits below are based on the allocation of Structural Fund budgets based on the intervention code classification. For practical purposes, the calculation of financial resources allocated to innovation and knowledge has been limited to the RTDI codes:

- 181 Research projects based in universities and research institutes
- 182 Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes
- 183 RTDI Infrastructure
- 184 Training for researchers

Additional calculations based on broader definitions of innovation are presented in Appendix D.

[35] Ibid, p 154.
[36] www.esfondi.lv
[37] Ministry of Economics (December 2005) *Economic Development of Latvia*. Riga. p.89.

Exhibit 8: Overall allocation of resources at an objective 1 and 2 level (planned figures in Euro)

Objective	Total cost	Structural funds			National funds	
		Total	ERDF	ESF	Public	Private
RTDI INTERVENTIONS						
Objective 1	25 022 720,00	18 767 040,00	18 767 040,00	0,00	6 255 680,00	0,00
Objective 2	-	-	-	-	-	-
TOTAL COHESION POLICY						
Objective 1	856 069 495,00	625 568 826,00	369 202 826,00	138 698 000,00	219 793 266,00	10 707 403,00
Objective 2	-	-	-	-	-	-

Source: programming documents and financial data provided by DG REGIO

As displayed in exhibit 8, the total allocation of **resources for RTDI interventions** is estimated at 25 MEUR, which makes up 2.9% of total allocations of the SFs in Latvia for the period 2004-2006. In 2006, SF allocations for RTDI represent approximately 10% of total RTDI funding in Latvia.[38] In most RTDI interventions the financing amount from the EU SFs is 75% and 25% are financed by the national budget and budgets of local governments.[39] The overall contribution of SF support for RTDI policy at national level is quite considerable in Latvia and has boosted a range of important initiatives in the field that otherwise might not have been developed and implemented. As noted in a recent report, the SPD "gives a start to unprecedented investments promoting innovative entrepreneurial activities and human resource development".[40]

Exhibit 9: Allocation of resources (Euro)

Absorption capacity of RTDI interventions

OBJECTIVES	ALLOCATED	DISBURSED TOTAL SF	EXPENDITURE CAPACITY
Objective 1	18 767 040,00	0,00	0,0%

Absorption capacity by field of intervention

CODES	ALLOCATED	DISBURSED	EXPENDITURE CAPACITY
OBJECTIVE 1			
181 - Research projects based in universities and research institutes	750 681,60	0,00	0,0%
183 - RTDI infrastructure	18 016 358,40	0,00	0,0%
TOTAL OBJ. 1	**18 767 040,00**	**0,00**	**0,0%**

Source: programming documents and financial data provided by DG REGIO

[38] Calculations by the Centre for Science and Technology Studies at the Latvian Academy of Sciences.

[39] Ministry of Economics (December 2005), p. 88.

[40] Ubelis, A., Puga, A., Silins, A. (2005) *Contribution to the expansion of the ERAWATCH knowledge base towards EU-25: Latvia*. ETEPS-NET. Framework Service Contract 150083-2005-02-BE, p.4.

As demonstrated in exhibit 9, 96% of Structural Funds allocations to RTDI measures are devoted to support the provision of modern equipment and infrastructure to the state research institutions, which perform strategic and applied research. The remaining 4% are assigned to support implementation of the targeted applied research projects in four priority research areas defined by the Cabinet of Ministers: information technologies, biotechnology, material technologies and forestry.

According to preliminary evaluation[41], it is planned to spend most of the funding allocated to RTDI measures from Structural Funds in the capital city Riga. As most of the RTDI infrastructure is concentrated in the capital city, it is planned to spend in Riga region 90% of Structural Funds allocated to RTDI infrastructure. Similarly, 75 out of initial 91 project applications to funding of the targeted applied research projects come from Riga.

4.1.2. Specific measures in favour of innovation and knowledge

Measures and activities of the Development Plan's Priorities 2 and 3, falling under responsibility of the ***Ministry of Economics***, are aimed at providing support to non-agricultural **business activity**.[42] Resources within these priorities are allocated through state support programmes co-financed by EU SFs (ERDF and ESF) and aimed at enterprises registered in Latvia. By the end of 2005 almost all of these activities have been approved with aid schemes subject to limits on the amount of financing and aid intensity.

Measures included in exhibit 10 cover medium scope of RTDI.

Exhibit 10: Key innovation & knowledge measures

Policy area	Number of identified measures (all programmes)	Approximate share of total funding for innovation & knowledge measures	Types of measures funded (possibly indicating importance)
Improving governance of innovation and knowledge policies	0	0%	n/a
Innovation friendly environment	1	46.2 %	Venture capital fund
Knowledge transfer and technology diffusion to enterprises	0	0%	n/a
Innovation poles and clusters	0	0%	n/a
Support to creation and growth of innovative enterprises	2	45.3 %	Loans to support business start-ups Support to participation of enterprises in international fairs and

[41] PKC (2005) "EU Structural Funds and Territorial Development in Latvia" (in Latvian), p.44.
[42] Ministry of Economics (December 2005), p. 91.

			events Provision of financial support for SMEs to use external consultancy services and transfer of know how
Boosting applied research and product development	2	54.7 %	Funding for introduction of new products and technologies Support to the implementation of the targeted applied research projects Provision of modern research equipment and infrastructure to the state research institutions

Nb: this table is a summary of the table in appendix D.2. The total of the percentage share per policy area may sum to more than 100 since certain measures fall into several categories.

In the case of Latvia, it is necessary to speak of medium scope of RTDI because SPD includes only one measure under narrow definition of RTDI which is designed for development of public research and which includes one programme for provision of modern research equipment and infrastructure to the state research institutions and one open call for projects to support of the targeted applied research programmes. This measure address important needs of national innovation system as the research infrastructure of Latvia has been established 20 to 30 years ago and has not been sufficiently renovated, which has lead to considerable depreciation of infrastructure. Also investment in applied research has been limited which has resulted in weak R&D capabilities.

At the same time, one of the major problems of national innovation system, identified in chapter 2, namely, low endowements in private technology has not been addressed in Structural Funds investments during the programming period 2004-2006 and no measures to support technology transfer, establishment of networks and partnerships between business and research institutions have been designed. However, recently measures to support technology transfer have been prepared by national policy makers.

As one of weaknesses of national innovation system is low level of involvement of enterprise sector in RTDI activities, then measures which support RTDI in a broader sense (e.g., business services, financial engineering) are also of great importance. In Latvia, such innovation support measures oriented towards enterprises for the first time were established under EU Structural Funds. However, such important policy areas as innovation cluster initiatives have not been addressed during the programming period 2004-2006.

Since 2004 the Latvian Investment and Development Agency (LIDA) has announced tenders on application of projects in the following **programmes**:

- *Support for modernisation of the business infrastructure (3 sub-programmes) (ERDF);*
- *Support for development of new products and technologies (ERDF)* – elaborated with an aim to support development and production of new or substantially improved products or technologies this programme sets a task to increase private sector investments in R&D activities, orient economy towards modern, knowledge-intensive production, promote development of new, competitive products with high value added, as well as to promote mutual cooperation of science and industry;
- *Support for consultations and participation of commercial companies in international exhibitions and trade missions (2 sub-programmes) (ERDF);*
- *Support for training, re-training and raising of qualification of employed (ESF)* – elaborated with an aim to enhance the overall quality and qualification as well a further modernisation of the Latvian labour market in the EU context, reduce the related business costs, promote and expand direct involvement of employers in rising qualification of the employed, strengthen the market for life-long learning.

Another state support programme "Risk capital funding for SMEs" co-funded by ERDF is based on the national programme "Risk capital funding" and the project "Development of risk capital system" approved on 2 June 2005 with the latter being implemented by the Latvian Guarantee Agency. This programme addresses one of the main problems inhibiting start-up and development of innovative SMEs in Latvia caused by the inadequate access to financing.

As of 14 February 2006 project applications for receiving co-funding from the EU SFs can be submitted by SMEs registered and operating in the specially assisted areas in the grant scheme „Support to investments in the development of enterprises in specially assisted areas" in the framework of the State support programme "Development of entrepreneurship in regions with special support status".

National programme of the Ministry of Economics "Support for start-up commercial or self-employment activities" harmonised at the meeting of the ESF Steering committee on 22 February 2006 is planned to be launched in April 2006. This programme will be administered by the Mortgage and Land Bank of Latvia with contribution from the ESF making up 4,34 million LVL. This programme aims to promote entrepreneurship by training new entrepreneurs in the elaboration of projects and business plans as well as to support implementation of the most successful business projects by establishment of a special loan fund.

In order to promote SME access to finance, national programme "Loans (incl.microcredits) for setting up entrepreneurial activities" and its project "Development of system for funding start-ups" was elaborated and accepted on September 15, 2005. This programme envisages setting up financial instrument co-funded by the public sector, which would allow SMEs to get loans, incl.microcredits on favourable conditions. Programme is implemented by the state joint-stock company Mortage and Land Bank of Latvia. Within the framework of the programme the Bank will provide an opportunity for SMEs to receive loans, incl. microcredits for setting up entrepreneurial activities.

One of the instruments for promoting entrepreneurship is development of loan guarantee system which would promote SME access to funding. National programme "Development of Loan Guarantee System" was approved on December 23, 2004. This programme envisages allocation of funding to promote and strengthen existing loan guarantee system which would allow to distribute risk between SMEs, bank and guarantee fund. The Latvian Guarantee Agency undertakes this function.

As to national programmes co-funded from the EU SFs falling under the responsibility of the **Ministry of Education and Science** the following most relevant ones geared towards innovation and knowledge (activities under priority 2 and 3) have to be listed:

- Support to modernisation of scientific infrastructure in public research institutions (ERAF);
- Support to implementation of doctoral programmes and postdoctoral research (ESF);
- Advancement of the quality of teaching in the natural sciences, mathematics and technologies in secondary education (ESF).

Open project competitions:

- Support to the implementation of targeted applied research projects (ERAF);
- Developing of study programmes and quality of study process in natural sciences and technology intensive branches (ESF);
- Support for secondment of academic staff and teachers from vocational education establishments in enterprises; promotion of pedagogical, professional, technological and IT competences of teachers and academic staff (ESF).

4.2. Learning from experience: the Structural Funds and innovation since 2000

4.2.1. Management and coordination of innovation & knowledge measures

This section reviews the overall management of Structural Fund interventions in favour of innovation and knowledge during the current period. It examines the coherence the role of key organisations or partnerships in implementing Structural Funds measures for innovation and knowledge, the linkages between Structural Fund interventions and other Community policies (e.g. the RTD Framework Programme) and the financial absorption and additionality of the funds allocated to innovation and knowledge.

The managing authority of the EU SFs is the Ministry of Finance[43] ensuring elaboration of SPD, PC and TA National programme, as well as the overall management, implementation, control, monitoring and evaluation of the programme, and the secretariat for the Monitoring and Steering Committees. The paying authority is the State Treasury, which ensures financial management and processing of payments. Ministries represent the 1st level intermediate bodies that ensure management of SPD activities according to sector policy and priorities of SPD by elaboration of sector interventions in case of national programme projects, selection

[43] www.esfondi.lv

of projects according to general quality and specific criteria, and approval of aid schemes and national programmes. The 2nd level intermediate bodies & aid scheme managers ensure technical, administrative and financial management in respect to final beneficiaries through launching calls for proposals, receiving project applications and ensuring administrative assessment, entering into contract with final beneficiaries or bodies/firms carrying out operations, and carrying out controls. In addition to these 4 steering committees - one for each SF - have been formed. Finally, the monitoring committee confirms Programme Complement, confirms project specific selection criteria, monitors implementation of SPD and achievement of its objectives, and considers and approves annual and final implementation reports. Except for the Monitoring committee uniting representatives from the other above-mentioned authorities as well as development councils of planning regions, social partners and NGOs, no specific new bodies have been formed for the implementation of the EU SFs – rather existing institutions have been charged with additional or modified functions.

As to specific **measures in favour of innovation and knowledge** these are mainly under the responsibility of the Ministry of Education and Science and the Ministry of Economics (1st level intermediate bodies). Number of approved projects in the framework of Priority 2 at the LIDA and State Regional Development Agency (aid scheme managers) is 128, but the public expenditure of these projects amount to 55.7 million LVL, a mere 40% of the planned public financing for this activity.[44]

Main bottlenecks in management of innovation and knowledge measures concern the weak administrative capacity to design and implement relevant schemes. Public administration in Latvia has limited experience with management of such schemes as in the last 15 years resources to support innovation and knowledge have been very limited. Initial experience gained with management of Structural Funds has been taken into consideration in modifying existing support measures and preparing for the next programming period 2007-2013. One of the measures where administrative procedures have been recently modified is "Support for development of new products and technologies". Initially there was very little demand for this scheme due to stringent administrative procedures, which recently have been made more enterprise friendly. However, due to initial lack of demand, part of the resources for this measure will be shifted to support of modernisation of business infrastructure which has been more popular among enterprises.

4.2.2 Effects and added value of Structural Fund support for innovation and knowledge

This section of the report analyses the effects and added value of the Structural Fund interventions in favour of innovation and knowledge during the current programming period. The analysis is based on two main sources, namely: available evaluation reports or studies concerning Structural Fund interventions; b) interviews and additional research carried out for this study. Accordingly, this section does not pretend to provide an exhaustive overview of the effects or added value[45] of

[44] Ministry of Economics (December 2005), p. 90.

[45] A good definition is "The economic and non-economic benefit derived from conducting interventions at the Community level rather than at the regional and/or national level". See

Structural Fund interventions but rather is based on the examination of a limited number of cases of good practice. These good practice cases can may concern the influence of the Structural Funds on innovation and knowledge economy policies (introduction of new approaches, influence on policy development, etc.), integration of Structural Funds with national policy priorities, promoting innovative approaches to delivery (partnerships), or measures which have had a particularly important impact in terms of boosting innovation potential, jobs and growth.

So far **evaluation** in respect to Structural Funds in Latvia has been the ex-ante elaborated simultaneously with drafting of the SPD and PC (by the Greek company "Synthesis – European Studies, Research and Strategy S.A.").[46] Additional evaluations starting to emerge in the Latvian context are thematic evaluations of SFs organisations, which are under the responsibility of the EU Funds Department at the Ministry of Finance. Thematic evaluation of the SPD activity "Support to productive investments in specially assisted areas", which aimed to establish compliance of the guidelines developed for the aid scheme and project selection process with the objective of the SPD priority 2 and measures and was concluded in September 2005, resulted in the improvements made in the aid scheme documents. Other thematic evaluation to be submitted in April 2006 covers evaluation of the system of monitoring indicators, evaluation of the implementation of the SPD activities and the impact of the SFs on regional development in Latvia. Last but not least another thematic evaluation to be conducted by June 2006 is expected to cover the evaluation of the efficiency of the SPD implementation system, evaluation of the development of the SF planning documents 2004-2006 and activities included in these documents as well as evaluation of the selection/assessment criteria. Finally themes of open calls for proposals to be launched in March 2006 are planned to cover evaluation of the correspondence of the SF and employment policies and evaluation of the mainstreaming of horizontal priorities. Of course, preparations for the ex-ante evaluation for the next planning period 2007-2013 are also under way.

For the time being only preliminary conclusions from the implementation of the identified **innovation and knowledge measures** can be drawn since many of those have been just launched and no extensive mid-term evaluations of those have been carried out so far. While it is hard to assess at present the expected and actual impact of these SF interventions on the performance of the innovation and knowledge economy in Latvia, there is no doubt that they already have and even more so will make a considerable contribution to the national innovation policy landscape by addressing a range of challenges so far identified by a range of former policy documents and studies.

Evaluation of the Added Value and Costs of the European Structural Funds in the UK. December 2003. (Available at : www.dti.gov.uk/europe/structural.html)

[46] Antonovs, A. (2006) "Evaluation experience and evaluation perspectives in Latvia". Paper presented at the conference *The EU Funds Evalutaion: Experience and Opportunities*, 3 March 2006, Riga, Latvia. *Note*: This was the 1st conference devoted to assessment of the EU SFs organised by the Ministry of Finance as the Managing authority for EU Structural Funds and Cohesion Fund. This initiative was motivated by the so-far underdeveloped evaluation culture (some track-record with pre-accession programme evaluation, i.e. SAPARD, PHARE) with recently emerging demand for evaluations in the framework of EU SFs and the limited local market in the provision of the respective evaluation services in Latvia.

The main effect of of SFs emphasised by the experts is that they allowed to make investments in and prepare concrete measures for activities, which have for a long-time been recognised as national priorities, e.g., renewal of research infrastructure (see box below), boosting applied research and promoting innovative activities in the enterprise sector. However, for a long time implementation of these activities have been delayed due to the limited financial resources. It is expected that SF investments in these activities will have long-term effects on development of knowledge-based economy and boosting competitiveness of national economy.

Overview of good practice case "Support to modernisation of scientific infrastructure in public research institutions"

Reason for this activity is strategic relevance with respect to the need to renew scientific infrastructure. Development of scientific potential and applied research capacity is one of the pre-conditions for raising the competitiveness and ensuring the future growth of the economy. It has been recognized that Latvia has globally competitive science potential that can give an important impact in restructuring its economy towards knowledge economy. The research infrastructure of Latvia has been established 20 to 30 years ago and has not been sufficiently updated since the 1990ies. This is a result of limited investments in this sector.

The activity supports provision of modern equipment and infrastructure to the state research institutions, which perform strategic and applied research. Investments in public R&D infrastructure have been focused on interventions where strong research potential and potential for co-operation with the private sector is identified: information technologies; biotechnology, bio-medicine and organic synthesis for pharmacy; material technologies and engineering; forestry and wood technologies.

See: Appendix E. Case study

Although initial assessment of SF allocations for RTDI measures in policy debates and interviews conducted is mostly positive, their effects and value-added might be limited at least due to two reasons. Firstly, range of RTDI support measures is rather limited including only two activities to boost applied research and product development and some more acitivities for more enterprise oriented innovation support. At the same time, no SF measures have been developed for technology transfers, establishments of networks and partnerships between business and research institutes to address one of major gaps in national innovation system, i.e., weak science-industry cooperation. Thus, comprehensive approach to building and strengthening RTDI capacities is missing. Secondly, due to the lack of interest in business sector funding from the measure "Support for development of new products and technologies" was partly shifted to the measure "Support of modernisation of business infrastructure". Thus, SF allocations can in a way reinforce the exisiting trend of innovation expenditures in business sector when more than half of the total innovation expenditure is spent on machinery and equipment acquisition and only about 10% of total innovation expenditure is spent on R&D. Thus, effects of these interventions on building R&D capacities in enterprise sector at least in a near future can be quite limited.

4.3 Conclusions: Structural Funds interventions in favour of innovation and knowledge

In Latvia, it is possible to distinguish between two main types of Structural Funds funded innovation and knowledge measures in 2004-2006. Firstly, these are RTDI measures to support research and infrastructure in public research institutions which heavily deteriorated during the last 15 years due to very low RTDI funding. Secondly, funding from the Structural Funds facilitated introduction of first national enterprise-oriented innovation support measures. As Latvia had no previous experience with such measures, the programming period 2004-2006 was also an important learning process (albeit with a limited range of measures) for the public administration how to design innovation support measures which are appropriate and interesting for enterprises. As Structural Funds interventions in Latvia started only in 2004, comprehensive information to analyse outcomes of interventions is still missing.

Exhibit 11: main outcomes of innovation and knowledge measures

Programme or measure	Capability	Added value
Support to modernisation of scientific research infrastructure in public research institutions	Potential to provide preconditions for RTDI development in the future	Reinforcement of national priority to renew scientific infrastructure
Support to implementation of targeted applied research projects	Potential to boost applied research in strategically important research areas	Reinforcement of national priorities in research areas with future growth potential
Support for the development of new products and technologies	Initially low absorption due to the stringent administrative procedures which now are made more enterprise friendly	Innovative measure in national context; strategically relevant to address national gaps and needs in innovation funding
Risk capital funding for SMEs	Potential to encourage innovation in enterprise sector	Innovative measure in national context; strategically relevant to address national gaps and needs in innovation funding

Effectiveness → significant results achieved; good absorption and management performance, etc.
Added value of measures → reinforcement of national priorities, innovative approaches and solutions, institution building, etc.

5 Regional potential for innovation: a prospective analysis

This section of the report seeks to summarise and draw conclusions from the analysis of the preceding sections, available studies and interviews and focus groups carried out for this study in order to provide an analysis of the regional innovation potential. In doing so, the aim is to provide a framework for orientations in terms of future Structural Fund investments in innovation and knowledge.

5.1 Factors influencing regional innovation potential

The capital city Riga and its surroundings presents the highest potential for the development of a knowledge based economy, since it concentrates majority higher education establishments, research institutes and innovative enterprises. The draft National Development Plan 2007-2013 envisages the development of Riga as a business, science and culture metropolis of the Baltic Sea region. Outside Riga potential to create innovation poles can be found in Daugavpils, Ventspils and Jelgava, which host universities and colleges providing education and performing research in natural and engineering sciences. However, the links between regional higher education establishments and businesses are still in the early stage of development.

According to statistical data, the service sector dominates the national economy. Main sectors by value added are commercial services, trade, hotels and restaurants and transport and communications. In 2004, the highest growth rates were in construction, transport and communications and trade, hotels and restaurants. According to the innovation survey, financial services is one of the most innovative sectors in Latvia. Most of the services are concentrated in the capital city. Outside Riga potential exists for specific service sectors such as eco-tourism and transport and logistics. The development of this potential at the moment is largely hamepered by underdeveloped infrastructure. However, neither innovation studies nor policy documents address specific issues of innovation for the service sector. Only tourism policy envisages development of innovative tourism products in health and recreational tourism (mostly Riga and its surroundings), cultural tourism (whole country), business tourism (Riga) and active tourism (outside Riga).

Two main public support initiatives so far have been developed to support development of leading national research and innovation fields. Firstly, national strengths in knowledge and innovation have been defined by the Cabinet of Ministers, which has selected priority research areas in sectors important for national economy. Secondly, development of innovative clusters in prospective fields has been supported. Although fields supported by both initiatives partly overlap, so far these initiatives have not been well coordinated to ensure positive synergies between them. Research priorities are implemented by the Ministry of Education and Science in science policy while the cluster initiatives are responsibility of the Ministry of Economics and are aimed at enterprise sector.

The government has selected nine priority areas for funding basic and applied research: information technologies, biomedicine, material sciences, forestry, agro-biotechnology, environment, energy, health sciences and Latvian studies. Declared selection criteria for priority areas are as follows: existing situation and competitiveness potential of the sector, existing human resources and education programmes in the sector, potential to attract public, private and foreign investment, etc. On the basis of experience with earlier cluster initiatives and existing studies, several emerging and potential sectoral clusters can be identified. Emerging clusters can be found in wood processing and pharmaceuticals. Cooperation for cluster development has been started in information technologies and material sciences. Potential for development of clusters seems to exist in manufacturing of machinery, in metal works, in transport and in logistics, etc.

Most of research organisations working in priority research areas as well as most of the emerging clusters are located in Riga and its surroundings. The Innovative Development Programme of Riga Planning Regions identifies the following priority sectors for development of clusters and centres of excellence: machinery, transport and logistics, creative industries, biofarmacology and tourism.

There are only some potential technology fields and emerging clusters outside Riga. Zemgale planning region is strong in traditional sectors, since it host the University of Agriculture and its research institutes (packaging, wood processing, food production) and strong business companies in wood processing, construction materials and food production. At the moment, technology transfer centre is established at the University of Agriculture and new science, business and logistics centres are developed in the region. Also emerging cluster in wood processing is located in Zemgale.

Potential innovation pole in Kurzeme planning region can develop in Ventspils where recently the Engineering Research Centre has been established at Ventspils University College for the development of electronics. The main task of the Centre is to provide high-level applied science services for Ventspils Technology Park, Ventspils Business incubator, as well as enterprises in Kurzeme region and to promote the development of scientific and technological potential of electronics sector in Kurzeme. The local government which implements this project sees the establishment of this Centre as a first step in implementation of long-term plan to develop Ventspils as a scientific centre for Kurzeme region in such sectors as telecommunications, applied electronics, computer design and mathematical modelling.

The draft National Development Plan (NDP) 2007-2013 states that creative industries are promising sector of national economy and innovation potential of this sector has to be developed. According to the NDP ‘creative industries’ include architecture, advertising, art and culture industries, design (e.g., fashion, graphic design and applied arts), film, computer games and interactive software, music, new media, publishing, radio, and television. With respect to the support to creative industries, the NDP envisages development of entrepreneurship culture; creation of favourable environment and institutional support; development of public-private-partnership for commercialisation of creative potential; establishment of a creative industry cluster which would include SMEs and universities, etc. However, statistical data supporting growth potential of creative industries are lacking. Majority of creative industries are concentrated in Riga.

In order to foster development of innovation and knowledge in regions, the National Development Plan 2007-2013 earmarks the concept of polycentric development, according to which a network of development centres will be created and these development centres will provide pre-conditions to the development of innovations in the regions. Four levels of development centres are envisaged: national, regional, county and local. It is planned that activities to promote competitiveness will mainly take place at national and regional level, while activities aimed at human resources will be directed towards county and local levels. Idea of polycentric development implies positive synergies for development of cities and towns on the one hand and countryside on the other side assuming that growth of development centres would be beneficial also for surrounding territories. At the moment, this kind of policy-making is delayed because planning regions have not defined their specific socio-economic development needs and their sectoral profiles. Moreover, one of the threats can be that too many development centres are established and that scarce R&D potential outside Riga is not concentrated in the major potential growth and innovation poles around regional higher education establishments.

Main factors influencing RTDI potential in Riga and the rest of country are summarised in Exhibit 12.

Exhibit12: factors influencing innovation potential by type of region

Region / type of region	Main factors influencing future innovation potential
Latvia	• Promote polycentric development and strengthen regional development centres of innovation and knowledge which could also foster development of the rest of territory • Development of entrepreneurship • Promotion of technology transfer • Availability of natural resources (timber) • Traditional sectors: agriculture, food production • Regional higher education establishments
Riga	• Concentration of higher education establishments, research organisations and innovative enterprises • Promotion of innovation in service sector • Increase private investments in R&D • Development of science-business linkages • Availability of innovation funding

5.2 A prospective SWOT appraisal of regional innovation potential

As mentioned in chapter 2, Latvia as a single region is classified as a member of cluster “Eastern (or Manufacturing) Cohesion”. However, the capital city Riga stands out of the rest of country as a member of cluster “Southern (or Services) Cohesion”.

In **Latvia** as a whole business is mostly active in traditional sectors, e.g., timber and agro-food. However, innovative capacities in business sector are weak and entrepreneurs have little interest in business activities. Economic growth is hampered by underdeveloped infrastructure and lack of educated human resources due to internal (to the capital city) and external (to the West) brain drain. R&D acitivities are concentrated in higher education establishments which have underdeveloped links to industry.

The capital city **Riga** and its surroundings concentrate most of national RTDI organisations and human resources. Particularly strong R&D capacities are in some research fields, e.g., pharmaceuticals, material sciences. One of the threats for future development of R&D is lack of S&T human resources, especially young scientists. Major bottleneck is transformation of knowledge into high value added economic activity, .e.g., weak links to industry and low patenting activity. To overcome this bottleneck new measures for technology transfer from university to enterprises have been recently launched. Economic activities in the capital city are dominated by services: financial, transport, logistics, tourism, etc. An important factor hampering economic growth is a mismatch between available human resources and skills needed due to insufficient number of graduates in natural sciences and engineering.

As Riga is different from the rest of the country also in terms of concentration of the most national RTDI resources and relatively more developed enterprise sector, separate SWOT appraisal (exhibit 13) provided is also provided for Riga.

Exhibit 13: Innovation and Knowledge SWOT

Latvia	Opportunities	Threats
Strengths	• Strengthening development centres and regional universities • Development of traditional industries	• Attracting highly qualified human resources • Underdeveloped infrastructure
Weaknesses	• Development of entrepreneurship • Development of clusters • Technology transfer • Strengthening administrative capacities of RTDI policy (development, management, evaluation)	• Lack of awareness of innovation issues and needs among regional policymakers and enterprises

Riga	Opportunities	Threats
Strengths	• Developed service sector • Concentration of national RTDI resources • Strengths in some research areas (e.g., organic synthesis, solid-state physics)	• Mismatch between available human resources and skills needed • Renewal of RTDI human resources and infrastructure
Weaknesses	• Potential for revitalising industry and developing high- and medium-high manufacturing • Development of clusters • Technology transfer • Promotion of commercialisation of knowledge (patents, spin-offs, etc.) • Availability of risk capital	• Low participation of enterprise sector in RTDI activities • Low private R&D funding

5.3 Conclusions: regional innovation potential

Policy headline 1: Potential for developing the capital city Riga into international innovation and growth pole

- Riga has a high concentration of RTDI organisations and human resources, especially in specific research fields, e.g., pharmaceuticals and material sciences. Development of technology transfer and innovative clusters of science and industry in these specific high-technology fields could allow development and strengthening of manufacturing of high-value added products with export potential.

Policy headline 2: Potential for creating growth and innovation poles around higher education establishments and research organisations

- Strengthening of leading higher education and research organisations (in Riga, Ventspils, Daugavpils and Jelgava), which concentrate R&D capacities and human resources and can serve as development centres to promote innovation and knowledge. Promotion of linkages between RTDI centres with enterprise sector and the rest of territory would allow development of research and innovation poles strengthening existing R&D capacities and transforming knowledge into economic acitvities.

Policy headline 3: Potential for promoting innovation in service sector

- High growth potential is in service sectors, especially in commercial services, trade, tourism and transport and logistics. Most of service sector is located in Riga, while in the rest of the country growth potential can be found in some service sectors such as specific tourism products (e.g., eco-tourism) and transport and logistics. Support measures for innovation in services can strengthen growth potential of service sectors.

Policy headline 4: Potential for building competitive advantages in traditional sectors (wood-processing, agro-food)

- Outside Riga important economic activities are taking place in traditional economic sectors such as agro-food and wood-processing. The development of later is supported by availability of natural resources. Promotion of innovative activities and cooperation between science and industry in these sectors would contribute to revitalisation of these sectors and developing higher value added products in these industries, which can constitute competitive advantages of the country.

6 Future priorities for Structural Fund support for innovation and knowledge: options for intervention

For the programming period 2007-2013, 4 bln EUR will be available to Latvia from the EU Structural Funds (SF) and Cohesion Fund (CF). Investment priorities are defined in a set of policy documents, which consists of the long-term document "Model of Growth of Latvia", the National Development Plan (NDP), the National Strategic Reference Framework (NSRF) and draft Operational Programmes (OPs). The strategic aim declared in the NDP is to promote education and knowledge for economic growth and technological excellence. The NDP defines three priorities: educated and creative individuals, technological excellence and flexibility of enterprises and the development of science and research. The NSRF defines three thematic axes for the SF and CF investments: firstly, development and efficient utilisation of human resources, secondly, strengthening competitiveness and progress towards a knowledge-based economy and, thirdly, improvements in public services and infrastructure as a precondition for balanced national and territorial development. Initial plan for allocation of the SF and CF investments is the following: 39.88% for the first axis; 27.19% for the second; and 32.93% for the third. Out of 27.19% allocated for the second axis, 9.02% are envisaged for science, research and development, 7.92% - for innovation, 4.91% - for promoting competitiveness and 5.34% for financial instruments. The SF and CF investments will be managed through three OPs:

- European Social Fund OP for Employment and Human Resources;
- European Regional Development Fund OP for Entrepreneurship, Innovations, Science and Research, which for the next programming period envisages more complex approach to addressing existing problems and shortcomings in RTDI activities and wider variety of support measures than for 2004-2006 including development of industrial clusters, competence centres, technology and business incubators, network of 'business angels', etc;
- European Regional Development Fund and CF joint OP for Improvements in Infrastructure and Public Services.

One of the major problems with respect to policy framework for the next programming period is how to translate the priorities of NDP into funding priorities of the NSRF and OPs. Both documents have been criticised by the Cabinet of Ministers, NGOs and media as being too focused on investment in infrastructure than in human resources.

One of the problems identified with the NSRF and OPs is that they pay very little attention to the needs of specific sectors and regions. The NSRF states that "one of the main economic policy objectives of Latvia is the establishment of an efficient and competitive structure of sectors". However, NSRF and OPs address the idea of "efficient and competitive structure of sectors" in a rather general way without specifying what kind of sectoral structure will be promoted in terms of the role of traditional sectors vs. high-tech or in terms of industrial/service/agricultural sectors. Moreover, as Latvia is a small economy with a limited number of sectors, specific needs and growth potential of concrete sectors (e.g., wood processing, food processing) could be addressed in some depth. For more focused approach to efficient

and competitive sectoral structure, it might also be useful to link various policy initiatives, e.g., priority areas for research and industrial cluster initiatives.

Similarly, NSRF aims at "balanced territorial development". However, specific socio-economic development needs of concrete regions and territories are not identified and addressed despite existing disparities in regional development of Latvia.

6.1 Strategic orientations for Structural Fund investments in innovation and knowledge

Key conclusion 1: RTDI effort of the private sector is very weak

The main innovation challenge Latvia is currently facing is to promote a stronger business involvement in the innovative development of the country, which would ensure a sizeable increase in business R&D expenditure. For the time being, measures designed to address this challenge include support to market-oriented research, and others. Although the increase in state funding should also promote an increase in business R&D expenditure, experts estimate that the private sector will be unable to ensure a 2/3 increase of financing in the first few years.

There is a need for additional efforts to increase the level of innovation activity in enterprises and to improve national capacities in transferring research results into innovation.

Recommendation 1 : New and efficient measures should be introduced in order to increase the level of innovation activity in enterprises

Although various policy documents envisage the stimulation of cooperation between academic research and private sector in the field of new technology developments, additional new efficient measures have to be sought. Tax policy has to be reviewed and tax incentives provided.

Funding to support applied research and innovation has to be concentrated to support collaboration between existing and competitive research institutes and enterprises. Direct support to SMEs for development of innovative products and processes has to be implemented cautiously assessing potential of concrete enterprise. Frequently it would be more preferable to support bigger enterprises and their collaboration with research institutes.

Suggested priority measures include: implementation of science-business collaborative projects; support for big enterprises for their collaboration with research institutes; and direct support to SMEs for development of innovative products and processes (assessing possibilities of concrete SMEs). These measures are relevant for a whole country.

Key conclusion 2: Lack of a long-term RTDI policy programme.

Priorities for the use of the EU SFs have to serve as a catalyst for development. At the same time long-term RTDI policy programme has not been elaborated. Therefore, sustainability of RTDI investments might become problematic after the 2013.

Recommendation 2: Long-term policy planning and forecasting has to be developed

It is necessary to work on development of long-term development policy, including in particular S&T, enterprise and industrial policy. It is important that funding from the

SFs is supplemented by national funding and national investments are planned also for future when assistance from SFs will probably decrease. The relevant measures include the need to establish an organization similar to the future studies institutes in other countries which could undertake foresight studies, policy planning and evaluation. This recommendation applies to a country as a whole.

Key conclusion 3: Very weak use of IPR (e.g. patents)
There are problems with commercialising research results, expressed in the low patenting activity in Latvia (national, EPO and USPTO patents). Policy responses to this challenge are still rather limited, although there is an initiative to readjust the programme "Support for development of new products and technologies" to cover costs incurred during the patenting process. The first technology transfer centres have been established.

Recommendation 3: Raising awareness of IPR
Infrastructure for commercialization of S&T has to be developed. Public policy has to support development of technology transfer system. Patenting in public research organizations has to be supported. These measures are mostly relevant for the capital city Riga and potential regional research and innovation poles where most of RTDI organizations are concentrated.

6.2 Operational guidelines to maximising effectiveness of Structural Fund interventions for innovation and knowledge

Key conclusion 4: Procedures for allocation of funds are not always competitive
One of the major problems in the programming period 2004-2006 was inappropriate criteria for allocation of SFs funding. For some measures funding was allocated on the basis of submission sequence of project proposals rather than on competition among project applications. Such a procedure in the case of the programme for the modernization of commercial infrastructure led to queues of applicants. This has been a result of lack of experience and skills within public administration in management and evaluation of grant schemes.

Recommendation 4: Implement competitive procedures for project selection
It is necessary to introduce competition of project applications and devise criteria according to which projects can be compared and selected.

Key conclusion 5: Artificial concentration of basic research in universities
The NDP envisages that "in the future main development centres for basic research will be universities" and that "academic resources and basic research has to be concentrated in universities competitive in an international academic environment". So far, experience of Latvia has been that in major research organisations complementary research activities (i.e., basic research, applied research, technological services) have been successfully undertaken. Artificial separation of these activities on the basis of formal organisational criteria might have detrimental effects.

Recommendation 5: Support to basic research has to be based on an open competition

Public funding to support basic research has to be allocated on the basis of open competition taking into account scientific excellence of research organisation disregarding its formal organizational type.

Key conclusion 6: Insufficient capacity of ministries to develop Operational Programmes

At the moment, one of the major concerns is that ministries might lack the capacities to develop Operational Programmes and National Programmes. The Programmes still will have to be negotiated with the European Commission and it might be the case that their operation would not start with the beginning of 2007.

Recommendation 6: Involve stakeholders and experts in development of Operational Programmes

Stakeholders and experts has to be involved in the preparation of Operational Programmes and measures, in particular, with respect to identifying existing bottlenecks, providing information and preparing analytical background for interventions and setting priorities as well as appropriate distribution criteria.

Key conclusion 7: Insufficient involvement of regions in decision-making on allocations of EU Structural funds

At the moment decisions on funding priorities are made mainly by branch ministries. Therefore, sectoral approaches often prevail in funding priorities and allocations of SFs. At the same time, regional funds are unevenly distributed among the regions.

Recommendation 7: Increase role of local governments and regional administrations in decision-making on allocation of Structural funds

Special decision-making and coordination mechanisms have to be developed to increase the role of local governments and regional administrations in the distribution (or mobilization) of EU SFs particularly with the respect to projects influencing development of these regions.

Key conclusion 8: Lack of coordination between ministries

Major weakness in innovation policy coordination is the lack of coordination between the Ministry of Economy and Ministry of Education and Science, which leads to lack of complementarities and synergies between enterprise oriented innovation policy and science policy oriented towards research institutes and universities. In a case of ERDF "OP for Entrepreneurship, Innovation, Science and Research" each ministry separately developed one measure: Ministry of Education and Science developed Measure 1 "Development of science and research potential and infrastructure, while Ministry of Economy – Measure 2 "Innovation, Entrepreneurship and Competitiveness". The lack of co-ordination led to a lack of coherence and clear-cut priorities of respective OP as well as to potential overlaps between two measures.

Recommendation 8: Develop and strengthen policy co-ordination mechanisms

New high level policy coordination mechanism needs to be established and existing coordination mechanisms for specific policy initiatives have to be strengthened. It has been suggested to follow the example of Northern countries and establish a new consultative and coordinating institution - Science and Technology Development Strategy Council chaired by the Prime Minister and consisting of ministers responsible for economy, education and research as well as scientists, etc. The role of the Steering Council of the National Programme of Innovation and the Supervisory Board of Lisbon Strategy could be strengthened and these institutions could be involved in the development of OPs to promote synergies between national and SFs innovation support measures. Also co-operation among responsible ministries could be strengthened at policy-making level.

Key conclusion 9: Lack of information and skills to prepare projects for innovation support schemes

Stakeholders (universities and enterprises) lack information on aid schemes as well as capacity to prepare applications and projects, in particular outside the capital city.

Recommendation 9: Raise awareness and capacities of potential project applicants

It is necessary to provide information and project management skills for enterprises and research organizations in the regions by designing and implementing appropriate information campaigns and training activities in project development and implementation.

Exhibit14: Summary of recommendations on investment priorities

Region or group of regions	Strategic focus	Priority measures	Indicative financial resources
Latvia	Recommendation 1: Additional new efficient measures to increase the level of innovation activity has to sought	Implementation of science-business collaborative projects Support for big enterprises for their collaboration with research institutes Direct support to SMEs for development of innovative products and processes (assessing possibilities of concrete SMEs)	1% of total SF funding
Latvia	Recommendation 2: Long-term policy planning and forecasting has to be developed	Development of long-term S&T policy. Foresight studies National funding and national investments have to be planned also for future when assistance from SFs will decrease	0.25% of total SF funding
Latvia	Recommendation 3: Raising awareness of IPR	Development of technology transfer system has to be supported Patenting in public research organizations has to be supported	0.2% of total SF funding
Latvia	Recommendation 9: Raise awareness and capacities of potential project applicants	Information/training	0.1% of total SF funding

Appendix A Methodological annex

A.1 Quantitative analysis of key knowledge economy indicators

A 1.1 Factor analysis

In order to analyse and describe the knowledge economies at regional level in the EU, the approach adopted was to reduce and condense all relevant statistical information available for a majority of regions. The approach involved firstly reducing the information from a list of selected variables (Table 1) into a small number of factors by means of factor analysis.

Table 1. Reduction of the dataset (215 EU-27 regions) into four factors by means of factor analysis

	The 4 factors			
	F1 'Public Knowledge'	F2 'Urban Services'	F3 'Private Technology'	F4 'Learning Families'
Higher education (HRSTE), 2003	**.839**	.151	.190	.184
Knowledge workers (HRSTC, core), 2003	**.831**	.164	.267	.327
High-tech services employment, 2003	**.575**	.367	.428	.323
Public R&D expenditures (HERD+GOVERD), 2002	**.543**	.431	.275	-.195
Value-added share services, 2002	.323	**.869**	.002	.121
Value-added share industry, 2002	-.265	**-.814**	.386	-.061
Employment government administration, 2003	-.217	**.745**	.124	-.175
Population density, 2002	.380	**.402**	.043	.038
High and Medium/high-tech manufacturing employment, 2003	-.073	-.331	**.873**	-.089
Value-added share agriculture, 2002	-.222	-.350	**-.672**	-.198
Business R&D expenditures, 2002	.335	-.050	**.664**	.267
S&T workers (HRSTO, occupation), 2003	.560	.178	**.589**	.382
Population share under 10 years of age, 2001	-.237	.060	-.015	**.868**
Life-long learning, 2003	.472	-.009	.165	**.703**
Activity rate females, 2003	.418	-.227	.281	**.620**

Note: Principal Component Analysis. Rotation Method: Equamax with Kaiser Normalization, a Rotation converged in 9 iterations. Main factor loadings are highlighted in bold. Source: MERIT, based on Eurostat data, mostly referring to 2002 or 2003

Based on the variable with the highest factor loadings we can characterise and interpret the four factors and give them a short symbolic name:

Public Knowledge (F1)
Human resources in Science and Technology (education as well as core) combined with public R&D expenditures and employment in knowledge intensive services is the most important or common factor hidden in the dataset. The most important variables in Public Knowledge are the education and human resource variables (HR S&T education and core). Cities with large universities will rank high on this factor.

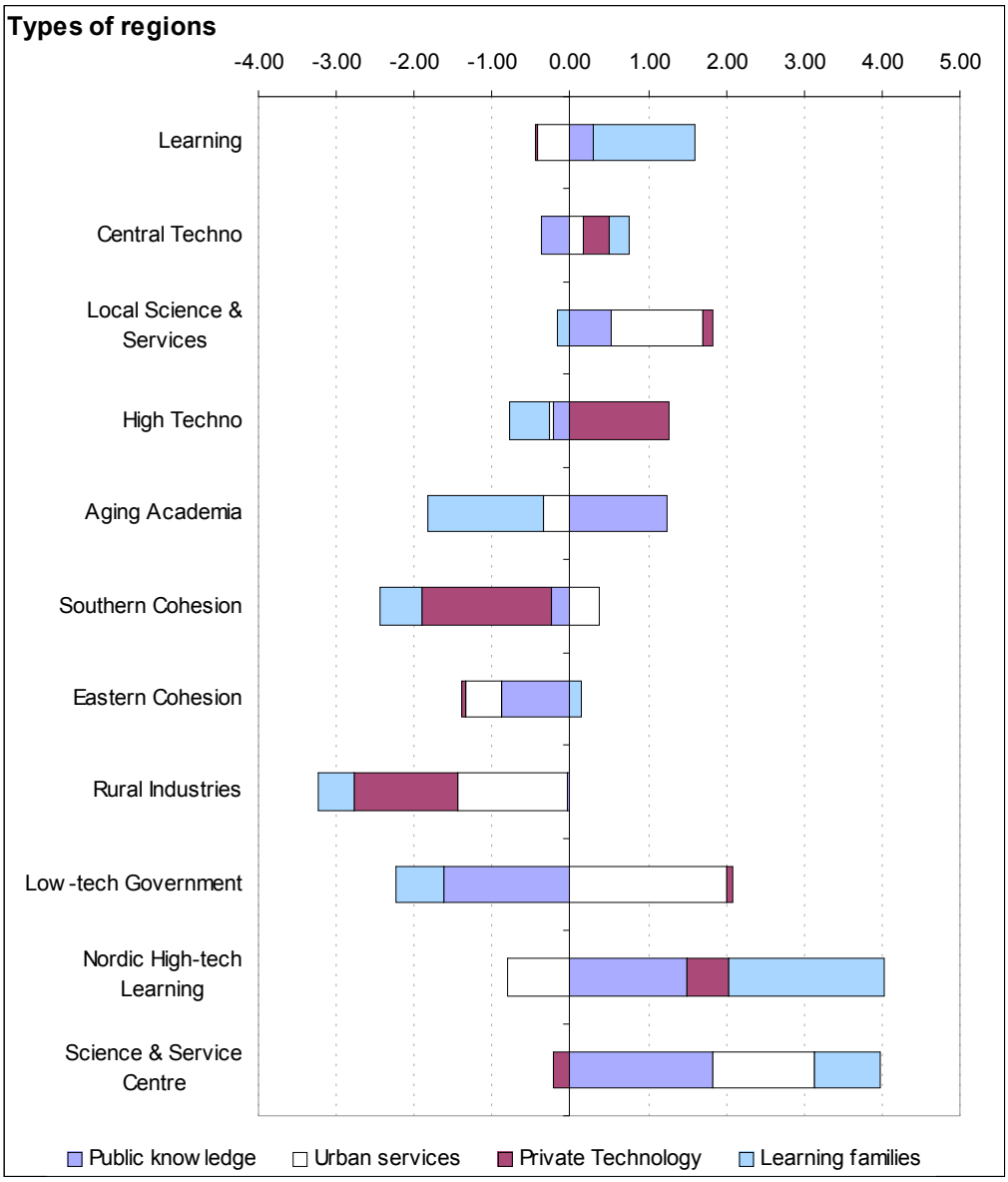
One interesting conclusion is that public and private knowledge are two different factors (F1 and F3 respectively), which for instance has implications for policy issues regarding Science-Industry linkages. Public R&D and higher education seems especially related to high-tech services, whereas Business R&D especially serves high- and medium-high-tech manufacturing.

Urban Services (F2)
This second factor contains information on the structure of the economy. It is well known that industrial economies are quite different from services based economies. It is not a matter of development per se, because in the European regions the variety of economic structure is very large and for a large part based on endowments and path dependent developments like the extent to which government administration is located in a region or not. This factor takes into account the differences between an industrial area and a service based area including the public administration services of the government. Another observation is that there are two different 'urban' factors, indicating that academic centres not necessary co-locate with administration centres. What may not be surprising is that the Urban Services factor is not associated with R&D, since R&D is more relevant for innovation in manufacturing than for service industries.

Private Technology (F3)
This factor contains business R&D, occupation in S&T activities, and employment in high- and medium-high-tech manufacturing industries. A countervailing power is the existence of agriculture in the region. One interpretation could be that agricultural land-use goes at the cost of possibilities of production sites. Another interpretation is that agriculture is not an R&D intensive sector.

Learning Families (F4)
The most important variable in this factor is the share of the population below the age of 10. Locations with relatively larges shares of children are places that are attractive to start a family. Possibilities for Life Long Learning in a region seems associated with the lively labour participation of the mothers of these youngsters. The Learning Families factor could also be interpreted as an institutional factor indicating a child-, learning- and participation- friendly environment, or even a 'knowledge-society-life-style' based on behavioural norms and values that are beneficial to a knowledge economy.

A 1.2 Description of the 11 types of EU regions



1 Learning

The Learning regions are first of all characterised by the high score on the factor 'Learning Families', and the three main components of this factor: life-long-learning, youth and female activity rate. On the other factors the regions are close to the regional average. Unemployment is on average the lowest compared to the other EU regions. Employment in the government sector is limited. GDP per capita is rather high. The regions are located in Austria, Ireland, the Netherlands, Sweden and the UK. There are many similarities with the Nordic High-tech Learning regions, but the business sector in the Nordic version invest more in R&D.

2 Central Techno

This is a rather large group of regions located mostly in Germany and France with close to average characteristic, but the share of High-tech manufacturing is rather

high. The factor-scores as well as GDP-per head is slightly above the regional average, except for the Public Knowledge factor which is slightly lower.

3 Local Science & Services
This group of regions with diverse nationality consist mainly of capital cities, such as Madrid, Warsaw, Lisbon, Budapest and Athens. These urban area's serve as national centres for business services, government administration, public research institutes and universities. Urban Services and Public knowledge are therefore the strongest factors for this type of region. GDP per capita is on average slightly below the EU25 average, but growing. The low score on life-long-learning is a weakness in most Local Science & Services regions, especially compared to the more wealthy and advanced Science & Service Centres.

4 High Techno
The High Techno regions host many high-tech manufacturing industries. They are mostly located in Germany (e.g. Bayern and Baden-Wurtemberg), some in Italy (e.g. Lombardia and Veneto) and two French regions. This type is very strong in Private Technology and has a high level of GDP per capita. The factors Public Knowledge and especially the Learning Family factor shows a relative weakness, e.g. in life-long-learning. Growth in terms of GDP per capita has been low and unemployment didn't improve much in the previous years.

5 Aging Academia
This group of regions is mostly located in East-Germany and Spain and also includes the capital regions of Bulgaria and Romania. The strength in the Public Knowledge factor is mostly based on the high share of people with tertiary education. The low score on the Learning Family factor is due to little life-long-learning and hosting relatively few children. The unemployment situation has improved, but is still very high.

6 Southern Cohesion
Southern cohesion regions are located in Southern Europe, consisting of many Greek, some Spanish and two Portuguese regions. The low score on the Private Technology factor is striking. There is hardly any high-tech manufacturing nor business R&D. Services is the most important sector, but also agriculture is still a rather large sector. The share of manufacturing industry in value added is very limited. Population density is low, but on average it has been increasing.

7 Eastern Cohesion
Manufacturing industries is the dominant sector, whereas services and agriculture are rather small sectors. This type of region is mostly located in Poland, Czech Republic, Hungary and Slovak Republic. Two Portuguese regions are also included. The Public Knowledge factor is the main weakness of this type of regions. However, the score on the Private Technology factor is close to average, which means that it is much stronger in this respect than the Southern Cohesion regions. Unemployment is high, even compared to Rural Industries and Southern Cohesion regions.

8 Rural Industries
Besides a low per capita GDP, Rural Industries regions have in common a low score on both the factors Urban Services and Private Technology. Population density is

very low. The service sector is often very small. Especially agriculture but also manufacturing industries are relatively large sectors. Besides regions in Bulgaria and Romania and Greece, there is also a more nordic sub-group consisting of Estonia, Lithuania and Itä-Suomi

9 Low-tech Government
This type of region, mostly located in southern Italy is characterised by a very low score on Public Knowledge combined with a high share of employment in the Government sector. Unemployment is severe, on average comparable to Eastern Cohesion regions. GDP per capita is however close to the regional average.

10 Nordic High-tech Learning
The Nordic version of the learning regions are typically strong in the Learning Family factor, but this type also has by far the highest business R&D intensity. In contrast with the popular characterisation of Nordic societies, the size of the government administration is the lowest of all the types. The low score on Urban Services is also due to the low population density. A rather unique feature of this type of regional knowledge economy is the combined strength in both the Public Knowledge and the Private Technology factor.

11 Science & Service Centre
The main characteristics of this urban group of regions are the high scores on the Public Knowledge and Urban Services factors. Population density is very high. This type also has the highest GDP per capita and productivity. The variables that are captured by the factor Learning Families also show a score above the regional average, but disappointing is the relatively low presence of high and medium-high-tech manufacturing and the business R&D intensity.

A.2 Qualitative analysis and preparation of country reports

In summary, the country reports were prepared in the following stages:

A first country document was prepared by the core study team in the form of a **template country report**. It contained overall guidance to the country experts and included a number of pre-filled tables, graphs and analysis sections based on information available at EU level.

Next, the core team members and the national experts who were involved in the pilot phase of the project commented completed elements of the templates. Drafted elements and templates were completed and compiled into **first country briefings (draft pilot reports)** by the national experts involved in the pilot phase of the project. These pilot country reports were prepared by experts for Belgium, Greece, Italy, France, and Poland.

Once the five first country briefings were completed, a **final set of guidelines** was prepared by the core team. These guidelines were agreed with the Commission services responsible for this evaluation. Prior to this, all first country briefings were reviewed during the January 2006 and presented to a first meeting of the scientific committee.

The work during the **country analysis phase** included:
Undertaking a series of key interviews (KI) with policy decision makers;
Organising a focus group (FG) with key national or regional RDTI stakeholders;
Collecting additional information and finalising short case studies; and
Preparing the synthesis notes of these various activities.

The above-mentioned work served as qualitative data and allowed the national experts to compile the draft **country reports**. All reports were subsequently reviewed, checked and finalised by the core team and the consortium members. Once this first check was completed, the core team organised a final peer reading of the document to verify its overall consistency and to ensure a final English language editing of the document. The core team then completed the final editing and layout of the document with a view to publication.

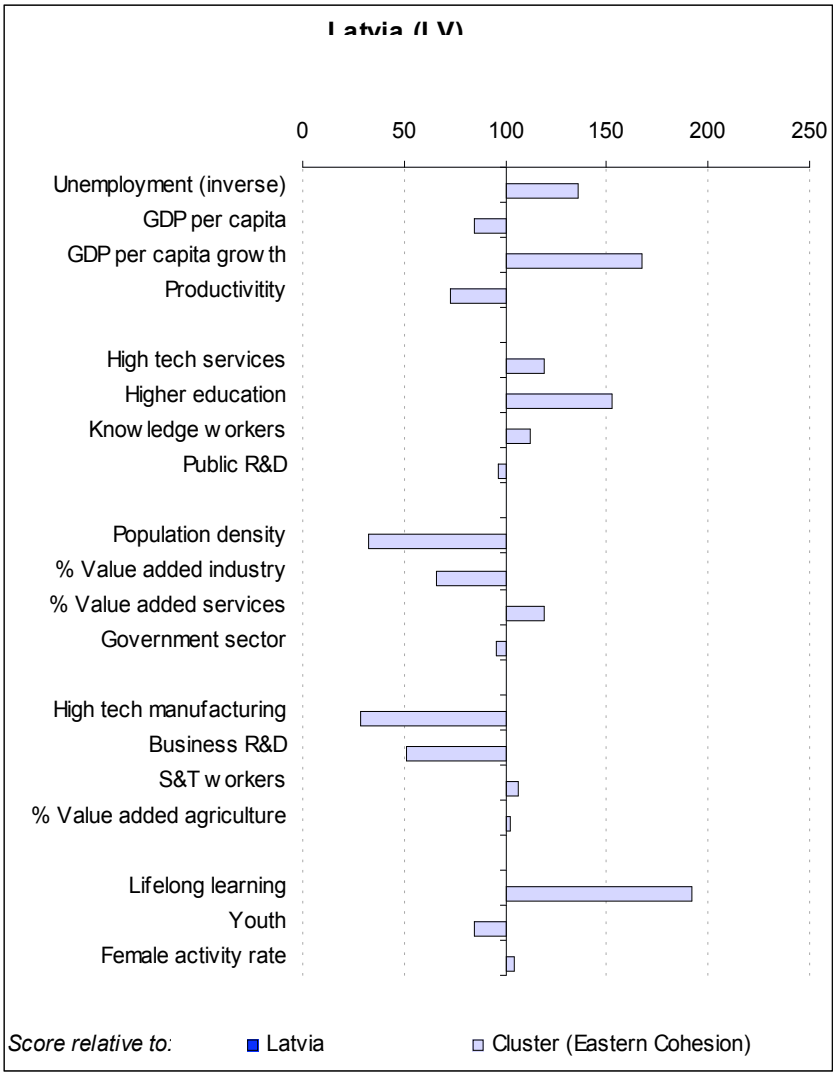
An overall synthesis report of all has been prepared and will be published by the European Commission providing an overview of the issues addressed in each of the 27 country reports produced by the evaluation team.

Appendix B Statistical tables and regional scorecards

B.1 Overall quantitative analysis per region

			Economic performance				Public knowledge				Urban services				Private technology				Learning families			
		Cluster	Unemployment	GDP per capita	GDP per capita growth	Productivitity	High tech services	Higher education	Knowledge workers	Public R&D	Population density	% Value added industry	% Value added services	Government sector	High tech manufacturing	Business R&D	S&T workers	% Value added agriculture	Lifelong learning	Youth	Female activity rate	Public knowledge
			2003	2002	1996-2002	2002	2003	2003	2003	2002	2002	2002	2002	2003	2003	2002	2003	2002	2003	2001	2003	
EU25			9,2	21170	4,8	4556	3,2	20,7	11,6	0,69	117	27,0	70,9	7,5	6,6	1,24	20,7	2,1	8,7	10,8	48,3	
Regional average			9,4	18882	4,8	3914	2,8	18,9	10,7	0,49	294	28,9	66,6	7,6	6,5	0,80	19,5	4,3	7,1	10,5	47,2	
Latvia	LV		10,5	8249	9,0	893	2,3	18,2	8,1	0,25	36	22,6	72,8	6,3	1,9	0,17	16,9	4,6	7,8	9,4	50,5	
Relative to EU25			88	39	188	20	72	88	70	36	31	83	103	84	28	14	81	219	89	87	105	
Latvia	LV	7	10,5	8249	9,0	893	2,3	18,2	8,1	0,25	36	22,6	72,8	6,3	1,9	0,17	16,9	4,6	7,8	9,4	50,5	0,22
Riga (estimation)		6	10,8	14988			2,31	18,23	8,14	0,25	2903	25,81	73,19	6,29	1,85	0,17	16,87	1,008	7,81	9,351	50,5	0,52

B.2 Regional Scorecards



Appendix C Categories used for policy-mix analysis

C.1 Classification of policy areas

Policy area	Short description
Improving governance capacities for innovation and knowledge policies	Technical assistance type funding used by public authorities, regional agencies and public-private partnerships in developing and improving policies and strategies in support of innovation and knowledge. This could include past ERDF innovative action programmes as well as support for instance for regional foresight, etc.
Innovation friendly environment;	This category covers a range of actions which seek to improve the overall environment in which enterprises innovate, and notably three sub groups: innovation financing (in terms of establishing financial engineering schemes, etc.); regulatory improvements and innovative approaches to public services and procurement (this category could notably capture certain e-government investments related to provision of services to enterprises) ; Developing human capital for the knowledge economy. This category will be limited to projects in higher education aimed at developing industry orientated courses and post-graduate courses; training of researchers in enterprises or research centres[47];
Knowledge transfer and technology diffusion to enterprises	Direct or indirect support for knowledge and technology transfer: direct support: aid scheme for utilising technology-related services or for implementing technology transfer projects, notably environmentally friendly technologies and ITC; indirect support: delivered through funding of infrastructure and services of technology parks, innovation centres, university liaison and transfer offices, etc.
Innovation poles and clusters	Direct or indirect support for creation of poles (involving public and non-profit organisations as well as enterprises) and clusters of companies direct support: funding for enterprise level cluster activities, etc. indirect support through funding for regrouping R&D infrastructure in poles, infrastructure for clusters, etc.
Support to creation and growth of innovative enterprises	Direct or indirect support for creation and growth of innovative firms: direct support: specific financial schemes for spin-offs and innovative start-ups, grants to SMEs related to improving innovation management, marketing, industrial design, etc.; indirect support through funding of incubators, training related to entrepreneurship, etc.
Boosting applied research and product development	Funding of "Pre-competitive development" and "Industrial research" projects and related infrastructure. Policy instruments include: aid schemes for single beneficiary or groups of beneficiaries (including IPR protection and exploitation); research infrastructures for non-profit/public organisations and higher education sector directly related to universities.

[47] This is part of the wider area of in-house training, but in the present study only the interventions targeted to researchers or research functions will be analysed.

C.2 Classification of Beneficiaries:

Beneficiaries	Short description
Public sectors	Universities National research institutions and other national and local public bodies (innovation agencies, BIC, Chambers of Commerce, etc..) Public companies
Private sectors	Enterprises Private research centres
Networks	cooperation between research, universities and businesses cooperation between businesses (*clusters of SMEs)* other forms of cooperation among different actors

C.3 Classification of instruments:

Instruments	Short description
Infrastructures and facilities	Building and equipment for laboratories or facilities for university or research centres, Telecommunication infrastructures, Building and equipment for incubators and parks for innovative enterprises
Aid schemes	Grants and loans for RTDI projects Innovative finance (venture capital, equity finance, special bonds, etc.) for innovative enterprises
Education and training	Graduate and post-graduate University courses Training of researchers

Appendix D Financial and policy measure tables

D.1 Additional financial tables

D 1.1 RTDI plus business (innovation technology) support

Overall allocation of resources at an objective 1 and 2 level (allocated Euro)

Objective	Total cost	SF			N
		Total	ERDF	ESF	Public
RTDI INTERVENTIONS					
Objective 1	99 384 200,78	74 538 149,00	74 538 149,00	0,00	24 846 051,78
TOTAL COHESION POLICY					
Objective 1	856 069 495,00	625 568 826,00	369 202 826,00	138 698 000,00	219 793 266,00

Absorption capacity of RTDI interventions

OBJECTIVES	ALLOCATED	DISBURSED TOTAL SF	EXPENDITURE CAPACITY
Objective 1	74 538 149,00	709 942,34	1,0%

Absorption capacity by field of intervention

CODES	ALLOCATED	DISBURSED	EXPENDITURE CAPACITY
OBJECTIVE 1			
153 - Business advisory services (including internationalisation, exporting and environmental management, purchase of technology) (only for large enterprises)	5 082 740,00	0,00	0,0%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	11 562 139,50	9 289,76	0,1%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	6 479 399,50	9 289,76	0,1%
165 - Financial engineering (only for SMEs)	32 646 830,00	691 362,83	2,1%
181 - Research projects based in universities and research institutes	750 681,60	0,00	0,0%
183 - RTDI infrastructure	18 016 358,40	0,00	0,0%
TOTAL OBJ. 1	**74 538 149,00**	**709 942,34**	**1,0%**

Categories 181 to 184 plus :
152 Environment-friendly technologies, clean and economical energy technologies
153 Business organisation advisory service (including internationalisation, exporting and environmental management, purchase of technology)
155 Financial engineering
162 Environment-friendly technologies, clean and economical energy technologies
163 Enterprise advisory service (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology)
164 Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs)
165 Financial engineering

D 1.2 Broad innovation and knowledge economy funding

Overall allocation of resources at an objective 1 and 2 level (allocated Euro)

Objective	Total cost	SF			NF	
		Total	ERDF	ESF	Public	Private
RTDI INTERVENTIONS						
Objective 1	99 384 200,78	74 538 149,00	74 538 149,00	0,00	24 846 051,78	0,00
TOTAL COHESION POLICY						
Objective 1	856 069 495,00	625 568 826,00	369 202 826,00	138 698 000,00	219 793 266,00	10 707 403,00

Absorption capacity of RTDI interventions

OBJECTIVES	ALLOCATED	DISBURSED TOTAL SF	EXPENDITURE CAPACITY
Objective 1	74 538 149,00	709 942,34	1,0%

Absorption capacity by field of intervention

CODES	ALLOCATED	DISBURSED	EXPENDITURE CAPACITY
OBJECTIVE 1			
153 - Business advisory services (including internationalisation, exporting and environmental management, purchase of technology) (only for large enterprises)	5 082 740,00	0,00	0,0%
163 - Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) (only for SMEs)	11 562 139,50	9 289,76	0,1%
164 - Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) (only for SMEs)	6 479 399,50	9 289,76	0,1%
165 - Financial engineering (only for SMEs)	32 646 830,00	691 362,83	2,1%
181 - Research projects based in universities and research institutes	750 681,60	0,00	0,0%
183 - RTDI infrastructure	18 016 358,40	0,00	0,0%
TOTAL OBJ. 1	**74 538 149,00**	**709 942,34**	**1,0%**

This third calculation adds RTDI plus business (innovation & technology) support plus information society. As D.1.1 plus: 322 Information and Communication Technology (including security and safe transmission measures)/ 324 Services and applications for SMEs (electronic commerce and transactions, education and training, networking)

D.2. Summary of key policy measures per programme

D.2.1. Min measures in favour of innovation and knowledge

Identified RTDI measure or major project	Focus of intervention (policy areas classification)*	Main Instruments**	Main beneficiaries***
SPD Priority 2 Promotion of Enterprise and Innovation			
Measure 2.1 Support to Development of Innovation	Boosting applied research and product development	Aid schemes	Private sector
Measure 2.3 Enhancing Business Support Measures for Small and Medium Size Enterprises	Support to creation and growth of innovative enterprises	Aid schemes	Private sector, networks
Measure 2.4 Access to Finance for Small and Medium Size Enterprises	Innovation friendly environment Support to creation and growth of innovative enterprises	Aid schemes	Private sector
Measure 2.5 Development of Public Research	Boosting applied research and product development	Aid schemes, Infrastructures and facilities	Public sector

* Classification of RTDI interventions: Improving governance capacities for innovation and knowledge policies; Innovation friendly environment; Knowledge transfer and technology diffusion enterprises; Innovation poles and clusters; Support to creation and growth of innovative enterprises; Boosting applied research and product development (see appendix).
**Classification of instruments: Infrastructures and facilities; Aid schemes; Education and training.
***Classification of Beneficiaries: Public sectors; Private sectors; Networks

Appendix E Case studies

Name of Case (related policy measure or action)
Title of measure/project: Support to modernisation of scientific infrastructure in public research institutions Atbalsts zinātniskās infrastruktūras modernizēšanai valsts zinātniskajās institūcijās **Description**: The measure is a support scheme embodied in the national programme "Support to modernisation of scientific infrastructure in public research institutions". There are promising research branches with strong tradition and research results with competitive potential on a global level. Yet, the competitiveness of Latvia's research is weakened by outworn and outdated research infrastructure, which has been established 20 to 30 years ago and has not been sufficiently updated since the 1990ies due to scarce financial investments. The overall aim of the programme is to supply excellence centres and other leading research institutions possessing resources for commercialisation of research with modern research equipment and infrastructure. The following criteria for participation were used: Provision of access to the equipment by scientists from other institutions; Scientific capacity; Participation in international projects; Compliance with branches of the national economy and resources for commercialisation; Consistency with promotion of regional development. The National programme is being implemented in the course of 3 years (2004 – 2006) by the Ministry of Education and Science. **Zone: Objective 1**
Brief history and main features
What policy area does the initiative belong to? Boosting applied research and product development **What are the main instruments characterising the initiative?** Infrastructure and facilities **What are the main beneficiaries characterising the initiative?**Public scientific institutions carrying out research in material sciences, organic synthesis and biomedicine, wood processing and forestry, engineering sciences, information technologies, astronomy and environmental sciences, biology, ecology. **Was the intervention inspired by a previous experience? Which one?**Competitiveness of Latvia's research is weakened by outworn and outdated research infrastructure, which has been developed in the 70'ies and 80'ies of the 20th century. **Which organisations have been involved? What was their role?**National programme is being implemented by the Ministry of Education and Science. The results will be used by public scientific institutions, higher education establishments, other public and non-profit research organisations. **What was the structure of the initiative (operational phases, length…)?**The National programme is being implemented in the course of 3 years (2004 – 2006). **Crucial milestones and criticalities?**Coordination of the draft list of equipment to be purchased (in order to prevent overlap, etc.) **What is the degree of novelty of the initiative?** The measure is novel. It was inspired by national policy debate and the need to meet EU level policy objectives.

Main results
What are the main outcomes (financial and physical)? Overall budget (for period 2004-2006) is 15 822 720 EUR. Strengthening of the research base. 22 projects have been implemented in 2004-2006, including e.g. „Modernisation of the software engineering research centre of the Institute of Mathematics and Informatics at the University of Latvia", „Biological resource research centre of the Daugavpils University". Modern equipment is used not only by scientific institutions, but enterprises, too.
What are the main evaluation results? No special evaluation has been undertaken. However, results have been discussed at the special meeting of the Latvian Academy of Sciences, 16 March 2005. It was concluded that preliminary results confirm the necessity and efficiency of such a programme. Extremely positive feedback has come from those who received and use the modern equipment. The initial statement that the programme realisation will enable Latvian researchers to reach internationally recognizable results, and will create favourable conditions and environment for innovative entrepreneurship, has proven to be valid.
Information on the newly acquired equipment should be put on the Internet and a common Latvian database should be created. The meeting considered it very important to treat matters concerning maintenance and depreciation of the unique equipment and the related expenses, which presently are not included neither in the budget of the respective institutions, nor funding by the EU Structural funds, with appropriate thoroughness.
Have all the objectives been fulfilled? All objectives have been fulfilled.
What is the current state in terms of execution? What are the expected prospects? Analogous activities are expected to be carried out in 2007 – 2013 by attraction of the EU Structural funds.
Reasons of success and conditions for repeatability
Why has the initiative been considered a best practice? Realization of this initiative has proven to be a major challenge to Latvia's researchers, and has also raised the prestige of science in mass media and society at large.
What are the main socio-economic and institutional conditions that contributed to the success? How? Awareness of the necessity of this measure by stakeholders on all levels.
What were the main socio-economic and institutional obstacles? There were no substantial obstacles.
What are the main lessons? More attention should be paid and appropriate solutions sought to the matters concerning maintenance and depreciation of the unique equipment and the related expenses, which are currently included neither in the budget of respective institutions, nor the EU Structural funds.
Did the case inspire new initiatives in either the same or different contexts? Analogous activities are expected to be carried out in 2007 – 2013 by attraction of the EU Structural funds.
What are the main aspects of the initiative which are susceptible to be transferred? Are there constraints to transferability? There are no specific constraints to transferability.

Further reading

Bibliography of references/documents used

Antonovs, A. (2006) "Evaluation experience and evaluation perspectives in Latvia". Paper presented at the conference *The EU Funds Evalutaion: Experience and Opportunities*, 3 March 2006, Riga, Latvia.

Arundel, A., Hollanders, H. (2005) "Innovation Strengths and Weaknesses". Available at www.trendchart.org

Central Statistical Bureau of Latvia (2003) *Innovation Survey Results*. Statistical Bulletin, Riga.

Central Statistical Bureau of Latvia (2004) *Latvia's Regions in Figures 2004*, Riga.

Central Statistical Bureau of Latvia (2005) "Research and Development and Innovation Statistics", Statistical Data Collection, Riga.

Development Council of Riga Planning Region (2005) "Innovative Development Programme of Riga Planning Region" (in Latvian).

Grens, E. (2004) "Science in Latvia: Potential and Possibilities". In: Commission of Strategic Analysis. *Yearbook of Politics: Latvia 2004*, pp. 104-113. Riga: Zinātne Academic Publishers.

Kristapsons, J., Adamsone-Fiskovica, A. (2005) *European TrendChart on Innovation: Annual Policy Trends and Appraisal Report for Latvia*. European Commission, Enterprise Directorate-General.

Latvia: Single Programming Document, Objective 1 Programme 2004-2006 (2003) Riga.

Ministry of Economy (2005) "Economic Development of Latvia", Report, December 2005, Riga.

Ministry of Economy (June 2005) *Economic Development in Latvia*. Riga.

National Development Plan 2007-2013, First version, 2006.

National Lisbon Programme for Latvia 2005-2008, Latvia 2005.

National Strategic Reference Framework 2007-2013, 2006.

PKC (2005) "EU Structural Funds and Territorial Development in Latvia" (in Latvian).

RIS Latvia (2004) *The Latvian Innovation System: Strategy and Action Plan 2005-2010*. Riga.

Ubelis, A., Puga, A., Silins, A. (2005) *Contribution to the expansion of the ERAWATCH knowledge base towards EU-25: Latvia*. ETEPS-NET. Framework Service Contract 150083-2005-02-BE

Vaidere, Inese, Edvins Vanags, Ilmārs Vanags and Inga Vilka (2006) "Regional Policy and Development of Local Governments in Europe and Latvia", Riga: University of Latvia (in Latvian).

Watkins, A., Agapitova, N. (2002) *Creating a 21st Century National Innovation System for a 21st Century Latvian Economy*. World Bank.

Zemgale Regional Development Agency (2006) "Innovative Development Plan", draft (in Latvian).

List of useful websites at national or regional level

Structural Funds www.esfondi.lv
National Development Plan www.nap.lv
Cabinet of Ministers www.mk.gov.lv
Ministry of Economy www.em.gov.lv
Ministry of Finance www.fm.gov.lv
Ministry of regional Development and Local Government www.raplm.gov.lv
Ministry of Education and Science www.izm.gov.lv
Latvian Investment and Development Agency www.liaa.gov.lv
Innovation Portal www.innovation.lv
Public policy site www.politika.lv

Stakeholders consulted

Name	Position	Organisation
Ilona RAUGZE	Director of Regional Policy Department	Ministry of Regional Development and Local Government
Artis GRINBERGS	Senior Officer at the Programme Department	Ministry of Regional Development and Local Government
Janis VAIVADS	Chairman of Board	Consulting company "Eirokonsultants"
Maris ELERTS	Director of Innovation Centre	University of Latvia
Edvins VANAGS	Professor	University of Latvia
Juris Roberts KALNINS	Director of Engineering Research Centre	Ventspils University College
Juris KALIS	Senior Officer	Zemgale Development Agency
Arvids BARSEVSKIS	Rector for research	Daugavpils University
Maija BUNDULE	Head of Science Division	Ministry of Education and Science
Martins JANSONS	Deputy Head of Finance Department	Ministry of Economy
Valdis AVOTINS	Project Manager	Latvian Investment and Development Agency