

INNO-Policy TrendChart –
Innovation Policy Progress Report

LATVIA

2009

PREFACE

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

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

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

INNO-Policy TrendChart products

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

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

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

The present report was prepared by Anda Adamsone-Fiskovica (anda@lza.lv), Janis Kristapsons (jtk@lza.lv), and Aija Lulle (aija@lza.lv) from the Centre for Science and Technology Studies at the Latvian Academy of Sciences. The contents and views expressed in this report do not necessarily reflect the opinions or policies of the Member States or the European Commission.

The report covers the period July 2008 to June 2009.

Copyright of the document belongs to the European Commission. Neither the European Commission, nor any person acting on its behalf, may be held responsible for the use to which information contained in this document may be put, or for any errors which, despite careful preparation and checking, may appear.

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

CONTENTS

EXECUTIVE SUMMARY: PUBLIC SUPPORT FOR INNOVATION – A SNAPSHOT	I
1. MAIN TRENDS AND CHALLENGES IN THE NATIONAL INNOVATION SYSTEM.....	1
1.1 RECENT ECONOMIC TRENDS AND MARKET DEVELOPMENTS	1
1.1.1 <i>The credit crisis and its effect on innovation activity</i>	3
1.2 RECENT TRENDS IN THE NATIONAL INNOVATION PERFORMANCE	5
1.3 IDENTIFIED CHALLENGES	9
2. PUBLIC SUPPORT TO INNOVATION	12
2.1 MAIN OBJECTIVES FOR INNOVATION POLICY	12
2.2 INNOVATION GOVERNANCE SYSTEM	15
2.2.1 <i>Governmental bodies</i>	15
2.2.2 <i>Main bodies managing implementation of policies</i>	17
2.3 PUBLIC FUNDING TO INNOVATION	17
2.3.1 <i>Review of the current range of support measures for innovation</i>	17
2.3.2 <i>New or modified support measures</i>	21
2.3.3 <i>Strengths and weaknesses in the innovation policy support system</i>	24
3. INNOVATION POLICY AND COMPETITIVENESS: AN APPRAISAL	25
3.1 THE ABILITY OF POLICY TO ADDRESS CHALLENGES	25
3.1.1 <i>How well does policy respond to innovation challenges?</i>	25
3.2 EFFECTIVENESS OF POLICY DESIGN	28
3.2.1 <i>Process of delivery</i>	29
3.3 IMPACT OF PUBLIC SUPPORT FOR INNOVATION	30
3.3.1 <i>Conclusions: possible future actions and opportunities for innovation policy</i>	31
ANNEXES	33

Exhibits

Exhibit 1: Comparable indicators of economic performance	1
Exhibit 2: European Innovation Scoreboard: country pages	6
Exhibit 3: Main innovation policy challenges	9
Exhibit 4: Main innovation policy documents.....	12
Exhibit 5: Selected quantitative targets for innovation policy	15
Exhibit 6: Policy measures included in the policy measure factsheet analysis.....	18
Exhibit 7: Estimated annual budget spent on policy priority and number of support measures in Latvia	19
Exhibit 8: Aspects of innovation processes targeted by measures	20
Exhibit 9: New Innovation Policy Support Measures (since the last report).....	22

Executive Summary: Public support for innovation – a snapshot

1. Main trends in the National Innovation System

While Latvia experienced an economic boost in the period of 2005 to 2007, the annual GDP growth in 2008 has declined from 11% to a mere 4.6%. The economic slowdown was predetermined by the decline of global economic growth and a decrease of domestic demand. In late 2008, the Latvian government sought the financial assistance of the European Commission and the International Monetary Fund with a loan envisaged of up to EUR 7.5 billion. This, in turn, has led to radical cuts in public spending, increased taxes and the need for structural reforms in the public administration. Although the first signs of the crisis were experienced in mid-2008, it was only in July 2009 that the Ministry of Economics came up with a mid-term recovery plan for the economy, underlining the intrinsic necessity to promote competitiveness, a rise in productivity and high value added production. While the drafted proposals suggest that state support should be targeted and selective, opinions differ among entrepreneurs and economists whether and which sectoral priorities should be set by the state.

The European Innovation Scoreboard 2008 again identifies Latvia among the catching-up group, with an innovation performance considerably below the EU-27 average but an above average rate of improvement. Latvia was ranked 30th out of the 32 countries included in the EIS Summary Innovation Index with its score (0.239) making only half of the EU-27 average (0.475). So far the increase in innovation inputs (enablers) has not resulted in an accompanying growth in innovation performance. Despite the government's official position that all launched and prescheduled innovation support programmes will be maintained as well as the objective that GERD (gross domestic expenditure on research and development) should reach 1.5% of GDP by 2015, the 40% cut in state budget for R&D, tax raises and the government's indecision on introducing structural reforms even further inhibit innovative development in the country.

The main identified persisting innovation policy challenges are related to (1) enhancing the innovation capacity and performance of business companies; (2) maintaining and promoting a qualified workforce; and (3) facilitating and intensifying science-industry cooperation.

2. Main developments in public support for innovation

The main objectives for national innovation policy have not significantly changed over the reporting period since in most cases the objectives and quantitative targets set in the respective policy documents have not been updated according to the current socio-economic situation of Latvia. The key responsibility for innovation governance in Latvia is still shared by the Ministry of Economics and the Ministry of Education and Science. However, during the reporting period some notable structural changes have taken place both within the ministries and the implementing agencies. These have been guided by a certain redistribution of the functions of policy design and implementation. No new committees or special advisory bodies have been set up during the reporting period specifically to monitor and advise policy makers on innovation.

Compared to the EU policy mix, Latvia has a larger share of R&D and innovation support measures aimed at public research organisations and universities, but a comparatively smaller one targeting R&D cooperation, knowledge transfer and support to innovation management and advisory services as well as direct support of business R&D and support to innovative start-ups. At the same time, in terms of estimated annual budget, the largest share of funding goes to direct support of business R&D followed by research infrastructures, career development and strategic research policies. The majority of policy measures are of a generic nature and mainly target higher education institutions research units/centres and other non-profit research organisations, followed by companies. The aspects of innovation processes targeted by support measures are predominantly those of diffusion of

technologies in enterprises and development/prototype creation. So far, unaddressed aspects in Latvia include ones aimed at improving the legal and regulatory environment for innovative activities as well as innovation management tools. Forms of funding of support measures in Latvia are mainly grant-based, while no R&D and innovation support measures have been launched in the form of guarantees and subsidised loans or tax incentives. Sources of co-financing for those measures with other funding than national public sources are predominantly coming from the EU SFs (Structural Funds).

Altogether, five new policy measures which aim to promote innovative activities have been launched in the reviewed period and will be implemented up to 2013. These are primarily targeted at providing direct support to business R&D, facilitating knowledge transfer and creating a favourable innovation climate. Taking account of the current set of policy measures, additional forms of support may still be required in the domain of indirect support to business R&D and support to sectoral and organisational innovation.

3. Appraisal of national innovation policy

The government generally recognises the main identified innovation policy challenges and these could be successfully addressed, provided there is a well thought-out allocation of financial resources currently available mainly through the EU SFs. While the existing and envisaged policy measures aim to tackle the related problem areas, doubts over their efficiency and sufficiency are caused by the minor progress achieved over the past seven years when the first national innovation programme came into effect. Moreover, since the length of the economic recession cannot be precisely forecasted, a threat of both direct and indirect negative impacts of the crisis on the innovation domain remains.

The process of policy design in Latvia in general is becoming more structured and in line with established practices of policy making, yet proper and efficient application of the introduced tools is sometimes still questionable. Also a rather rigid interministerial division of responsibilities and competencies is still present in the innovation governance system of Latvia. External assessments point to the fragmented nature of policy formulation and the fact that there is room for improved interministerial coordination in Latvia as well as the need for a closer integration of R&D and innovation policy. While in numerical terms the number of organisations involved in the innovation governance system of Latvia seems sufficient, there is a continuous lack of a high level coordinating body in this domain.

An assessment of the efficiency of the implementation of public support for innovation in Latvia is largely related to the overall management and administration of the EU SFs. According to recently conducted studies, the EU SF management system is moving towards optimisation and simplification. Nevertheless, many aspects of fund assignment can be improved. While the role and capacity of the Latvian Investment and Development Agency as the main implementing agency of innovation support measures had increased substantially over the recent years, the structural reforms have led to a certain reallocation of its functions. The process of delivery of innovation support measures is hindered by the budgetary cuts as well as by recurrent delays in launching several state aid programmes.

The available impact assessments for public support indicate a quite substantial positive impact in both EU SF planning periods (2004 to 2006 and 2007 to 2013) on output, budget balance and productivity and negative impacts on inflation and the trade balance. While the expenditure category covering innovation, scientific research, research equipment and infrastructure for research was allocated only 1% of the EU SFs in 2004 to 2006, the respective estimates regarding 2007 to 2013 reveal that 10% are earmarked for the respective category. A direct coherence between total committed financing and the socioeconomic development level in regions has been revealed with more developed regions having attracted more funding (also for promotion of entrepreneurship and innovation) in 2004 to 2006.

In terms of policy design, the major opportunity for Latvia lies in capitalising on and taking maximum advantage of the complementary competencies possessed by players in the national innovation system and ensuring their synergies in policy making. A formal functioning mechanism ensuring such cooperation on a high policy level is of vital importance in Latvia. While the recent economic trends and market developments shape the current opportunities for further development of innovation policy in Latvia, it is also strongly affected by the internal political collisions that strongly determine the need for adopting a national-level policy document that would ensure the success and consistency of the economic and innovation policy irrespective of the particular political system.

1. Main trends and challenges in the National Innovation System

1.1 Recent economic trends and market developments

Latvia experienced an economic boost in the period of 2005 to 2007 when the annual GDP growth reached approximately 11%. The high level of growth was mainly driven by easily available bank loans due to the significant inflow of foreign capital and the real estate boom causing increased demand in the domestic market. In its turn, in 2008, the GDP growth declined steeply, reaching just 4.6%. The economic slowdown was predetermined by several overlapping external and internal factors such as a decline of global economy growth and a decrease of domestic demand. The economic slowdown in Latvia continued during the first part of 2009, which was also partly affected by the global financial crisis. Compared on a year-to-year basis, the GDP shrunk by 18% in the first quarter of 2009, and the Ministry of Economics (MoE, 2009a) has forecasted that the GDP growth decline would remain at this level for the whole year. As noted by the MoE, the current crisis in Latvia, originating in the non-balanced development during the economic boom, has features of a structural crisis (MoE, 2009c:136).

Looking retrospectively, the above-mentioned indicators grew significantly during the period of 2004 to 2007 (see Exhibit 1). GDP per capita, the most important indicator, indicated an impressive growth from 45.7% to 57.9% compared to the EU-27 (=100), while labour productivity per person employed rose from 45.9% to 53.6%. However, in 2008 all indicators plummeted. It is expected that the economic situation could start to improve only in the second half of 2010. However, the GDP growth rate would most probably remain negative featuring a decrease by 3.4% respectively. Meantime, it is forecasted that the recovery of the Latvian economy would start in two years, reaching a positive GDP growth rate approximately at the level of 1.5% in 2011 and 3.8% in 2012.

Exhibit 1: Comparable indicators of economic performance

Indicator	National performance			EU-27 average		
	2004	2007	2008	2004	2007	2008
GDP per capita in PPS (EU-27=100)	45.7	57.9	55.7	100*	100*	100*
Real GDP growth rate (% change previous year)	8.7	10.0	-4.6	2.5	2.8	0.9
Labour productivity per person employed (EU-27=100)	45.9	53.6	51.1	100*	100*	100*
Total employment growth (quarterly % change) (1)	1.1	3.5	0.8	0.7	1.8	0.9
Inflation rate (average annual)	6.2	10.1	15.3	2.0	2.3	3.7
Unit labour costs (growth rate)	-1.4	-0.8	0.5	-0.6	5.6	7.0
Public balance (net borrowing/lending) as a % of GDP	-1.0	-0.4	-4.0	-2.9	-0.8	-2.3
General government debt as a % of GDP	14.9	9.0	19.5	62.2	58.7	61.5
Unemployment rate (as % of active population)	9.0	7.1	7.0	10.4	6.0	7.5
Foreign direct investment intensity	2.7	4.7	:	0.9	3.4	:
Business investment as a percentage of GDP	24.4	28.0	25.3	17.2	18.8	18.5

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

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

(1): See:

http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996.39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_TB_national_accounts&root=REF_TB_national_accounts/t_na/t_namq/t_namq_brk/teina300

It should be noted that the EU as a whole is experiencing an economic recession and also the two other Baltic States faced a sharp decline of GDP in the first quarter of 2009 - Lithuania featuring minus 13.6 and Estonia minus 15.1%, respectively. Yet, according to some estimates, Latvia stands out as

the country hardest hit by the crisis (followed by the economies of Estonia, Iceland, Ireland and Lithuania) based on the data on GDP, inflation rate and purchasing power parity (Zumbrun, 2009). The Latvian situation was even more affected by the urgent decision of the Latvian government to nationalise the Parex bank, the second biggest commercial bank in the country, in order to help it to avoid the financial problems caused by the global financial crisis. Subsequently, in late 2008, the Latvian government sought and started receiving the financial assistance of the European Commission (EC) and the International Monetary Fund (IMF) to stabilise the financial sector in the country and to cover the budget deficit. Yet, one has to admit that Latvia's situation is rather confusing due to the lack of precedents on how to deal with and overcome such a crisis.

Signs of an accompanying political crisis from January to March 2009 also illustrated the complicated political and economic situation in the country. It was somewhat stabilised by 12 March 2009 with the election of the new majority government, led by Valdis Dombrovskis, a member of the long-term opposition party the New Era. Both the Minister of Finance and his counterpart in economics also represent the Prime Minister's party. Yet, difficult negotiations with the IMF on conditions of the financial assistance and the general elections, expected in a year, along with the declining and critically low public trust in the government might affect the fragile political stability.

The situation in Latvia has been closely monitored by external analysts as well. For example, the *Financial Times* (Ward, 2009) in its analysis highlighted that the new crisis in the banking sector or devaluation of national currencies in the Baltic States could potentially jeopardise general improvement trends in Europe. While globally one could notice the first signals of economic recovery, the crisis still continues in the Baltic States, and it could not be ruled out that Latvia gets stuck in a downward spiral and cannot break out of it. According to the Global Competitiveness Report (GCR, 2008) Latvia has been ranked the 54th among 134 countries in the rating of the World Economic Forum in 2008, lagging behind the neighbouring Lithuania (44th) and Estonia (32nd). Similarly, following the indicators of economic performance of the European Competitiveness Report 2008, Latvia is the last among the three Baltic States, in fact, staying among the poorest performers in the EU (ibid). *Reuters* news agency (Lannin, 2009) stressed that the recurrent financial assistance of the IMF in mid-2009 could provide just a short term reprieve from concerns of the state financial situation and the currency peg because the collapse of the economy is unlikely to end by 2010. The Baltic experts (Swedbank, 2009a:3) doubt that the economic situation in all three countries, that are closely bound internally and open to global economy, could improve prior to 2010 and prior to gradual improvements in the US and the whole European economy.

A decrease in turn-out was registered in all main sectors of the Latvian economy in 2008. The most worrying decline affected trade, manufacturing and construction. In the first quarter of 2009, private consumption fell by 17.4% compared to the same period a year before. Due to the decline of domestic demand and shortages of external supply of financial resources, the annual inflation in 2009 is expected to be around 3%, breaking the skyrocketing trend of rising consumer prices experienced in the previous years. While inflation at the end of 2008 was 10.5%, in the first part of 2009 it fell to 3.4%. The economic downturn also increasingly affects the employment ratio: for example, in the first quarter of 2009 the number of employed persons declined by 8% compared to the same period in 2008. The first part of 2009 has also been characterised by a rapid increase in the number of officially registered unemployed people reaching 11.6% of economically active population in July 2009.

As mentioned above, the decision of the Latvian government to take over the controlling stake of 51% of the Parex bank in November 2008 significantly affected the overall financial situation in the country. Estimates (Levalde, 2009) show that the recently nationalised bank received state financial support of EUR 1.74 billion, which amounts to about 7% of the GDP of Latvia in 2008. It is half a billion euros more than the financial assistance allocated by mid-2009 by both the IMF and the EC. It should be mentioned, however, that not all details of negotiations and agreements between the IMF and the Latvian government are publicly known. Nevertheless, the fact that the IMF has not lent such a significant amount of financial support to small countries like Latvia before can also be treated as a signal of the seriousness of the problems country is currently facing.

Altogether, in 2009 and subsequent years, the planned international loan would reach EUR 7.5 billion. The general requirements of the lenders define the need of diminishing the state budget deficit as well

as carrying out structural reforms in the country, etc. The initial injections of the loan have been channelled only to cover the budget deficit and for stabilising the country's financial system. Retrospectively, in November 2008, the parliament approved the state budget, but in one month it underwent a thorough revision, including radical cuts in public spending and changes in the tax system, e.g. raising the value added tax from 18% average rate to 21% in all categories, including those (medicines, books, etc.) with a formerly reduced rate. The following budget amendments were approved in June 2009, significantly affecting also state expenses for pensions, health and education sectors that are being cut substantially.

In 2009, commercial banks have significantly restricted the issuing of loans, direct financial investment has shrunk 16 times compared to 2008, and foreign investors have withdrawn EUR 135.3 million, which has been done for the first time since 2003. In 2009, the foreign gross debt of Latvia has reached 156.0% of GDP compared to 128.2% a year before (Swedbank, 2009b:5). Devaluation of the Latvian national currency as a means to ease the crisis has been extensively discussed in Latvia and beyond its borders. Theoretically it could strengthen the export competitiveness of the country (MoE, 2009b); however, the current economic situation and, moreover, the export structure of Latvia would not guarantee maximising of foreign trade. In its turn, the state debt could soar and foreign banks could downgrade their trust in the Latvian financial markets. Based on these and other contra arguments the Latvian national bank has been holding a staunch position against destabilising of the national currency and still aims at joining the Euro zone in 2012 to 2013.

The European Council in its recommendations of January 2009 (EC, 2009) has pointed out that the immediate economic policy challenge for Latvia is to secure macro-financial stability as there is a risk of a pronounced and prolonged downturn. It is noted that in the medium term, productivity enhancing investment in R&D, innovation and education has to facilitate a shift from domestic-demand-driven sectors towards tradeables. The Council also recommended that Latvia should progress faster with its research and innovation policy reforms.

1.1.1 The credit crisis and its effect on innovation activity

The current situation in Latvia is characterised not only by the financial (credit) crisis, but also by a profound economic downturn. While there hasn't been any specific study on the impact of the crisis on innovation activities, the developments in the business environment are quite illustrative of the trends taking place in the enterprise sector that also provide insights into the potential scenarios for innovative development prospects in Latvia. According to the forecasts made by the Employers' Confederation of Latvia, around 70% of the currently active companies would survive the crisis, while the other 30% would be forced to phase out or go bankrupt (Gavare, 2009). According to Lursoft (2009) data, the number of liquidated enterprises registered in the first two quarters of 2009 (4,294) is coming close to the total number of cases in 2008 (4,765). Also the number of entities included in the Insolvency register increases each month - for instance, in March 2009 it had increased by 14% in comparison to the number registered in April 2009 (Register of Enterprises, 2009).

The crisis has, first and foremost, a negative influence on human resources. Compared to the economic crisis in 1998, when Russian financial markets collapsed, today employment has been affected even more significantly. The number of unemployed has reached higher levels than a decade before and, what is more, official unemployment is also coupled with an increase in irregular and illegal employment (MoE, 2009b). Moreover, the share of unemployed among those with higher education is growing at an equal rate as among other groups and has further increased from 9% in June to 13% in July 2009. Under the growing pressure to cut expenditures, an increasing proportion of employees opt for employment without work agreements and tax payments. However, a tendency to redistribute human resources among different economic sectors has not been observed due to the overwhelming crisis impact on virtually all domains of the economy. At the same time a trend to retrain is being reported by higher education institutions since, for instance, 30% of the new applicants at the University of Latvia do not come directly from high school.

If asked theoretically, 52% of Latvia's employers would be willing to recruit new talented employees compared to 22% on average on the world scale (Leilands & Putnis, 2009). Simultaneously employers

admit that lapses in employment legislation prevent them from recruiting specialists needed to ensure innovation. Latvia is also characterised by relatively low quality of life, reaching just 55.7% of the EU-27 average in 2008. Consequently, it is one of the strongest stimuli to search for employment abroad under conditions of free flow of labour in the EU. For instance, in January 2009, the EURES network had provided consultations on opportunities to work abroad for over twice as many job seekers as in the same period a year before (1 652 compared to 707 in January 2008). These factors also result in the phenomenon of brain waste given the fact that Latvian people are mainly overqualified for work they are able to obtain abroad (data gathered in 2006 to 2007) (Hazans, Philips, 2009).

Experts suggest that an increase of entrepreneurship and the creation of own businesses would be one of the alternative options for those, who have lost their job due to the crisis. However, currently it has proved only an occasional option since many entrepreneurs believe that it is too difficult to launch small businesses in Latvia. Lack of private finances to start business, tax burden, which is the same for newcomers and experienced players in the market, and complicated administrative procedures are mentioned among the biggest obstacles for the small business (Leilands & Putnis, 2009). The crisis, accompanied by these factors, has actually resulted in a steep decline of newly registered companies by 30% in January 2009 compared to 2008 (Register of Enterprises, 2009). In order to boost entrepreneurship, the state has drafted a programme on economic recovery (MoE, 2009b), which, among other stimuli, includes also special support for micro businesses.

Furthermore, one of the most serious problems in Latvia is low labour productivity, which was 53.6% in 2007, only a little bit more than half of the EU-27 average: the previous macroeconomic conditions allowed also low productive players to operate in the market, yet this might change under the current economic conditions. There is a persistent will among Latvian companies to raise their productivity - 94% of entrepreneurs would be willing to devote time to it compared to the world average of 45%, and 85% of Latvia's respondents have said they are preparing to introduce new products and services (against the world average of 36%) (Leilands & Putnis, 2009). Yet, due to a sum of various factors it has not resulted in any practical implementation, and would urgently need state support to turn the wishful thinking into real action.

Judging the general climate for innovation activities, one should admit a decline in this respect during the last year. Despite the government's official position and emphasis in public discourse on the statement that all launched and prescheduled innovation programmes will be maintained, the three main indicators – state budget cut for R&D by 40%, tax raise and the government's indecision on introducing structural reforms – also confirm the aggravation of the situation.

The first signs of the crisis were experienced in mid-2008, but it wasn't until July 2009 that the Ministry of Economics drafted its proposal for the mid-term recovery plan for the economy (MoE, 2009b). The plan envisages three main new characteristics. Firstly, the time frame of the plan is prepared in line with the state budget for 2010. It is an important aspect since so far the financial means of all elaborated plans have not been bound to the state budget. Secondly, it emphasises the tasks brought forward to fulfil the aims of the Lisbon Strategy, previously neglected in the majority of recently elaborated programmes. And thirdly, it highlights the envisaged strategy to replace the current model of the economy, rooted in cheap labour, with one based on knowledge and innovation. As far as the current situation concerns, Latvian companies mainly operate in sectors with low added value, while market mechanisms *per se* do not guarantee that entrepreneurs could reorient their activities toward more remunerative and innovative business activities. According to the plan it is envisaged to achieve the following results: the annual GDP growth rate in the period of 2011 to 2015 would reach 5%, inflation would be kept at a moderately low level, unemployment would be held under 8% and state budget allocations for R&D would reach 1.5% of GDP. The plan underlines the intrinsic necessity to promote competitiveness, productivity rise and high value added production to achieve these goals.

The proposals of the Ministry of Economics highlight that state support should be targeted and selective, namely, it should be allocated for priority sectors of the economy and enterprises with high development potential. The five provisionally indicated priority sectors are as follows: the food industry, wood-processing, the chemical industry, electric and optical machinery and metal-processing. These fields have been chosen due to their perceived capacity to increase the growth of value added to export products as well as their potential for high growth in the future. At the same time

entrepreneurs from other sectors are not precluded from state support if they prove to be competitive and can demonstrate high growth potential. The main types of the envisaged support include financial instruments, tax stimuli, state support programmes, education and science support measures, promotion of employment, including a support programme for micro companies, etc.

Opinions differ among entrepreneurs and economists whether priorities should be set by the state at all and whether the nominated sectors are the most promising ones, and this has initiated a heated debate (Graudins, 2009). It has been admitted that priority sectors could generate high added value already in the short term, while others also have a future growth potential. It has been also highlighted that priority setting itself is an important element to introduce viable structural reforms in the country. However, others are of the opinion that support should rather be provided for all exporters regardless of the economic sector they might belong to. One of the biggest opponents is the Latvian Chamber of Commerce and Industry, arguing that competitiveness among the best Latvian companies would rather ensure future growth, instead of stimuli for chosen economic sectors as such. It is unlikely that priority sectors could be specially supported by a reduced tax rate (Fridrihsone, 2009).

1.2 Recent trends in the national innovation performance

The Global Competitiveness Report 2008-2009 has listed Latvia among the countries being in the stage of transition from efficiency-driven to innovation-driven development (GCR, 2008:9). Yet, while it has been ranked relatively high in the categories of basic requirements (55th out of 134 countries) and efficiency enhancers (47th), with regard to Innovation and sophistication factors it is further behind other countries (84th) (ibid:214). On the level of individual indicators Latvia is doing particularly poorly with regard to availability of scientists and engineers (112th), state of cluster development (112th), Government procurement of advanced technology products (100th), as well as in respect to the quality of scientific research institutions (88th), university-industry research collaboration (83rd), firm-level technology absorption (81st), FDI (foreign direct investment) and technology transfer (73rd), Company spending on R&D (72nd), and Capacity for innovation (71st). It is doing a bit better though still comparatively poor in respect to such relevant specific indicators as brain drain (56th), quality of mathematics and science education (57th), venture capital availability (57th), and utility patents (59th).

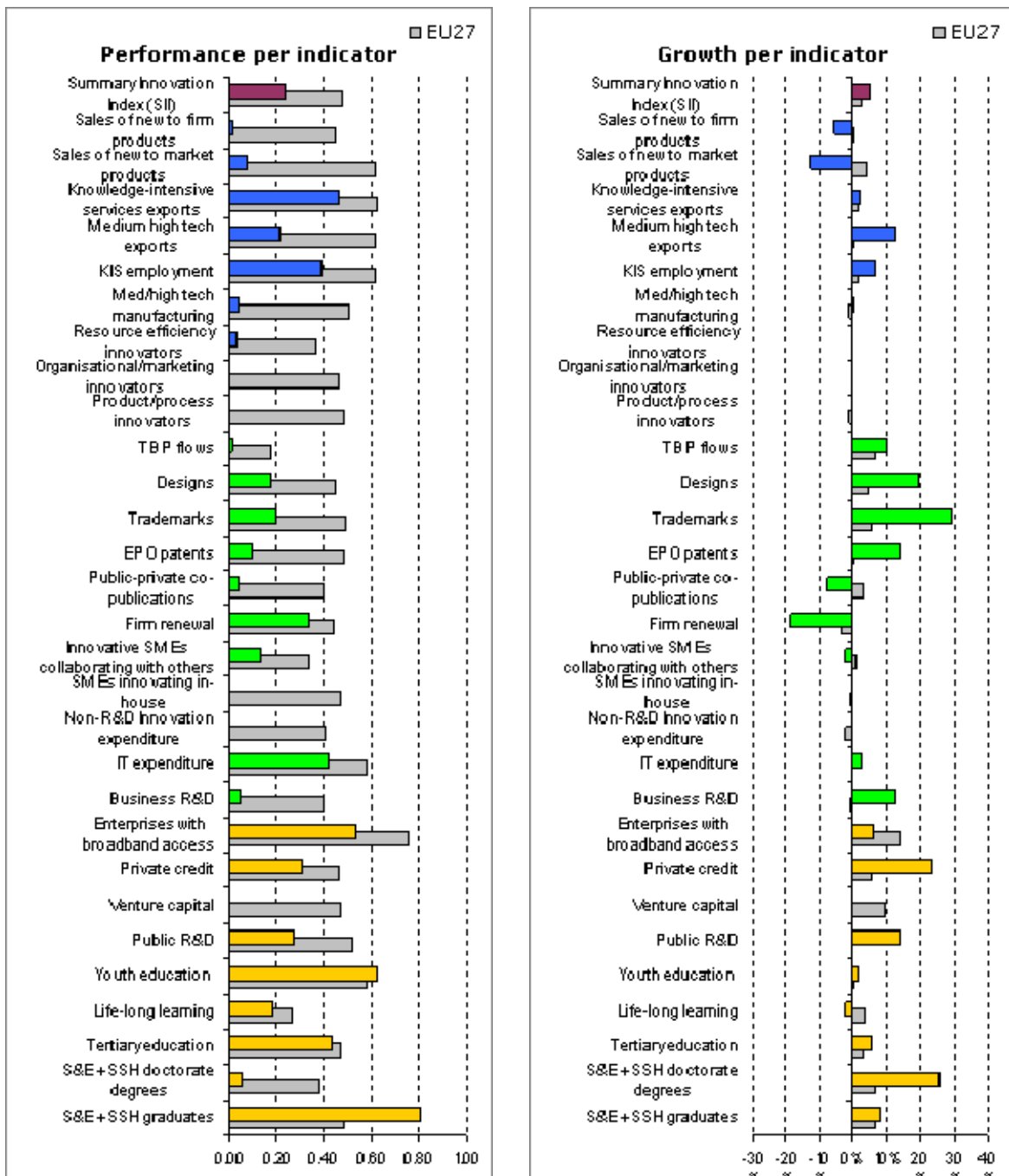
In its turn, the European Innovation Scoreboard 2008 (EIS, 2009) again identifies Latvia among the catching-up group of 10 countries with an innovation performance considerably below the EU-27 average but an above average rate of improvement (see Exhibit 2)⁽²⁾. As noted by the European Innovation Progress Report 2008 (EIPR, 2009), the catching-up countries are almost exclusively new EU Member States. According to the analysts, the whole catching-up group is characterised by very low initial SII values. Eight out of the 10 countries of the group (including Latvia) are for the first time receiving massive funding for modern innovation policies, thanks to the EU SFs, which is seen as one of the main reasons behind their ability to catch up (ibid:54).

Prior to any further analysis mention has to be made of the fact that due to the inevitable time lag, reference data for most of the underlying EIS indicators are for 2006 and 2007, but not for 2008, and thereby the results do not yet reflect the impact of the crisis on the overall innovation performance of the country. Besides, out of the 29 indicators included in the new scoreboard in the case of Latvia there are no data on four indicators and in case of addition six cover only one or two years (instead of the envisaged seven-year period 2001-2007). Namely, around one third of all the used indicators either do not feature any data or cannot be used for proper comparisons. Therefore the following conclusions based on the EIS data should be treated with caution.

² It has to be noted that EIS 2008 was prepared according to a new methodology (see Hollanders, van Cruysen, 2008). The EIS 2008 Methodology Report explains in detail the new methodology that has been used for the EIS 2008 report and also intended for the 2009 and 2010 reports. Two changes modified principally the classification and the ranking of the country: the new mix of indicators and the new method of calculation of individual indicators. The revised indicator mix includes 29 innovation indicators, which are summarised in seven different innovation dimensions and three main groups: enablers, firm activities and outputs. The first group of enablers captures the main drivers of innovation that are external to the firm. The second group, firm activities, captures innovation efforts that firms undertake – recognising the fundamental importance of firms' activities in the innovation process. The third group, outputs, captures the outputs of firms' activities.

The relative strengths of Latvia, compared to the country's average performance, are in human resources and finance and support. Relative weaknesses are in linkages and entrepreneurship, throughputs and innovators. Over the past five years, human resources, finance and support, firm investments and throughputs have been the main drivers of the improvement in innovation performance, in particular as a result from strong growth in S&E (science and engineering) and social sciences and humanities (SSH) doctoral graduates (25.7%), Private credit (23.4%), business R&D expenditure (12.7%), community trademarks (29.4%) and community designs (19.2%). At the same time performance in linkages and entrepreneurship has worsened, in particular due to a decrease in the firm renewal rate (-18.6%) and public-private co-publications (-8.1%).

Exhibit 2: European Innovation Scoreboard: country pages



INNO-Policy TrendChart

	2001	2002	2003	2004	2005	2006	2007	2008	Growth
SII				0.194	0.204	0.215	0.239	0.239	5.2%
ENABLERS									9.9%
Human resources									7.3%
1.1.1 S&E and SSH graduates	46.8	41.2	46.5	52.4	55.9	56.4	--	--	8.2%
1.2.2 S&E and SSH doctorate graduates	0.10	0.10	0.16	0.17	0.27	0.24	--	--	25.7%
1.1.3 Tertiary education	18.1	19.6	18.2	19.4	20.5	21.1	22.6	--	5.5%
1.1.4 Life-long learning	--	7.3	7.8	8.4	7.9	6.9	7.1	--	-2.3%
1.1.5 Youth education	--	77.1	75.4	79.5	79.9	81.0	80.2	--	1.6%
Finance and support									14.2%
1.2.1 Public R&D expenditures	0.26	0.25	0.25	0.23	0.33	0.35	0.42	--	13.8%
1.2.2 Venture capital (3-year average)	--	--	--	--	--	--	--	--	--
1.2.3 Private credit	0.26	0.33	0.40	0.51	0.68	0.88	0.93	--	23.4%
1.2.4 Broadband access by firms	--	--	--	45.0	48.0	59.0	57.0	--	6.1%
FIRM ACTIVITIES									5.6%
Firm investments									7.4%
2.1.1 Business R&D expenditures	0.15	0.17	0.13	0.19	0.23	0.35	0.21	--	12.7%
2.1.2 IT expenditures	--	--	--	2.1	2.3	2.3	--	--	2.3%
2.1.3 Non-R&D innovation expenditures	--	--	--	--	--	--	--	--	--
Linkages & entrepreneurship									-9.9%
2.2.1 SMEs innovating in-house	--	--	--	--	--	--	--	--	--
2.2.2 Innovative SMEs collaborating with others	--	--	--	6.1	--	5.6	--	--	-2.2%
2.2.3 Firm renewal (SMEs entries + exits)	9.2	8.1	4.8	5.6	4.0	--	--	--	-18.6%
2.2.4 Public-private co-publications (2-year avg.)	--	0.9	0.9	0.2	0.4	0.4	--	--	-8.1%
Throughputs									17.9%
2.3.1 EPO patents	2.0	2.7	3.6	4.2	5.7	--	--	--	13.7%
2.3.2 Community trademarks	0.0	0.0	0.9	3.0	10.9	13.5	23.7	--	29.4%
2.3.3 Community designs	--	--	--	5.2	20.3	19.1	21.0	--	19.2%
2.3.4 Technology Balance of Payments flows	--	0.11	0.13	0.16	0.15	0.16	--	--	10.3%
OUTPUTS									0.2%
Innovators									0.0%
3.1.1 Product/process innovators (SMEs)	--	--	--	--	--	14.4	--	--	0.0%
3.1.2 Marketing/organisational innovators (SMEs)	--	--	--	--	--	--	--	--	--
3.1.3 Resource efficiency innovators									
3.1.3a Reduced labour costs	--	--	--	18.5	--	6.2	--	--	--
3.1.3b Reduced use of materials and energy	--	--	--	19.4	--	5.4	--	--	--
Economic effects									0.3%
3.2.1 Employment in medium-high/high-tech manuf	1.72	1.97	1.85	1.42	1.52	1.73	1.88	--	0.4%
3.2.2 Employment in knowledge-intensive service	7.90	7.48	8.14	8.56	9.27	10.21	10.57	--	6.7%
3.2.3 Medium/high-tech manufacturing exports	--	14.8	16.2	17.6	20.2	23.8	--	--	12.7%
3.2.4 Knowledge-intensive services exports	--	34.9	36.7	36.9	36.9	37.6	--	--	1.9%
3.2.5 New-to-market sales	--	--	--	3.5	--	2.1	--	--	-12.3%
3.2.6 New-to-firm sales	--	--	--	1.6	--	1.3	--	--	-5.6%

Latvia's innovation performance has been very low also in the previous EIS ratings. Latvia was ranked 30th out of the 32 countries included in the EIS Summary Innovation Index (SII) in 2008. Latvia's SII score in 2008 (0.239) was also quite low compared to the EU-27 average (0.475). In comparison, the neighbouring Baltic state Estonia was ranked 15th (SII value 0.454), while Lithuania was ranked 27th (SII value 0.294). Furthermore, Estonia is one of the moderate group's countries, while Lithuania is still listed among the catching-up group's countries. Latvia's low performance within the EIS conforms to similar results mirrored by the new Global Innovation Scoreboard 2008, where Latvia has been ranked 47th out of the 48 surveyed countries. Again Estonia and Lithuania both score higher being ranked 28th and 32nd respectively. Last but not least, in an international survey of 82 countries, carried out by the Economist Intelligence Unit in 2009 on the world's most innovative countries (EIU, 2009) based on the ranking of countries by their innovation capacity from 2002 to 2006, Latvia occupies 43rd place (Estonia 30th and Lithuania 38th) by its innovation performance, while being ranked 33rd based on an assessment of the general innovation environment (in comparison Estonia was ranked 19th and Lithuania 40th).

One should admit that an increase in innovation inputs or the so-called enablers (e.g. human resources, finance and support) cannot per se guarantee an immediate growth in innovation performance and this is exactly what can be observed in the case of Latvia over the past five years with regard to its EIS results. An average growth of enablers is 9.9%, while outputs have grown only by 0.2%. As noted above, the growth of enablers should be associated with the accession of Latvia to the EU in 2004 and the subsequent increase of the state budget for R&D and innovation and access to the EU SFs. Meantime, as the data show, the increase of enablers has influenced the raise of the SII score from 0.194 (2004) to 0.239 (2007 and 2008). Based on the direct inputs index regarding innovation enablers, the above-mentioned EIU study has accordingly ranked Latvia 51st, thereby leaving it far behind the neighbouring Estonia (25th) and Lithuania (32nd). All indicators of enablers used in EIS are close to the EU-27 average, and two of them are even above, namely the S&E and SSH graduates per 1 000 population aged 20 to 29 (first stage of tertiary education) and youth education attainment level. It should be highlighted, however, that another indicator of enablers is particularly weak namely S&E and SSH doctoral graduates per 1 000 population aged 25-34 (Latvia – 0.24, EU-27 – 1.11). In the case of venture credit there are no data available on Latvia.

The average growth of firm activities amounts to 5.6% (int. al. throughputs – even to 17.9%, while linkages and entrepreneurship has decreased by 9.9%). In the case of firm activities indicators it should be stressed that all of those significantly lag behind the EU-27 average. For example, among these indicators (per million population) are the EPO patents (Latvia – 5.7, EU-27 – 105.7), community trademarks (Latvia – 23.7, EU-27 – 124.6), and public-private co-publications (Latvia – 0.4, EU-27 – 31.4). Furthermore, business R&D expenditures as a percentage of GDP (Latvia – 0.21, EU-27 – 1.17) is one of the poorest results. There are also no plausible signs that business R&D expenditure in Latvia could grow in the near future. Besides, the level of innovation-active enterprises from 2002 to 2004 and 2004 to 2006 has even slightly declined: from 17.5% to 16.2% (CSB, 2008).

If treated in the light of the methodological changes in the calculations of EIS2008, Latvia roughly remains in the same position as prior to these amendments, being still among the last in the overall ranking. While according to the old method of calculation the SII score for Latvia in 2006 was 0.19, the recalculated one has increased to 0.215. This makes a difference of a mere 10%, which is insignificant given the relatively small values of all indicators for Latvia in comparison to the EU-27 average figures. Unfortunately, in a similar way to the former EIS system, the new one does not serve as a universal tool for both old and new EU Member States. In the case of Latvia such innovation indicators as the ones in the group of outputs and others (e.g. number of EPO patents and co-publications) are of very negligible value, therefore it does not seem to be proper to compare both the indicators themselves and their trends with those of the EU-27 average. The commentary provided by EIS2008 refers to a strong growth in S&E and SSH doctoral graduates (25.7%), while not making mention of the fact that the starting point for this indicator is very low and in comparison to the EU-27 average its value is very low as well.

While, based on the SII value, Latvia came third from the end out of the 32 countries, a slightly different picture can be observed if following its ranking in each of the seven innovation dimensions. In this case Latvia has a relatively good rank on such positions as human resources (15th), finance and support (23rd), probably also firm investments (26th). At the same time the position is very ill-conditioned on such dimensions as linkages and entrepreneurship (30th), throughputs (27th), innovators (last – 32nd), and economic effects (last – 32nd). The low innovation performance of Latvia highlighted by EIS 2008 is also basically reconfirmed by the most recent available data of the community innovation survey (CIS4) covering 2004 to 2006 (CSB, 2008:4-27).

In summary, the EIS2008 data on Latvia depicts that an increase of enablers has not resulted in a significant growth in innovation performance/output after 2004. It also should be taken into account that the situation in the near future could become even more complicated due to the financial and economic crisis. According to the most recent plans of the Ministry of Economics on implementation of the Lisbon Strategy, GERD should reach 1.5% of GDP by 2015. However, in 2009 the Latvian government cut the budget expenses drastically, including those previously allocated for public R&D expenditure (by 40%). It has been argued that the R&D sector would compensate for these cuts by finances available through the EU SFs for 2007 to 2013. Yet, the earmarked money still has not been made available by mid-2009. It is difficult to forecast the possible impact of the latest events on the

EIS output indicators in the years to come. The crisis development in the Baltic States is also closely interlinked with the situation in the global economy. Yet, one should stress that Latvia's innovation performance in the near future will be equally affected by the success or failure of the national government to introduce sustainable steps for the economic recovery.

1.3 Identified challenges

There haven't been any major changes or updates in the officially declared challenges for innovation policy in Latvia over the review period. The challenges and tasks defined for Latvia in the National Reform Plan (NRP) have been set in 2005 and the progress report of 2008 does not contain any analysis and corrections regarding the economic crisis despite the already present signs of it at the time of drafting this document. Though in the case of Latvia the same fundamental challenges still remain topical under the crisis conditions, the following analysis aims to identify the most pressing challenges hindering substantial progress in the field of innovation in Latvia with a more focused contextualisation of those under the present economic conditions. Namely, while the challenges identified here partly repeat those of the previous years, they have also tried to capture to some extent the specific context of the current crisis. It should be noted that although Latvia does not yet have well-established traditions of economic analysis in the public sphere, which might determine the lack of a clear strategy and thorough analysis leading to certain hesitation on the part of the government to make any determined decisions in this regard, there have been some more encouraging attempts in identifying and addressing the present challenges in 2009.

Exhibit 3: Main innovation policy challenges

Description of challenge	Relevant indicators and trends
1. Enhancement of innovation capacity and performance of enterprise sector Poorly developed industry and low business R&D expenditures largely determine the low level and intensity of innovative activities in the enterprise sector.	CSB: Share of innovative enterprises – low level, negative trend (2003 - 18.6%, 2006 – 16.2%) CSB: Public R&D expenditures – moderate level, negative trend CSB: Business R&D expenditures – very low level, negative trend EIS: indicator group 'Innovators' – very low level, stagnating trends EIS: indicator group 'Outputs' – very low level stagnating and negative trends
2. Maintenance and promotion of qualified workforce Insufficient number of students, graduates and researchers in S&T-intensive fields is coupled with recurrent waves of outward mobility of qualified labour force, which is not compensated by a sufficient inflow of qualified foreign labour.	EIS: S&E and SHH doctoral graduates – low level, positive trend Share of human resources employed in science and research (67% of the EU average) Share of non-national human resources in S&T (21% of the EU average) EIS: Life-long Learning – moderate level, negative trend
3. Facilitation and intensification of science-industry cooperation Science-industry cooperation in Latvia is characterised by limited number and scope of strategic partnerships between business companies and research institutions.	CSB: GERD financed by industry – low level, stagnating trend Innobarometer: Latvian enterprises having cooperated with research institutes and HEIs to support innovation – low share (3% and 7%) EIS: Public-private publications – low level, negative trend EIS: indicator groups 'Throughputs' and 'Outputs' – very low level, stagnating or negative trends

Challenge 1. Enhancement of innovation capacity and performance of enterprise sector

The challenge has been present in Latvia's innovation system ever since the concept of innovation was conceived by policy makers, and soon after it was realised that Latvia's innovation performance is one of the poorest in the EU. It results primarily from the low level of innovation in the Latvian economy as a whole and it is closely linked to the poor innovation activity of the majority of small and medium-sized enterprises (SMEs). Latvia is a country with a poorly developed industrial sector and, along with the immediate financial crisis, this has been also one of the underpinning factors of why it became one of the most vulnerable economies during the global crisis. The experience of the last five

years has so far also demonstrated the incapacity of significantly boosting the contribution of the enterprise sector in gross R&D funding. While in absolute figures state funding for R&D in 2004 to 2008 has increased approximately fivefold, the respective increase in business R&D funding has roughly been only twofold. As noted by the Ministry of Economics, a major factor hindering the development of innovative business activities is also insufficient financing for innovative business activities in their early stage (MoE, 2009c:101).

Latvia's innovation performance is still one of the poorest in the EU – no surprise for a country with a critically low level of innovative enterprises. And even these figures are declining, from 18.6% in 2003 to 16.2% in 2006 (CSB, 2008). In comparison, the EU-27 average is far higher (45%). Of course, the indicator of the share of innovative firms among all enterprises (which as such is not included in the EIS) cannot alone precisely feature the level of innovative development in the country. One cannot expect high innovation activity if an overwhelming majority of enterprises (including SMEs) consist of micro companies, which, unlike large companies, cannot afford to innovate due to lack of resources. Besides, risk taking for innovation could be both too long and too expensive for small players. Yet the values for the EIS Innovators' indicators are generally considerably below the EU-27 average. Also, the EIS summary innovation index, depicting the innovation level in the country, is very low in Latvia despite its positive trend in past years. Other EIS indicators directly attributed to this challenge are shown in Exhibit 3, and these too are far below the EU-27 average.

A considerably large number of various innovation policy measures have been implemented in Latvia, but their effect on innovation performance might not turn out to be very far reaching and so far they have not broken the ice with regard to innovative activities in Latvia. This could be explained by a correlation between enablers and innovation performance, emphasised already in Section 1.2., namely that improvements in innovation performance cannot be seen to immediately follow after indicators of enablers are improved. The current situation is even more puzzling with the ongoing economic crisis.

Challenge 2: Maintenance and promotion of qualified workforce

In 2007 the number of people employed in the field of R&D (including the full and part time jobs of R&D personnel, researchers, technicians and other supporting staff) numbered 11 076 (CSB, 2008). Out of these, 4,223 (full time equivalent) were researchers. If comparing statistical data on the share of human resources in science and research, this constitutes 0.92% of the total labour force, while in the other EU countries it is on average 1.36%. Furthermore, over half of the scientists are more than 55 years old and 28% are over 65 years. Only 7% of scientists working at research institutes are 25-34 years old. Thereby the current age structure poses a threat to the sustainable development of human resources in the science sector. Latvia has also experienced a considerable brain drain since according to approximate estimates one third of Latvian scientists currently work abroad.

The challenge of maintaining the qualified workforce is of particular importance in the current circumstances due to the rise in migration, which started in 1991, reached its peak after Latvia joined the EU, and is currently experiencing a third surge. Indicative of the trend is the result of a survey of high school graduates showing that 67% of them are considering leaving the country (Iveja, 2009). Although one should take into account that a wish to leave is not a decision, these numbers are worrying, assuming also that those already educated and qualified could consider similar opportunities (for instance, in 2009 twice as many professional medical workers left the country in comparison to 2008). Therefore the challenge is related to the workforce in a broad sense, namely both future professionals and already trained specialists.

With regard to international mobility of researchers, there is a threat of brain waste due to the fact that many of the Latvian emigrants (including researchers) are overqualified for work in positions they are proposed to and/or being able to obtain abroad. Conversely, numbers of incoming highly qualified specialists in the sector of R&D are negligible. In 2006, the share of non-national human resources in S&T in Latvia was only 1.2% in comparison to the EU average of 5.7% (Andersons, 2008). Taking into account the economic and financial crisis, which started in 2008, there is the threat of a new wave of emigration (Hazans, Philips, 2009). In 2005 to 2008, 80% of enquiries received by the Latvian Researcher's Mobility Centre, which provides informative support on both inward and outward

mobility issues, came from young Latvian researchers interested in finding funding (scholarships, internships, etc.) abroad, while only a few requests for information came from foreign researchers (Kokorevics, 2008). While no exact representative data are available on the duration of stays for mobile researchers in Latvia, a qualitative study on the inward mobility of researchers conducted in 2008 revealed that these are mainly short-term stays of less than six months (Kalnina, Sumane, 2008).

Last but not least, the EC (2009:56) has also noted that the shortage of qualified workers, especially researchers and engineers, remains an important challenge with regard to the need to absorb the planned increase in total R&D investment envisaged by strategic documents (see section 2.1).

Challenge 3. Facilitation and intensification of science-industry cooperation

Science-industry cooperation has been one of the most pressing and persisting challenges in the national innovation system of Latvia. In fact, Latvian companies take almost no advantage of the research potential at universities and state research institutes. The experts of the National Development Council have stressed that cooperation between scientists and entrepreneurs represents an essential prerequisite for the development of a knowledge-intensive economy in the country by means of promoting knowledge and technology transfer into production and ensuring production of higher value added goods and services. Yet, it has been acknowledged that, with some exceptional cases, so far the cooperation has not been very successful (NDC, 2009). Likewise, the Ministry of Economics considers the insufficient cooperation of science and businesses to also be one of the key factors hindering the development of innovative business activities (MoE, 2009c:101).

Technology transfer contact points could be named among the few success stories in recent years, but this is just a small step towards solving the problem. The reason for that lies in the lack of interest from both sides since there are limited financial and other reasons for pursuing such cooperation (Adamsone-Fiskovica et al., 2009b). This is also backed up by statistical data: according to the Innobarometer (2009), since 2006 only 3% of Latvian enterprises have developed strategic relationships with research institutes to support innovation against the EU average of 15%. Latvian enterprises were also the least likely to confirm strategic relations with universities or other educational institutions in support of innovation (7%) – a figure far below the EU average of 24%. The EC in 2009 has also suggested that there is a need for deepening the integration of R&D and innovation policy lines, involving private and public partnership and additional stimuli for private investments in particular.

2. Public Support to Innovation

2.1 Main objectives for innovation policy

The main objectives for the national innovation policy of Latvia are currently laid out in several policy documents – plans, strategies and programmes – elaborated in 2005 to 2008, which cover in one form or another aspects related to innovation (see Exhibit 4).

Exhibit 4: Main innovation policy documents

	Title	Status
1.	National Lisbon programme of Latvia for 2005-2008	Approved by the Cabinet of Ministers on 19 October 2005
	Progress report on implementation of the programme in 2008	Approved by the Cabinet of Ministers on 17 October 2008
2.	National Development Plan (NDP) of Latvia for 2007-2013	Approved by the Cabinet of Ministers on 4 July 2006
3.	National Strategic Reference Framework for 2007-2013	Approved by the Cabinet of Ministers on 23 October 2007
	Operational Programme 'Entrepreneurship and innovation'	Approved by the Cabinet of Ministers on 23 October 2007, last modified on 16 July 2009
4.	Programme for Promotion of Business Competitiveness and Innovation for 2007–2013	Approved by the Cabinet of Ministers on 28 June 2007
5.	Sustainable Development Strategy of Latvia until 2030 (draft)	Final version to be submitted to the Cabinet of Ministers by the end of 2009
6.	Guidelines for Development of Science and Technology for 2009-2013 (draft)	Initially drafted by the Ministry of Education and Sciences in 2005, adoption by the Cabinet of Ministers so far postponed
7.	Programme for stabilisation of the Latvian economy and growth resumption	Approved by the Cabinet of Ministers on 11 December 2008, updated on 15 June 2009
	Memorandum of Understanding between the European Community and the Republic of Latvia	Signed on 29 January 2009

The first one mentioned in the chronological order is the National Lisbon Programme of Latvia for 2005 to 2008 (National Reform Plan) (MoE, 2005), which has been updated with regard to the new cycle for 2008 2010 in the progress report on implementation of the programme in 2008 (MoE, 2008b). The main tasks set for further stimulating knowledge and innovation in 2008 to 2010 have generally remained the same as in 2005 to 2008 and are as follows:

- to increase public investment and foster private investment in R&D;
- to ensure renewal of intellectual potential in science, improving the system of doctoral grants and modernising scientific infrastructure;
- to promote innovation and new technologies;
- to promote distribution and efficient application of ICT, establish completely integrated information society.

A set of supplementary documents emerged in 2006 to 2007 largely in the light of the new planning period of the EU SFs for 2007 to 2013 and the need to master the newly available funding. First should be mentioned the National Development Plan (NDP) of Latvia for 2007 to 2013 (MoRDLG, 2006). This is a medium-term national planning document aimed at an economy based on education, science and competitive enterprises and thereby improving the quality of life of the citizens of Latvia. The NDP sets the strategic objective of 'education and knowledge for economic growth and

technological excellence and the following priorities: (1) Educated and creative personality; (2) Technological excellence and flexibility of industries; (3) Development of science and research. With regard to the second and third priority, the plan proposes the following measures:

- Commercialisation of applied science, transfer of innovations and technology;
- Formation of new and competitive enterprises;
- Application of knowledge to increase the competitiveness of enterprises;
- Development of creative industries;
- Sustainable and efficient use of natural and energy resources.
- Revival of academic and applied science potential;
- Updating of scientific infrastructure in institutes and higher educational institutions.

The policy document, which was specifically elaborated for the absorption of the EU SF, is the National Strategic Reference Framework for 2007 to 2013 (MoF, 2007a) with an overarching aim of fostering accelerated economic growth of the nation and approaching the average EU level of welfare. One of the three operational programmes (OPs) outlining specific measures for reaching the defined objectives is the OP 'Entrepreneurship and Innovation' (MoF, 2007c), which encompasses the majority of innovation support measures to be co-financed by the EU SFs in the given seven-year period. State aid measures under this OP are focused on three main activity areas:

- Enhancing Latvia's science and research potential by improving the infrastructure of science and research centres, attracting new and highly qualified human resources, and ensuring advanced experience in applied sciences and research by supporting research activities;
- Improving and establishing cooperation mechanisms for researchers and businesses to stimulate more active technology transfer and improve the capacity of merchants to invest in innovations and development of new products through increased availability of loans and venture capital;
- Promoting formation and development of new enterprises by establishing assistance mechanisms to business start-ups, and fostering development of existing enterprises by providing support to business infrastructure and services, as well as ensuring more available financial resources.

The Programme for Promotion of Business Competitiveness and Innovation for 2007–2013 (MoE, 2007) represents an attempt to integrate entrepreneurial, innovation and industrial development policy planning. The programme aims to foster business development, increase the capacity and efficiency of the national innovation system, and increase competitiveness and productivity of the national industry by producing products with high value added. The action plan of the programme outlines concrete policy measures for:

- improvement of business environment;
- promotion of access to finances;
- development of new business initiatives and boosting their competitiveness;
- promotion of public awareness of innovation and its contribution to competitiveness;
- facilitation of cooperation between education and research sectors, knowledge transfer and commercialisation;
- promotion of industrial development;
- increasing productivity.

Alongside the above-mentioned innovation-related policy documents approved by the government, there are two additional ones which are either still being drafted or awaiting revision by the Cabinet of Ministers. One of these is the Sustainable Development Strategy of Latvia until 2030 (Laboratory of analytical research and strategies, 2008) which is to become the main national long-term planning document. Its elaboration was started in early 2008. In November 2008, the revised first draft was delivered for further public deliberation after which the final version has to be submitted to the Cabinet of Ministers by the end of 2009. The draft strategy identifies mass creativity and innovative economy as one of the future development trends. The strategy is generally a vision of Latvia in 2030 as a creative society and an innovative economy based on creative SMEs. Creativity is defined as one of the key strategic principles for strengthening the capacity of Latvia for a sustainable development of the country. The strategy defined an aim for Latvia to become one of the EU leaders in terms of the spread of innovative and exporting SMEs. The respective prioritised long-term action lines for reaching this aim accordingly include facilitation of user-driven innovation, open innovation practice, innovative entrepreneurship, and mass innovation culture.

Nevertheless, a core document for R&D policy is expected to be the Guidelines for Development of Science and Technology for 2009-2013 (MoES, 2009). While having been drafted in 2005 their adoption has been continuously postponed by the Cabinet of Ministers with no clear future prospects officially stated by July 2009 (for more detail see Adamsone-Fiskovica et al, 2009a). According to the draft guidelines, the main aim of research policy is to develop S&T as a basis for the long-term well-being of civil society, the economy and for culture in general and to guarantee a knowledge-based economy and sustainable growth. In order to implement this aim, the following tasks have been set:

- To rejuvenate and develop current human resources and infrastructures;
- To transform universities into internationally competitive R&D centres that regional higher education institutes (HEIs) and other public and private research organisations co-operate with;
- To ensure a substantial increase in public R&D investment and develop funding mechanisms which encourage co-funding from the private sector;
- To strengthen the international competitiveness of national R&D performers and support international cooperation in S&T;
- To support knowledge and technology transfer and develop an institutional environment and support mechanisms to facilitate innovation.

Finally, the two most recent approved documents that have been elaborated in direct response to the economic crisis are the Programme for Stabilisation of the Latvian Economy and Growth Resumption, drafted by the Ministry of Finance in December 2008 (MoF, 2008) with its action plan approved by the Cabinet of Ministers on 19 February 2009, and the related Memorandum of Understanding between the European Community and the Republic of Latvia signed on 21 January 2009 (Memorandum, 2009). The updated version (June 2009) of the programme comprises a commitment by the government to promote knowledge and technology transfer and cooperation between the research, educational and private sectors, as well as development of new products and technologies. In its turn, the action plan sets the following tasks:

- To strengthen the achievement of the targets of the national Lisbon programme;
- to update the draft Guidelines for Development of Science and Technology for 2009-2013 with concrete due dates for funding fundamental and applied research projects in priority fields of science as well as for state research programmes;
- To define priority research areas for 2010 to 2013 in cooperation with representatives of economic sectors;
- To take the necessary steps within the framework of European Investment Fund-managed Holding Fund activities to ensure an effective access to financing for SMEs, using for example export credit guarantees, high-risk loans, risk capital funds and financial support instruments for business activity.

Additionally, the Memorandum of Understanding identifies the commitment of Latvia to:

- reduce the number of public R&D priorities to provide more resources to relevant research fields;
- take measures to reform the R&D system encouraging better links to the business sector;
- take measures to ensure that financing for R&D and innovation activities in 2010 and onwards is maintained as planned in Operational Programmes with a special emphasis on applied R&D and promotion of skills and resources that enable companies to apply existing technologies.

To sum up, the goal of Latvian innovation policy is to promote the capacity and efficiency of the national innovation system with the main directions of activity for innovation development envisaging facilitation of knowledge and technology transfer, establishing favourable institutional environments for innovative activity, and promoting cooperation of science, education and the private sector, as well as supporting development of new products and technologies (MoE, 2008a:105). Along with these general objectives, some of the enlisted documents include also specific quantitative targets with selected examples summarised below (see Exhibit 5). There are basically two indicators that can be traced in several documents, namely, that of R&D expenditure as a percentage of GDP and the share of innovative companies with others differing by document. Yet the values for common indicators differ either by the level to be reached or by the target year. For instance, while the National Lisbon Programme of Latvia for 2005-2008 has set an aim for GERD to reach 1.5% by 2010, the National Strategic Reference Framework for 2007-2013 identifies the same percentage to be reached only by 2013. As a backdrop to such comparative reservations the draft Guidelines for Development of Science and Technology for 2009-2013 again feature a goal of 2% by 2013 (1% public plus 1%

private). A further rather ambitious goal of reaching 4.5% by 2030 has in its turn been set by the draft document Sustainable Development Strategy of Latvia until 2030. As for innovative companies, the quantitative objectives defined by various documents are rather diverse also with regard to the reference group. It has to be noted that in many instances the baseline value of the quantitative targets set (which can be calculated by different means) is not given, thereby strongly undermining the possibility for monitoring the progress achieved.

Exhibit 5: Selected quantitative targets for innovation policy

Indicator	Baseline value ³	Quantitative target	To be achieved by
R&D expenditure			
R&D expenditure as a % of GDP*	0.57% (2005)	1.5%	2013
Gross domestic expenditure on R&D***	0.42% (2004)	1.1%/1.5%	2008/2010
R&D expenditure as a % of GDP****	0.63% [2007] ⁴	4.5%	2030
State budget funding for research**	[0.33% (2007)]	1.0%	2013
Private R&D investment**	[0.19% (2007)]	1.0%	2013
Innovative companies			
Number of innovative enterprises***	18.6% [2003]	32%	2008
Innovative SMEs as a % of all SMEs*****		40%	2030
Number (%) of innovative enterprises in manufacturing industry *****	18.0% (2005)	40%	2013
Other			
Number of annually awarded PhDs**	[112 (2005)]	425	2013
Number of research staff (incl. private sector) (per 1000 employed)**		4.0	2013
The share of S&E students (of all students)**		18.6%	2013
Number of patents (total/of which international)***		95/24	2008
Turnover of innovative products and services as a % of total turnover****	12.1% (2004)	20%	2030

* National Strategic Reference Framework for 2007-2013 (July 2007)

** Guidelines for Development of Science and Technology for 2009-2013 (draft, March 2009)

*** National Lisbon Programme of Latvia for 2005-2008 (October 2005)

**** Sustainable Development Strategy of Latvia until 2030 (draft, November 2008)

***** Action Plan of the Programme for Promotion of Business Competitiveness and Innovation for 2007–2013 (2007)

***** Programme for Promotion of Business Competitiveness and Innovation for 2007–2013 (June 2007)

When assessing these targets and the overall objectives set by the above-mentioned documents note must be taken of the fact that the majority of these have been elaborated in pre-crisis conditions and have not been updated or revised according to the current socio-economic situation of Latvia (except for the NSRF Operational Programmes last modified on 16 July 2009). The most recent statement with regard to the target for GERD was made by the Minister of Economics upon presenting to the Cabinet of Ministers the proposal of the economic recovery in a medium-term period drafted by the Ministry of Economics (MoE, 2009b:13). According to this draft plan GERD should reach 1.5% by 2015, which is a more modest target than the ones defined before.

2.2 Innovation governance system

2.2.1 Governmental bodies

The key responsibility for innovation governance in Latvia for the last decade has been shared by the Ministry of Economics and the Ministry of Education and Science. The Supervisory Board of the

³ Where available, values/years that are not referenced in the particular documents are identified in square brackets.

⁴ According to the corrected value, the R&D expenditure as a % of GDP in 2007 was 0.59%.

Lisbon Strategy (formed in 2005)⁵ operates at the Ministry of Economics, which also used to manage the Steering Council of the National Programme on Innovation for 2003 to 2006. The Ministry of Economics is responsible for the elaboration of the majority of innovation support measures. In its turn, the Ministry of Education and Science covers those support measures involving an R&D component, and public research organisations as the primary target group (for more on the evolution of the national innovation governance system see Adamsone-Fiskovica et al., 2007:4-10).

During the reporting period some structural changes have taken place within the ministries. As of 1 June 2009, the innovation division formed at the Ministry of Economics in 2003 as part of the industrial department is no longer maintained as a separate unit but is instead integrated in the newly restructured Department of Business Competitiveness as the Division of Industry and Innovation. With regard to the Department of Science, Technologies and Innovation formed at the Ministry of Education and Science in 2006, its status has been maintained with some changes having taken place only in the composition of its staff. On a ministerial level over the reporting period the Minister of Education and Science (in office since December 2007) has remained the same despite the formation of a new Cabinet of Ministers in April 2009, while the Minister of Economics has changed once in March 2009.

Other bodies more recently involved in the national innovation governance system are the Ministry of Regional Development and Local Government as the coordinating authority for elaborating and implementing the National Development Plan (NDP) for 2007 to 2013 as well as the secretariat for the National Development Council (with expert groups on technological excellence and flexibility of companies, and development of science and research). While there were intentions of establishing a high level Council of Science and Technology under the leadership of the Prime Ministers (envisaged by the draft Guidelines for Science and Technology Development for 2009-2013, but continuously postponed by the Cabinet of Ministers), these plans have not been implemented thereby currently positioning the National Development Council as the highest coordinating body in this policy domain. On the parliamentary level, the main body dealing with innovation policy is the Commission on Education, Culture and Science with a sub-commission on the Steering of the NDP.

An advisory role is played by a range of councils operating, for instance, at the Ministry of Economics, including the National Economy Council, the Advisory Council of SMEs and the Craftmanship, Export Promotion Council. Several sectoral advisory councils have also been formed and are operational at the Ministry of Economics, for instance on design, tourism and the development of biofuel. Likewise, the Council of the Educational Innovation Fund (⁶) operates under the auspices of the Ministry of Education and Science. An advisory task force on the Lisbon Strategy is also operational under the leadership of the state secretary of the Ministry of Economics with the aim of coordinating the National Lisbon Programme of Latvia as well as elaboration and implementation of its annual action plan. Most of these bodies have been operational for at least some years and are not specifically devoted to innovation. No new committees or special advisory bodies have been set up during the reporting period specifically to monitor and advise policy makers on innovation, for example, as a consequence of the financial crisis.

As for the ministerial task forces, of note is one for the coordination of implementation of the plan of measures for business environment improvement, formed at the Ministry of Economics in January 2008. Additionally, the task force of the economic cooperation of the Council of Baltic Sea countries was headed by the Ministry during the Latvian presidency from 1 July 2007 to 30 June 2008 focusing on the defined priority areas of innovation; competitiveness and cluster formation in the Baltic Sea region, and trade and investment barriers. Last but not least, an expert task force for the elaboration of potential changes in the overall tax policy for the stimulation of the economy (including the domains of innovation, education and science) has been formed at the Ministry of Economics.

Other advisory bodies and interest organisations include the Latvian Academy of Sciences and the Commission of Strategic Analysis (under the auspices of the President of Latvia), as well as the Employers' Confederation of Latvia and the Latvian Chamber of Commerce and Industry. These

⁵ On 26 May 2009, amendments to the regulations were made whereby the composition of the board is no longer approved by the Prime Minister but by the Minister of Economics.

⁶ In the light of the structural reforms and budget cuts carried out in response to the economic crisis, as of 1 July 2009 the Fund (established in 2007) has been reorganised with its functions reallocated to the State Education Development Agency.

bodies exert an influence on policy making by means of both proactively approaching the policymakers as well as providing their input on the process of public consultation.

2.2.2 Main bodies managing implementation of policies

The main implementing bodies of innovation policy in Latvia so far have been the Latvian Investment and Development Agency, the Latvian Guarantee Agency and the Mortgage Bank of Latvia. Since 2003, the Latvian Guarantee Agency under the Ministry of Economics is charged with implementation of the tasks defined in the national economic policy with regard to aid provision to SMEs to help them attract new investments. The mechanisms include direct financial aid for implementation of innovative business ideas as well as credit and loan guarantees (including export promotion). In its turn, the public holding company Mortgage Bank of Latvia provides credit resources for business companies on favourable terms and various public funding schemes for start-ups.

In the reporting period rather notable changes have taken place at the Latvian Investment and Development Agency (LIDA) with reorganisation of departments and reallocation of functions within the agency. Most notably, as a result of this restructuring, as of 1 July 2009 the Knowledge and Innovation System Department (ZINIS) formed at LIDA in 2006 has been formally closed down⁽⁷⁾ and according to the new structure in effect as of 1 August 2009 its competencies have been partly integrated into the newly established Department of Investment projects. Rather notable structural changes have also taken place with regard to the management of the EU SFs at the Agency. Yet, for the time being it is not clear what exact effect this restructuring is going to have on the role played by LIDA in the process of policy design as well as in the implementation of innovation policy measures, though the latter have so far been largely kept under its jurisdiction.

In the light of the major restructuring of the whole state administration in the country, including agencies and bodies under the supervision of the Ministry of Education and Science, as of 1 July 2009 the functions of the Latvian Council of Science are being separated with the administrative functions (staff and respective funding) taken over by the renamed Administration of Studies and Research (hitherto the Study Fund). These changes to some extent also address concerns voiced by the State Audit Office on the necessity of putting into practice qualitative supervision and control over the implemented projects and programmes. Among other things the new body will be in charge of coordinating activities of the EU and international research and technological development programmes in Latvia as well as securing administration, supervision and control of state budget funding for fundamental and applied research projects and state research programmes. Alongside these changes, economic specialists are to be included in the Latvian Council of Science with the aim of boosting the economic contribution of national research.

2.3 Public funding to innovation

2.3.1 Review of the current range of support measures for innovation

Based on the information contained in the TrendChart-ERAWATCH policy measures database, one can have a certain picture of the profile of the different policy measures in Latvia. The analysed policy measures (n=28; data for the national factsheet downloaded on 5 June 2009) include those indicated in Exhibit 6. In the following analysis note has to be taken of the fact that the analysed support measures cover both those for research (ERAWATCH) and innovation (ProInno Trendchart) without a distinction made here between the two domains.

⁷ On 15 June 2009, part of the former staff of the ZINIS department of LIDA established the 'Knowledge and Innovation Society' (Biedrība ZINIS) – a non-governmental organisation aimed at promoting the development of the knowledge economy in Latvia and uniting innovation professionals and confederates in order to improve innovation policy planning and implementation in Latvia as well as to provide practical support to the authors of innovative ideas and entrepreneurs (see www.zinis.lv).

If categorised by the policy priorities addressed by these measures, on an aggregate level the measures can be differentiated between the five main categories of policy measures, whereby the majority of support measures in Latvia fall under the category of 'research and technologies' (20 measures) ⁽⁸⁾. The other categories are represented to a much lesser degree, for example 6 measures under 'governance and horizontal research and innovation policies', 3 measures under 'human resources (education and skills)', 3 measures under 'promote and sustain the creation and growth of innovative enterprises', and 2 measures under 'markets and innovation culture'. On a more disaggregate level (see Annex 1, Figure 1), the majority fall under the following categories:

- Public research organisations – 50%;
- Policy measures concerning excellence, relevance, management of research in universities – 46%;
- Strategic research policies (long-term research agendas) – 18%;
- R&D cooperation (joint projects, PPP with research institutes) – 14%;
- Support to innovative start-ups including gazelles – 11%;
- Direct support of business R&D (grants and loans) – 11%.

Exhibit 6: Policy measures included in the policy measure factsheet analysis

Ref	Title
LV 68	Support to SME venture capital
LV 72*	Support to development of research infrastructure
LV 79*	Support to research in priority areas
LV 82*	Development and upgrading of applied research infrastructure
LV 83	Support to international R&D collaboration (EUREKA)
LV 84	Support for development of innovation centres and business incubators
LV 91	State research programme 'Organic synthesis and biomedicine'
LV 93	State research programme 'Material science'
LV 94	State research programme 'Information technologies'
LV 95	State research programme 'Forestry and wood processing technology'
LV 96	State research programme 'Latvian studies' (Letonica)
LV 97	Support to market oriented research
LV 99	Support to the implementation of doctoral programmes
LV 100*	Support to technology transfer
LV 101	Promotion of science competitiveness programme
LV 102	Basic and applied research projects programme
LV 104	Support for joint research projects
LV 108	State research programme 'Environmental research'
LV 109	Energy state research programme
LV 110	State research programme 'Agrobiotechnology'
LV 111	State research programme 'Medical science'
LV 113	Investments in development of micro, small and medium-sized companies in specially supported territories
LV 114	Attraction of highly qualified workforce
LV 115	Pre-seed support for innovative business ideas
LV 116	Attraction of human resources to science
LV 117	Support for establishing industrial property rights
LV 118	Export and innovation award
LV 119	Support for introduction of new products and technologies into production

Note: Due to the time line for drafting the new templates and for uploading data for the factsheet, the following measures are not covered by the following analysis: LV120: Support to liaison offices for technology transfer; LV121: Support for development of new products and technologies; and LV122: Enhancing motivation for innovation and business start-up.

* Due to technical errors several additional flaws have to be taken into account when interpreting the data: (1) LV79 should not be taken into consideration since it actually represents a duplication of LV101; (2) LV72, LV82, LV100 are no longer relevant due to the end of their operation.

If compared to the EU overall innovation policy mix (n=952) (see Annex 1, Figure 1), Latvia has a comparatively larger share of support measures aimed at public research organisations (15% vs.

⁸ A single support measure could be assigned up to four policy priorities.

50%) and ones concerning excellence, relevance and management of research in universities (15% vs. 46%), but a comparatively smaller one with regard to R&D cooperation (27% vs. 14%), knowledge transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes) (12% vs. 7%) and support to innovation management and advisory services (11% vs. 7%) as well as direct support of business R&D (15% versus 11%) and support to innovative start-ups (16% versus 11%). Other priorities are covered more or less to the same extent as in the EU-27, yet so far unaddressed categories in Latvia that have been addressed by other EU countries (above 5% of measures in the EU-27) include ones aimed at cluster framework policies; research and technology organisations (private non-profit); career development (e.g. long-term contracts for university researchers); support to sectoral innovation in manufacturing; support to innovation in services; support to organisational innovation including e-business, new forms of work organisations; and support to technology transfer between firms.

In terms of estimated annual budget per main policy priority ⁹ (see Exhibit 7; Annex 1, Figures 2 and 3), the largest share (20.9%) of all funding goes for direct support of business R&D (given the substantial funding earmarked for LV119), followed by more research-oriented ones, including research infrastructures (supported more intensively in 2004 to 2006 through LV72 and LV82), career development (given a recent substantial contribution through LV116), and strategic research policies (mainly covering state research programmes). Other priorities have so far been backed by less bulky funding.

Exhibit 7: Estimated annual budget spent on policy priority and number of support measures in Latvia ⁽¹⁰⁾

Policy priorities	% of budget per priority	% measures per priority	Estimated annual budget per category (€)
2.3.1 Direct support of business R&D (grants and loans)	20.9%	3.6%	12 166 666
2.1.4 Research Infrastructures	15.3%	7.1%	8 884 239
3.2.2 Career development (e.g. long-term contracts for university researchers)	15.2%	3.6%	8 833 333
1.2.1 Strategic Research policies (long-term research agendas)	13.8%	17.9%	8 025 000
Others	8.8%	32.1%	5 131 422
1.3.2 Horizontal measures in support of financing	8.7%	3.6%	5 027 480
2.1.2 Public Research Organisations	6.7%	14.3%	3 890 000
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	5.6%	14.3%	3 225 500
4.3.2 Support to risk capital	5.0%	3.6%	2 920 000

In absolute figures, the total amount of estimated annual budget allocated for the 28 R&D and innovation policy measures in Latvia included in the analysis makes up around EUR 58 million (see Exhibit 7). Yet, if an estimate of the volume of public support for innovation in particular (based on the budgetary data presented in the fact sheet for LV68, LV82, LV83, LV84, LV97, LV100, LV113, LV114, LV115, LV117, LV118 and LV119) should be made, the approximate figure for an annual budget is EUR 28.5 million. In its turn, if calculated based on the overall allocations for the same innovation support measures, the total amount makes up almost EUR 139 million over the various periods of individual measures in between 2004 and 2013 (although again excluding several additional periods that have already ceased as well as a couple of newly launched measures).

In terms of targeted research and technology fields (see Annex 1, Figure 4), which is a feature not very common in Latvia so far with the majority of policy measures being of a generic nature, the fields targeted by a few measures mainly include those of the nine state research programmes (LV91, LV93,

⁹ In order to estimate an annual budget, overall budgets – or budgets available for indicated periods – were divided by the duration of the measure. In absence of the overall budget, an average of annual budgets provided was taken into account. In cases when only one annual budget was provided, this was included in the analysis. Estimated annual budgets of support measures were attributed only to main policy priority (one priority per measure). The calculations include both the already executed and planned budgets (e.g. allocations for SF 2007 to 2013 programmes).

¹⁰ Comparison of (1) the shares of estimated annual budget devoted to a policy priority and (2) the number of support measures supporting these policy priorities. Only main policy priorities were taken into account (one priority per measure).

LV94, LV95, LV96, LV108, LV109, LV110, LV111), namely, health, biotechnology, environment, energy, socioeconomic sciences and humanities, materials, nanosciences and nanotechnologies, ICT, and others (e.g. forestry). Industrial production is covered by one policy measure (LV119). It can be noted that in the EU-27 the main targeted fields are ICT (7%), biotechnology (6%), environment (5%) and health (5%), yet it can be observed that measures targeting specific research and technology fields are also predominantly a minority in other EU countries as well.

Regarding the target groups of the analysed support measures (see Annex 1, Figure 5), the majority of those target higher education institutions research units/centres (68% or 19 measures) and other non-profit research organisations (not HEI) (64% or 18 measures) ⁽¹¹⁾. Almost half of the measures (46% or 13 measures) target all companies, while SMEs only are targeted by 4 measures (14%). Other addressed target groups include scientists/researchers as individuals (25% or 7 measures), higher education institutions (education function) (14% or 4 measures) and to a limited extent (by 1 or 2 measures) trade unions, non-profit technology, innovation centres and consultancies and other private service providers. A substantial number (36%) of measures address other or more specific target groups than those defined by the preset categorisation as, for instance, in the case of micro companies (LV112) and venture capital providers (LV68), etc. If compared to the overall figures for EU-27, there are slightly more measures in the whole EU targeting technology and innovation centres (21%), SMEs only (22%) and consultancies and other private service providers (non-profit) (11%) as well as such target groups uncovered by Latvia as business organisations (9%) and private institutions for education/lifelong learning (4%). Yet, there are proportionally fewer measures in the EU-27 than in Latvia targeting HEI research units/centres (46%) and other non-profit research organisations (33%).

The aspects of innovation processes targeted by support measures ⁽¹²⁾ (see Exhibit 8; Annex 1, Figure 6) are predominantly those of diffusion of technologies in enterprises (11 measures) and development/prototype creation (10 measures). Other covered but less frequent aspects include rising awareness amongst firms on innovation, industrial design and promotion of entrepreneurship/start up. To a minor extent such aspects as commercialisation of innovation, applied industrial research, co-operation promotion and clustering as well as pre-competitive research are addressed. Finally, so far unaddressed aspects in Latvia include ones aimed at improving the legal and regulatory environment for innovative activities as well as innovation management tools. The latter ones have been rather significantly represented in other EU-27 countries where the primary targeted innovation processes (each addressed by at least one fifth of all measures) are development/ prototype creation, diffusion of technologies in enterprises, applied industrial research and commercialisation of innovation.

Exhibit 8: Aspects of innovation processes targeted by measures

Aspects of innovation process	% of total number of measures LV	% of total number of measures EU-27	Frequencies LV	EU-27 Frequencies
Diffusion of technologies in enterprises	39%	22%	11	206
Development/prototype creation	36%	24%	10	229
Awareness raising amongst firms on innovation	18%	17%	5	158
Industrial design	14%	15%	4	142
Promotion of entrepreneurship/start up (including incubators)	14%	13%	4	121
Commercialisation of innovation (including IPR)	11%	20%	3	195
Applied industrial research	11%	21%	3	201
Cooperation promotion and clustering	7%	11%	2	104
Pre-competitive research	4%	11%	1	101
Innovation management tools (including quality)	0%	16%	0	155
Improving the legal and regulatory environment	0%	7%	0	70

¹¹ Percentages refer to the share of measures indicated as addressing a specific target group. A single support measure could be assigned to more than one target group

¹² A single support measure could be assigned to more than one 'aspect'.

Forms of funding of support measures in Latvia (see Annex 1, Figure 7) so far are predominantly grant-based (86%) with only a few measures implemented through the provision of venture capital (LV68) or without any direct funding (LV101, LV115, LV118). So far no research and innovation support measures have been launched in the form of guarantees and subsidised loans (3% and 8% of the EU-27 measures respectively) or as tax incentives (¹³) (6% for EU-27).

Sources of co-financing of support measures (¹⁴) in Latvia (see Annex 1, Figure 8) for those measures with other than national public sources of funding (14 out of 28) are predominantly coming from the EU SFs (ERDF, ESF, etc.) which is the case for 9 out of 14 co-funded ones. While only 3 measures have been marked as co-financed by the private sector for Latvia (LV68, LV97, LV118), which are mainly the ones otherwise having only national funding (except for LV68), basically all EU SF co-financed measures that target commercial companies are also co-financed by the private sector (though not indicated this way in the majority of database templates) since by definition EU SFs do not provide 100% support intensity for projects. Finally, unlike selected other EU countries, there are no measures so far co-financed by foundations or charities in Latvia.

The main changes and trends that have occurred over the last three years (2006 to 2009) regarding public support to innovation have been related to:

- a shift from support for physical infrastructure to more service-based support to companies (including technology transfer and business incubation);
- a gradual introduction of formerly non-present measures either explicitly or implicitly (via eligible costs) aimed at IPR protection as well as acquisition of patents and licences by companies;
- emergence of certain trends of targeting specific sectors and technology fields in the business sector though so far to a much more limited extent than in the public research domain;
- a growing debate on the need for supplementing financial measures with non-financial (e.g. legislative, taxation) ones, though still unrepresented in the current national innovation policy mix;
- a continued reliance on EU SFs as the main source of funding of innovation support measures;
- a diversification of forms of financial and non-financial assistance to innovative business ideas, (e.g. from risk capital to pre-seed support and mentoring);
- an increasing support for companies for the development of new products and technologies both in-house and in cooperation with researchers;
- a continued emphasis on the factor of human resources to R&D in both public and private sectors;
- an intensified coverage of such aspects of innovation process as diffusion of technologies in enterprises and awareness raising amongst firms on innovation (e.g. promotion activities including various prizes and competitions for business enterprises);
- a substantial increase in the overall budgets of individual innovation support measures (for instance, if compared between 2004 to 2006 and 2007 to 2013) especially regarding investments in human resources and technology transfer as well as development of new products and technologies.

From the innovation policy measures launched over the last three to five years the most important measures could be ranked in the following order judging by their overall relevance:

1. Support for development of new products and technologies (LV70/LV121);
2. Support for technology transfer (LV100/LV120);
3. Support for SME venture capital (LV83);
4. Support for development of innovation centres and business incubators (LV84);
5. Attraction of highly qualified workforce (LV114).

Although not all of these measures are backed up by substantial budget allocations and they cannot be unequivocally said to represent best or even good practices in terms of their implementation efficiency, uptake or overall success in meeting their primary objectives, they all address innovation aspects that are crucial or require critical intervention in the case of Latvia.

2.3.2 New or modified support measures

¹³ There has been a technical error with regard to one measure for Latvia being identified under the category of tax incentives in the analysed data.

¹⁴ A single support measure could be co-financed from more than one source.

Altogether, five new policy measures which aim to promote innovative activities can be identified in the reviewed period, with respective aid schemes elaborated by the Ministry of Economics and launched by the Latvian Investment and Development Agency in 2008 to 2009. Three of those measures (LV117, LV119, LV121) actually represent sub-activities of the ERDF co-financed umbrella activity for the development of new products and technologies (2.1.2.2.) of the supplement to the OP 'Entrepreneurship and innovation' (NSRF 2007 to 2013). In a way these three measures represent an extended follow-up of the activity 'Support for development of new products and technologies' (LV70), initially launched in the first planning period of the EU SFs in 2004 to 2006, which was inspired by the national policy debate on the need to boost the innovative capacities of the private sector given the low number of innovative companies, to expand the availability of funding for the development of knowledge-intensive products and to contribute to meeting the 3% Barcelona target of R&D funding.

The new programmes are generally aimed at the promotion of a knowledge-based economy, i.e., to facilitate knowledge and technology transfer in production in order to ensure production of the products with higher value added. Prior to their launch an *ex ante* evaluation of all the upcoming new innovation policy measures for 2007 to 2013 was carried out in the framework of the study on potential project applicants' demand for financial support under the EU SF entrepreneurship and innovation activities for the programming period 2007 to 2013 commissioned by the Ministry of Finance (Laboratory of Analytical Research and Strategies, 2007). The evaluation covered also the three new policy measures for the development of new products and technologies, noting that over 40% of all surveyed companies had expressed their potential interest in applying for support under these measures. The whole activity was assessed by the evaluators as the most important one among those targeted at entrepreneurship and innovation in 2007 to 2013 both in terms of the earmarked funding and demand ⁽¹⁵⁾.

Exhibit 9: New Innovation Policy Support Measures (since the last report)

IPM N°	Title	Innovation policy framework category	Organisation responsible
LV117	Support for establishing industrial property rights	2.3.1 Direct support of business R&D 5.3.2 Consultancy and financial incentives to the use of IPR	Ministry of Economics
LV119	Support for introduction of new products and technologies into Production	2.3.1 Direct support of business R&D 5.3.2 Consultancy and financial incentives to the use of IPR	Ministry of Economics
LV120	Support to liaison offices for technology transfer	2.2.1 Support infrastructure (transfer offices, training of support staff) 2.2.2 Knowledge transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	Ministry of Economics
LV121	Support for development of new products and technologies	2.3.1 Direct support of business R&D	Ministry of Economics
LV122	Enhancing motivation for innovation and business start-up	4.2.1 Support to innovation management and advisory services 4.3.1 Support to innovative start-ups including gazelles 5.1.1 Support to the creation of favourable innovation climate	Ministry of Economics

LV117: Support for establishing industrial property rights (EUR 1.4 Million; 2008-2013). This sub-activity aims to provide support for establishing industrial property rights of the successfully developed new products (including goods or services) or technologies (including technological processes) in the form of grants to commercial companies. Project proposals can be submitted from 15 December 2008 to 30 December 2009.

¹⁵ Under the unstable economic conditions regulations of all three above-mentioned programmes issued by the Cabinet of Ministers in August and October 2008 were amended in March 2009.

LV119: Support for introduction of new products and technologies into production (EUR 73 million; 2008-2013). This sub-activity aims to provide support for introducing the successfully developed new products (including goods or services) or technologies (including technological processes) into production in the form of grants to commercial companies. In its framework commercial companies have an opportunity to receive support for such initial investment in the fixed assets (acquisition and mounting of equipment, acquisition of patents and licences), which directly ensures introduction of new products or technologies into production. The first call for proposals was from 29 September 2008 to 7 November 2008.

LV121: Support for development of new products and technologies (EUR 73 million; 2008-2013). This sub-activity aims to provide support for the development of new or substantially improved products (including goods or services) or technologies (including technological processes) in the form of grants to commercial companies. The sub-activity covers activities related to industrial research and experimental development. The first call for proposals was from 15 December 2008 to 23 January 2009.

LV122: Enhancing motivation for innovation and business start-up (EUR 2.87 million; 2009-2013). The measure is part of the supplement to the OP 'Entrepreneurship and innovation' (priority 'Promotion of entrepreneurship') co-funded from the EU SFs in 2007 to 2013. The activity aims to inform and encourage as large a part of the public as possible to start-up their own businesses, to raise the public prestige of entrepreneurship, as well as to promote public understanding of the role of innovation in boosting competitiveness. It is also targeted at informing the public about innovation-related developments and their potential, thereby encouraging as much as possible the public and entrepreneurs to turn to the development and application of innovative solutions. The target group of the measure includes pupils of primary and secondary schools, students at higher education institutions, potential entrepreneurs, non-governmental organisations and local governments, as well as society as a whole. The activity was implemented via a restricted call for proposals with funding for the execution of this project granted to the Latvian Investment and Development Agency. As a framework to this activity, in July 2009 LIDA launched a tender on drafting a concept for promoting public technological interest in Latvia aimed at stimulating creative thinking and innovative entrepreneurship in Latvian society by means of identifying the potential most efficient interactive measures in all the planning regions of Latvia and planning their organisation. Likewise, the activity now also covers organisation of the annual Venture Cup competition for innovative business ideas, launched in 2007 with the third event in a row to be organised in the second part of 2009 ⁽¹⁶⁾.

LV120: Support to liaison offices for technology transfer (EUR 3.6 million; 2008-2013). Last but not least, the policy support measure 'Support for technology transfer' (LV100), which in its initial phase in 2005 to 2007 was funded only from national budgetary sources, has been followed up in a modified form in 2008 to 2013 now co-funded by the EU SFs. The aim of the support measure is to identify and develop the research competencies of higher education institutions and research institutes in order to promote cooperation between scientists and entrepreneurs and ensure efficient introduction of research results of state research institutions into production.

In consideration of the economic situation in Latvia, on 22 December 2008 the Cabinet of Ministers made a decision about the EU funds activities, whose launching in 2009 has to be assessed additionally and allowed only after a conceptual decision by the Cabinet of Ministers as well as about those activities, whose launching is a priority. With regard to innovation support measures, according to a subsequent decree issued by the Cabinet of Ministers on 21 April 2009, implementation of the following planned measures has been postponed: Technology Transfer Centres, Science and Technology Park of Riga, Business Angel Network, Cluster Programme, and Elaboration and Strengthening of Administrative Capacity of Science and Innovation Policy. According to the same decree, funding allocated for the policy measure Attraction of Highly Qualified Workforce (LV114), launched in 2008, has been reduced with no further calls planned under this programme.

The status of planned measures that could eventually still be launched in 2009 to 2010 can be attributed to the programmes of High Value Added Investments, Competence Centres, and Support for Science and Research (applied research projects). Following the recent restructuring in the

¹⁶ See www.idejukauss.lv (in Latvian)

allocations from the EU SF carried out in the light of the pressing need to boost the overall competitiveness of the business sector and national economy as a whole, the total amount of public funding earmarked for the former activity for 2009 to 2013 is planned to be almost doubled (from the initial EUR 28 million). It is important to highlight that in the light of the economic crisis a total of EUR 858 million has been earmarked by the Ministry of Economics for stimulation of entrepreneurship and of growth resumption in Latvia. The already launched financial instruments include loans and guarantees (including export credit guarantees) for boosting competitiveness of companies managed by the Mortgage Bank of Latvia and the Latvian Guarantee Agency. Some of the additionally planned instruments include state guarantees for business loans, support for venture capital and technology transfer, and high-risk investments as well as support for promoting self-employment and business start-ups.

2.3.3 Strengths and weaknesses in the innovation policy support system

If assessed along the Lisbon guidelines, most of the existing and planned innovation support measures are aimed at supporting cooperation between research organisations and enterprises (Lisbon guideline 8.2.), technology transfer (Lisbon guideline 8.1.) and strengthening the innovative potential of SMEs (Lisbon guideline 15.3.). Namely, the largest number of measures from the current set of innovation policy measures has been in the area of strengthening the innovative potential of SMEs (eight in total: LV68, LV83, LV84, LV113, LV115, LV118, LV121, LV122), followed by measures aimed at the creation and development of innovation poles, networks and incubators bringing together universities, research institutions and enterprises (four launched: LV84, LV97, LV113, and LV120; two planned: competence centres, and high value added investments).

In the reporting period positive developments can be traced also with regard to measures ensuring better access to domestic and international finance (LV68, LV113, LV119) as well as those aimed at ensuring improvements in innovation support services (in particular for dissemination and technology transfer) (LV84, LV114, LV115, LV120). The need to provide efficient and affordable means to enforce intellectual property rights has also been more intensively addressed by selected new policy measures (LV117, LV120). Yet, for the time being there are rather limited number of measures (except for the thematic state research programmes launched in 2005 to 2006 by the Ministry of Education and Science as part of LV101) enabling public procurement of innovative products and services as well as encouraging cross-border knowledge transfer (including from FDI).

Since many of the identified innovation support measures have been launched only in recent years, and thorough evaluation of their impact and contribution to the defined targets is not yet available, the state of play and progress achieved in these measures in view of the policy objectives is hard to assess at the moment. While the envisaged and existing measures are fully relevant to meet the challenges, policy objectives and targets fixed in the various policy documents, their appropriateness and sufficiency for being able to achieve a long-term and sustainable improvement of the situation in the country with regard to national innovation capacity and performance is arguable, not least due to a frequently observable gap between the anticipations and actual results. For instance, concerns have been voiced on the overall quality and actual innovativeness of projects submitted under the new state aid programme for the development of new products and technologies (LV121). Likewise, the programme for a temporary attraction of scientists and engineers to companies (LV114) has seen a low number of applicants, which has led to the termination of any further planned calls. Last but not least, the long-standing programme for market-oriented research (LV97) has been also temporarily terminated in 2009 due to the overall budget cuts.

In general, the range of support measures has expanded during the last years addressing different aspects of innovative capacities. However, in the light of the economic downturn and the overall level of R&D funding, which has been consistently reduced since December 2008 by more than one third after having demonstrated a positive upward trend in 2006 to 2008 (for more see Adamsone-Fiskovica et al, 2009a), the national R&D and innovation system in Latvia is likely to face a considerable backslide. There is also a risk that the discontinuation or reduction of funding for a range of established but only budget-funded support measures cannot be sufficiently balanced by the new measures that require certain a period of adaptation and reorientation of R&D institutions and

companies. Taking account of the current set of existing and new measures launched, additional forms of support may still be required in the domain of indirect support of business R&D (including fiscal incentives), and support to sectoral as well as organisational innovation.

3. Innovation policy and competitiveness: an appraisal

3.1 The ability of policy to address challenges

National innovation policies set priorities based on perceived challenges while they are often motivated by international agreements and commitments, i.e. the Lisbon Agenda. Therefore national policies are part of a complex set of overall policy priorities and commitments. In this section, building on the analysis in the previous chapters, we are investigating how well national innovation policies identify and respond to systemic challenges, which may or may not be common in other EU Member States or even other countries outside the EU.

3.1.1 How well does policy respond to innovation challenges?

Current innovation policy in Latvia (see Section 2.1.) has been laid out for the period until 2013, while long-term policy in the field of innovation, science and technology is still under discussion, and elaboration of key enabling documents has largely been delayed due to the economic and financial crisis. These discussions are intrinsically embedded in a broader debate between political actors, scientists and entrepreneurs about the necessity of preparing an integrated long-term strategic development plan for Latvia. At the same time, there is no doubt the current crisis has also had an impact on medium-term innovation policy. In response, a plan of economic recovery (MoE, 2009) has been under preparation, which was expected to be approved by the government in September to October 2009. The initial drafts of the plan outline the tasks required, which include strengthening of innovation policy in Latvia. The main debate regarding the plan has evolved around the priority setting of economic sectors, emphasising those with the highest export capacities, and planning investment in human resources in sectors that should be prioritised in the current economic situation.

The three main challenges have been identified in section 1.3., based on the analysis of synthesised indicators of Latvia's macroeconomic situation, the European Innovation Scoreboard and other data sets. The main goals of the current innovation policy in Latvia are in line with the named challenges, which reflect various shortcomings in the national innovation system. Conceptually six major groups or categories of market and innovation system failures can be identified: (1) market, (2) capability, (3) institutional, (4) network, (5) framework, and (6) policy failures (EIPR, 2009:15-24). Generally, institutional failures are said to be more pronounced in the catching-up countries; more specifically, in previous years Latvia has been mentioned among the countries concerned about weaknesses in higher education and research organisations rather than struggling to put in place an effective network of innovation support services (ibid:24). It has also been argued that the moderate innovators and catching-up countries give much more emphasis to direct support to companies (capability failures), while policy mix in the more advanced countries gives much more emphasis to network failures (ibid:42). Nevertheless, the challenges identified for Latvia in this review period address also the latter. Namely, while the market failure has been addressed by Challenge 1 (business innovation), and institutional failure by Challenge 2 (human resources), network failure is largely demonstrated by Challenge 3 (collaboration).

It has to be noted that the goals of innovation policy as well as these three challenges are defined in a rather broad manner given that Latvia is still a catching-up country in terms of its innovation performance and the maturity of innovation governance. This largely restricts the feasibility of specifying more nuanced problem areas and policy aims prior to addressing general framework conditions that are already in place in the majority of developed countries. So far also the policy

response to the individual identified challenges outlined below can be considered to be of a more generic nature, although becoming more targeted at specific bottlenecks of the system.

Challenge 1: Enhancement of innovation capacity and performance of enterprise sector

The governmental action plan (MoF, 2008) both directly and indirectly makes an indication of the underlying problems and the means intended for tackling them under the conditions of the economic crisis. Also the Programme for the Promotion of Business Competitiveness and Innovation (2007-2013) is envisaged to be further implemented, primarily aimed at enhancing research commercialisation and knowledge transfer. Several existing and newly launched policy measures are directly linked to addressing the identified problems in this domain. They are as follows: Support to Market Oriented Research (LV97); Support for Innovation Centres and Business Incubators (LV84); Attraction of Highly Qualified Workforce (LV114); Pre-Seed Support for Innovative Business Ideas (LV115); Support for Establishing Industrial Property Rights (LV117); and Support for Introduction of New Products and Technologies into Production (LV119). In the second half of 2009 the state aid programme High Value Added Investments is to be launched having a high potential for problem solving in the coming years. As of 2008, Latvia also participates in the EUROSTARS programme, which is an R&D programme undertaken by 31 European countries aimed at supporting R&D-performing SMEs.

While in 2009 the EC noted that it is highly unlikely that the previously set ambitious target for R&D funding (GERD) to reach 1.5% in 2010 could be met, the government staunchly supports its plans to increase GERD to 1.5% of GDP at least by 2015 (MoE, 2009), despite the steep economic downturn. Yet, the recent target no longer identified the planned shares to be contributed by the business sector (BERD) and by the government (GOVERD). Based on the current trends it seems more likely that the contribution by the business sector is to remain small in the period until 2015. As for the individual policy measures, both existing and planned ones would need a continuous evaluation. Besides, the applied policy measures should be of a mass nature (e.g. well thought-out tax allowances) in order to have an effect on the whole economy rather than only selected companies.

Challenge 2: Maintenance and promotion of qualified workforce

As for the measures launched in the review period, a major state aid programme (EUR 53 million) to address this challenge is the ESF activity Attraction of Human Resources to Science (LV116), which has been elaborated in the framework of the OP Human Resources and Employment of the EU SFs for 2007 to 2013. The main aim of the activity is to create new workplaces for scientists, to allocate remuneration and cover expenses of maintenance of these workplaces, and to form new research groups and cooperation networks among universities, research centres and enterprises as well as to fund research, in interdisciplinary fields of research in particular. The programme also aims to facilitate re-emigration of expatriate Latvian researchers as well as to attract foreign researchers. It is expected to attract and finance 1,000 fully employed scientific workers by 2013. Yet, it has to be noted that although the first call for proposals has been concluded there are major lapses in the actual allocation of funding for the successful projects.

The state aid programme Support for Doctoral Studies, also launched in the new EU SF planning period, aims, in its turn, to stimulate doctoral students and to increase the number of defended theses. In total, 18 higher education institutions are involved in the absorption of the available funding under this measure which is planned to be provided to 1,600 PhD students. This activity is seen as a means for raising the number of specialists with the highest qualification in all thematic fields who would be capable of planning, creating and introducing into production high-tech products as well as products and services with high value added, thereby promoting innovation-based development of the national economy. Last but not least, the programme Attraction of Highly Skilled Personnel (LV114), which was designed to provide support for companies to attract professionals from other sectors in Latvia and/or abroad, was one of the first attempts to tackle the problem of attracting highly skilled personnel from

both the local labour market and abroad. Yet, it should be noted that the latter is now suspended due to the economic crisis.

On the whole, the focus of the policy response to this challenge so far has been mainly related to the development and promotion of the local qualified workforce and to boosting the number of doctoral students being awarded a PhD. Yet, for the time being there is still a limited response to attempts to attract back those who have emigrated in recent decades and to promote an influx of highly skilled foreigners into the national economy. Hence the current policy mix with regard to this challenge can be characterised as partly adequate to tackle the underlying problem.

Challenge 3. Facilitation and intensification of science-industry cooperation

Several of the currently existing policy measures are directly targeted on tackling the challenge, such as Support to Liaison Offices for Technology Transfer (LV120); Promotion of Science Competitiveness Programme (LV101), Support for Development of Innovation Centres and Business Incubators (LV84); and Attraction of Highly Qualified Workforce (LV114). Several additional measures are intended to have an indirect impact on the facilitation and intensification of science-industry cooperation, namely: Support for Establishing Industrial Property Rights (LV117) and Support for Development of New Products and Technologies (LV121). A range of seminars on technology transfer issues are being organised as well (e.g. by LIDA, the Latvian Technology Centre and the Enterprise Europe Network office in Latvia). At the same time, in December 2008, a public procurement procedure launched by the Latvian Investment and Development Agency on a study on the cooperation of research institutions and entrepreneurs and the promotion of technology transfer was suspended.

Though debates and training initiatives with regard to the development of clusters as an instrument for promoting mutual cooperation between science, education and business sectors and boosting the overall competitiveness of the enterprise sector are taking place (e.g. in the framework of the project Capacity Building Programme for Cross-Border Clusters and Innovation Systems in the Baltic Sea Region), the launch of the cluster programme is still pending. The same applies to the state aid programmes Competence Centres and Support for Science and Research (applied research projects) that are still planned to be launched in 2009 to 2010 and are of high importance in tackling the challenge as well. In 2009, the law on the public and private partnership is scheduled for adoption by the parliament, which is an important prerequisite to launch the so far pending competence centre programme. It is also planned to approve the new priority lines of science and the respective state research programmes for the period of 2010 to 2013, placing a special emphasis on applied science and cooperation with the business sector.

Unfortunately, previous experience of the developments over the last decade in Latvia presents evidence that the above-mentioned measures might not be enough in order to achieve a radical positive change with regard to science-industry cooperation. On the one hand, scientists might, under the current conditions of reduced funding, use this situation for making certain additional excuses about the limited possibilities of pursuing the demanding task of an industrial application of their results. On the other hand, an industry primarily based on low value added does not have a pronounced interest in the adoption of science-intensive R&D results.

In summary, the current policy mix is targeted to address all three challenge and to reach measurable progress, and these could be successfully addressed provided there is a well thought-out allocation of financial resources that are currently available mainly through the EU SFs. In general, the policy response to all three innovation challenges is rather clear, at least, at a planning level of target-setting and is in line with challenges brought forward in this report. Yet, practical implementation of innovation policy has not been fully satisfactory due to lack of competent human resources, on one hand, and the government failure to fulfil the planned tasks on the other. While the existing and envisaged policy measures aim to tackle the related problem areas, doubts over their efficiency and sufficiency are caused by the minor progress achieved over the past seven years when the first national innovation programme came into effect. Moreover, since the length of the economic recession cannot be precisely forecasted, a threat of both direct and indirect negative impacts of the crisis on innovation domain continues. Latvia still remains among the catching-up countries, and further development will

be shaped by both the capacity and political will of the country itself and global developments to overcome the economic crisis.

3.2 Effectiveness of policy design

The process of policy design in Latvia in general is becoming more structured and in line with established practices of policy making in stable democracies, thereby gradually moving away from the often fragmentary and uncoordinated actions taken by various public authorities upon designing specific policies characteristic of the initial transition period. For instance, an increasing number of evaluations are being carried out, especially under the framework of the EU SFs, serving as a basis for informed and evidence-based policy making. Nevertheless, the efficiency and advisedness of the process can still be questioned on many occasions since individual evaluations are either too general, without an applied value or their results are not actually being fully taken into consideration upon designing policies or specific instruments. The process of transnational learning is expanding in the policy domain with many innovation policy measures being designed based on the experience gained by other countries in this area. Yet, sometimes it is the case that the particular features of the national context are not being sufficiently taken into account upon launching such measures in Latvia.

Also consultation with social partners has become a catchword of the government in recent years and especially under the conditions of the economic crisis, yet there is a threat that the actual debates become either formal ones or do not take place at all. Nevertheless, a positive trend in this respect was marked in the beginning of 2009, when in response to the Programme for Stabilisation of the Latvian Economy and Growth Resumption adopted by the government in December 2008, the Latvian Chamber of Commerce and Industry came up with their own plan for the stabilisation of the Latvian economy (LCCI, 2009) that was subsequently thoroughly discussed with the government⁽¹⁷⁾. Also the Confederation of Employers of Latvia was closely involved in advising the government on drafting the budget for 2009 and on the measures for maintaining and boosting business activities under the conditions of the economic crisis. Last but not least, in March 2009 recommendations for the stabilisation and improvement of the economic situation were also presented to the responsible authorities by the experts of the National Development Council, elaborated in cooperation with public authorities as well as representatives of NGOs, entrepreneurs, social partners, higher education institutions, etc⁽¹⁸⁾.

A rather rigid interministerial division of responsibilities and competencies is still present in the overall governance system of Latvia with innovation policy being no exception, though certain efforts are being made at least formally to overcome it. The formation of the Department of Science, Technologies and Innovations in 2006 at the Ministry of Education and Science marked a symbolic incorporation of innovation policy-related issues in the mainstream discourse of the ministry, yet this does not seem to have had an effect of an actual closer cooperation with the Ministry of Economics so far with its innovation division established in 2003 having been key public authority responsible for innovation policy on Latvia. The long-debated draft Guidelines for Development of Science and Technology for 2009-2013, circulating in the ministerial and governmental corridors since 2005, have remained under the sole competency of the Ministry of Education and Science without attracting representatives from other involved ministries. The fragmented nature of policy formulation and room for an improved inter-ministerial coordination in Latvia as well as the need for a closer integration of R&D and innovation policy has also been noted by the EC (EC, 2009:55)

The division of labour in this sense also finds certain reflection in the consistency or rather lack of it with regard to target-setting in the domain of R&D and innovation as also demonstrated by Exhibit 5 on selected quantitative targets for innovation policy (see section 2.1.). The targets set differ across different documents that are being elaborated under the lead of different public authorities, which in a

¹⁷ The plan comprises recommendations in five domains: (1) enterprise liquidity; (2) export support; (3) absorption of EU funds; (4) innovation promotion; and (5) efficiency of state administration.

¹⁸ The recommendations identify the main directions for ensuring macroeconomic stability including specific proposals for export promotion, boosting business competitiveness, implementation of measures aimed at improving business environment (reduction of administrative burden), and involvement of scientists in innovative entrepreneurship as well as increasing the efficiency of the EU SF management.

sense represents a problem for the proper design and implementation of policies in the country. While the main national objectives for innovation policy and for the economic development of the country in general have been defined in numerous documents, a coordinated action in implementing the defined strategy is frequently lacking.

In numerical terms the number of organisations involved in the innovation governance system of Latvia seems quite sufficient except for the continuous lack of a high level coordinating body in this domain. With a recurring postponement of the adoption of the above-mentioned draft Guidelines for Development of Science and Technology for 2009-2013 by the Cabinet of Ministers the envisaged high-level coordination and advisory body – the Advisory Council of Science and Technological Development Strategy under the guidance of the Prime Minister - is still only an idea on paper (see also Adamsone-Fiskovica et al, 2008:9-10). Additionally, given the structural reforms undertaken in the public sector in the light of tackling the economic crisis, which are basically oriented towards elimination of the number of institutions and reduction of civil service, there is also little likelihood that a new body could be formed in a foreseeable future.

3.2.1 Process of delivery

An assessment of the efficiency of the implementation of public support for innovation and the process of delivery of innovation policy measures in Latvia is largely related to the overall management and administration of the EU SFs since most of the current measures are ones co-funded by these. In 2009, the European Commission gave a positive assessment of the Latvian system of EU fund evaluation that was carried out with the aim of inquiring into the actual achievement of targets defined in the planning documents of Latvia for the absorption of the EU SF funding and of analysing the possibilities for its optimisation and simplification. The EC has acknowledged that the system has been built by following the principles defined by the EC guidelines and based on good practice cases. According to a pre-research report of another study commissioned by the Ministry of Finance (GF Konsultācijas, 2009), the EU SF management system is advancing towards simplification. Nevertheless, many aspects of fund assignment can be improved, for example with regard to the harmonisation of procedures based on the available best practices; improved communication and cooperation among EU fund management institutions in order to relieve the bureaucratic burden placed on final beneficiaries; harmonisation of the EU SF programming with the long-term state development planning and financial planning of municipalities and businesses; improved service quality in terms of the administrative culture of fund management institutions vis-à-vis support recipients; and increased speed of EU funds absorption.

With regard to the process of delivery performed by specific bodies in charge of innovation policy measures, it can be noted that according to the Global Investment Promotion Benchmarking study (World Bank Group, 2009), the Latvian Investment and Development Agency was acknowledged to be one of the top-performing investment promotion intermediaries (IPIs) worldwide. It was ranked 7th among 181 national and 32 sub-national IPIs, thereby outperforming most of the IPIs in high-income countries, and some of the traditional good performers and taking a lead in Europe and Central Asia (¹⁹). In 2008, LIDA was also presented with the award by the World Association of Investment Promotion Agencies (WAIPA) for successful work in the field of investment and for the facilitation of dialogue between public authorities and the private sector. While this is not an evaluation of LIDA as the implementing agency of innovation policy measures in Latvia, with the latter task more focused on the internal market of Latvia, it is still to some extent indicative of the overall capacity of LIDA.

A national external audit of LIDA, in turn, was carried out under the framework of an assessment of the operation of the Ministry of Economics and LIDA in the promotion of business development in 2005 to 2007 performed by the State Audit Office of Latvia in 2008 (State Audit Office, 2008). The audit was carried out with the aim of ascertaining whether the activities defined by the Ministry and implemented by LIDA and the supported projects contribute to the development of entrepreneurship (including innovation promotion) in Latvia. The audit revealed that despite the generally good

¹⁹ Using a peer-reviewed methodology replicating actual projects and the decision-making criteria and location selection behaviors of direct investors in the early stages of a location-selection process, independent consultants have assessed IPI websites and the ability of IPIs to manage and respond to investment inquiries.

transparency and traceability of funding allocations, it cannot be assured that the existing system fully provides for the achievement of targets set by the relevant policy documents. It was concluded that there is a lack of analysis on the level of achievement of the policy results and assessment of the contribution made by the implemented activities to the achievement of the defined policy goals in the drafted informative reports. Neither do the predefined monitoring/output/impact indicators (sometimes without a precise term, irrelevant for the particular policy goal, unaltered following the reallocation of initially planned funding, etc.) provide a comprehensive basis for the assessment of the progress achieved. Likewise it was noted that the system of project evaluation and selection allowed for granting support to projects and activities that are not conducive to the achievement of the defined targets.

While the role and capacity of LIDA in policy design and delivery/implementation in support of innovation has increased substantially over recent years given the accumulated experience since the launch of the first EU SF co-funded state aid schemes in 2004 and the formation of ZINIS department in 2006, the structural reforms in the country and within the agency have led to a certain reallocation of the functions and a reduction of its staff (see section 2.2.2). So far the agency has demonstrated quite substantial improvements in the delivery of innovation support measures both in terms of reducing bureaucratic barriers and in informing and advising the potential project applicants with numerous informative and motivation seminars as well as consultations for various target audiences taking place both in the capital and the regions (see LIDA, 2009). LIDA is also involved in a range of international projects aimed at acquiring and sharing best practices with other countries in the field of innovation policy (BSR InnoNet, BSR CBP, BSR InnoReg, JOSEFIN, and CERT-TTT).

Yet, certain hindering factors in the process of delivery are being invoked by the budgetary cuts and other developments in the light of the economic crisis. As acknowledged by the Ministry of Economics, the substantial reduction of public R&D expenditures in 2009 is going to hinder successful implementation of several industrial studies and innovation support measures (MoE, 2008a:105). A related major drawback is represented by the recurrent delays in launching several crucial innovation support measures co-funded by the EU SFs as has been the case with the planned programme of competence centres (still being elaborated) as well as support for high value added investments (finally launched only in August 2009). Besides, in July 2008, the European Investment Fund was contracted by the government for the partial administration of the EU SFs (EUR 91.5 million) – mainly for high risk investments and venture capital funding – but for a whole year no actual money has been channelled to the Latvian companies.

As for the delivery of already launched individual innovation support measures, there do not seem to be any major problems except for the state aid programme Attraction of Highly Qualified Workforce (LV114), which was terminated after the first call with only five contracts signed with companies. Since this is a new type of measure introduced in Latvia, it faced certain problems with regard to the adopted terms of reference of the programme. Although a few applications were submitted for this activity, the overall interest from the potential applicants has been much higher. But the major hindering factor for applicants has been represented by several bureaucratic obstacles as well as a condition requiring the attraction of a specialist not having been earlier employed by the project applicant or other commercial company in Latvia in the last two years. In its turn, the attraction of foreign specialists also envisaged as an option by the programme has been hindered by the uncompetitive salary that would be offered under the given activity.

3.3 Impact of public support for innovation

Over the course of last couple of years the assessment of the impact of public support (including one for innovation) is becoming more elaborate with an increasing number of impact assessments being carried out in Latvia. In June 2008, the second stage report on the EU Funds Macroeconomic Impact Assessment based on a comprehensive study commissioned by the Ministry of Finance was published (BICEPS, 2008). The analytical report outlines the five sector macroeconomic model used to estimate the impacts for each of the two programming periods (2004 to 2006 and 2007 to 2013) and the results obtained. According to the study, the model results indicate a quite substantial positive impact in both periods on output, the budget balance and on productivity and negative impacts on

inflation and the trade balance. In the first stage report of the study (BICEPS, 2007) a more detailed analysis of the innovation domain can be found, revealing that the constructed expenditure category (²⁰) of technologies (F) covering innovation, scientific research, research equipment and infrastructure for research was allocated only 1% of the EU SFs in 2004 to 2006 with the major share (43%) having gone to physical capital (ibid:19). In its turn, the respective estimations regarding 2007 to 2013 revealed that 10% is earmarked for the respective category in the current EU SF planning period (20% under the OP Human Resources and Employment and 60% under the OP Entrepreneurship and Innovation), while 53% go under the category of Total Factor Productivity (ibid:63).

Another (*ex post*) evaluation that can serve as a basis for assessing the impact of public support for innovation is based on a study on the impact of projects approved under EU SF (2004 to 2006) on regional development in Latvia, again commissioned by the Ministry of Finance (PKC, 2008). This thematic evaluation revealed that there is a direct coherence between total committed financing and socioeconomic development levels in regions, with more developed ones having attracted more funding. As for the 2nd priority (Promotion of Entrepreneurship and Innovation) of the Single Programming Document, the Riga region again has attracted the major share (47%) of the available funding in absolute figures with the other four regions having attracted only 13% (Zemgale and Kurzeme regions), 11% (Vidzeme region), and 8% (Latgale region), respectively (ibid:53-54) (²¹). Based on the analysis of the contents of individual activities of this priority, the study concluded that they have been mainly targeted at providing support to entrepreneurs but not at the development of a favourable business environment that is of a particular importance in the territories outside the capital (ibid:55-56). The study also noted the lack of activities related to the creation of business support centres, business incubators, technology centres and similar entities outside Riga, which determines that the existing support could mainly contribute to the segregation of companies but not the creation of new ones.

Aside from the evaluations carried out specifically with regard to the absorption of the EU SFs, there are several other exercises that *inter alia* deal generally with R&D policy assessment as, for instance, in the assessment study of the progress in implementation of the National Lisbon Programme of Latvia, commissioned by the Ministry of Economics in 2007. It has been acknowledged by the authors that Latvia still lacks sufficient investments in R&D, both from the state and private sector and that a more detailed evaluation on the reasons why the entrepreneurs are insufficiently motivated to invest in science and development is necessary (Konsorts, 2007:25-34). In order to promote research commercialisation and innovative entrepreneurship, the study recommends focusing on establishing an innovation-friendly institutional environment, promoting cooperation between research, education and private sector, facilitating technology transfer (development of new products and technologies) as well as carrying out systematic popularisation of science. While these elements have been continuously stressed in numerous documents and analysis for almost a decade now, they continue to form the basis for the major directions of the anticipated public support for innovation in Latvia throughout 2008 to 2009 since the impact of the so far implemented measures are not yet detectable in a short-term perspective.

In terms of future orientation in the field of impact assessment, it can be noted that in 2008, the Latvian Investment and Development Agency carried out a study on the assessment of returns of research with the task of identifying the existing practices of assessing scientific and technological returns of research activities in the USA and EU countries, mapping the present indicator systems in the legislative acts and statistical reports of Latvia, and drafting recommendations on the advisable system of R&D output indicators as well as qualitative and quantitative assessment of S&T policy impact in Latvia (LIDA, 2009:26-27). The results of the study are expected to serve as a basis for the development of such a system of evaluation indicators necessary for ensuring an optimal technology transfer in order to facilitate a constructive collaboration between the research institutions and business companies in Latvia.

3.3.1 Conclusions: possible future actions and opportunities for innovation policy

²⁰ Other three defined categories include physical capital (K), human capital (L), and total factor productivity (A) (BICEPS, 2007:115-16).

²¹ 8% went to projects of national scale.

Based on the preceding analysis one can outline a range of possible future policy actions or broader domains thereof with regard to boosting innovative activities and improving the process of policy design and delivery in Latvia.

In terms of policy design, the major opportunity for Latvia lies in capitalising on and taking maximum advantage of the complementary competencies possessed by players in the national innovation system and ensuring their synergies in future policy making in the field of R&D and innovation. This refers to various public bodies both at the level of ministries and implementing agencies as well as other public and private stakeholders. A formal functioning mechanism ensuring such cooperation on a high policy level is of vital importance and very much needed in the case of Latvia.

There have been rather substantial reallocations of financial resources between various policy measures in Latvia in response to the needs specifically brought forward by the economic crisis. Nevertheless, it is highly important to also ensure continuity of established and well-functioning schemes and policy lines, a systemic approach as well as a strategic long-term vision in terms of policy planning and addressing the identified systemic challenges. Tax incentives (e.g. tax credits) as a non-financial instrument for the promotion of innovation, so far unused in Latvia, are still to be taken advantage of. In the light of managing the economic crisis the action plans being drafted by the governing bodies should prioritise not only support for those companies producing exportable goods and services but also those simultaneously undertaking innovative activities thereby ensuring competitiveness in the long term.

In terms of policy implementation, the experience gained during implementation of innovation support measures has recurrently demonstrated the importance of tailoring as much as possible the terms of reference of individual state aid programmes to the specific goals of the measure simultaneously taking full account of the actual capacities of the target audience. There is also a demanding task of identifying in advance the potential hindering factors for an efficient absorption of the available funding. Besides, under the changing economic conditions the timeliness of all programme/project-related administrative procedures (inter-institutional harmonisation, pre-announcement, launching, money transfer, etc.) is even more important than in a relatively stable economic environment.

Accordingly, an important domain is related to further development and elaboration evaluation practices in the field of R&D and innovation policy, both in terms of their design, implementation and the actual use made of their results. It is important to extend these practices beyond the EU SFs to also cover nationally funded measures and policy initiatives. Besides, ensuring a full evaluation cycle (*ex ante*, mid-term, *ex post* assessments) is of crucial importance in order to get the best out of this exercise for policy learning purposes. This, in turn, can potentially lead to a change in thinking about, framing and addressing a specific policy issue, including better understanding of the effects of individual policy instruments. Previous experience has demonstrated that such evaluation tasks can hardly be accomplished based merely on the capacities of the innovation policy community of such a small country as Latvia. Instead, an additional input by a competent international expertise is needed.

Beyond doubt, the recent economic trends and market developments shape the current opportunities and threats for further development of innovation policy in Latvia, especially, under the tight budget that requires strategic prioritisation of actions and funding allocations. Yet, in addition to financial factors, the economic situation and accordingly the national innovation policy in Latvia is also strongly affected by the internal political developments not least related to the elections of local governments having taken place in 2009 and the upcoming parliamentary elections in 2010. The frequent changes and mutual rivalry of political players even more acutely determine the need for adopting a national-level policy document (white paper or strategic document) that would ensure the succession and consistency of the economic and innovation policy irrespective of the particular political situation in the country.

Annexes

Annex 1: Country pages – Innovation Policy Support factsheet

Figure 1. Main priorities addressed by the support measures in Latvia in a comparative perspective

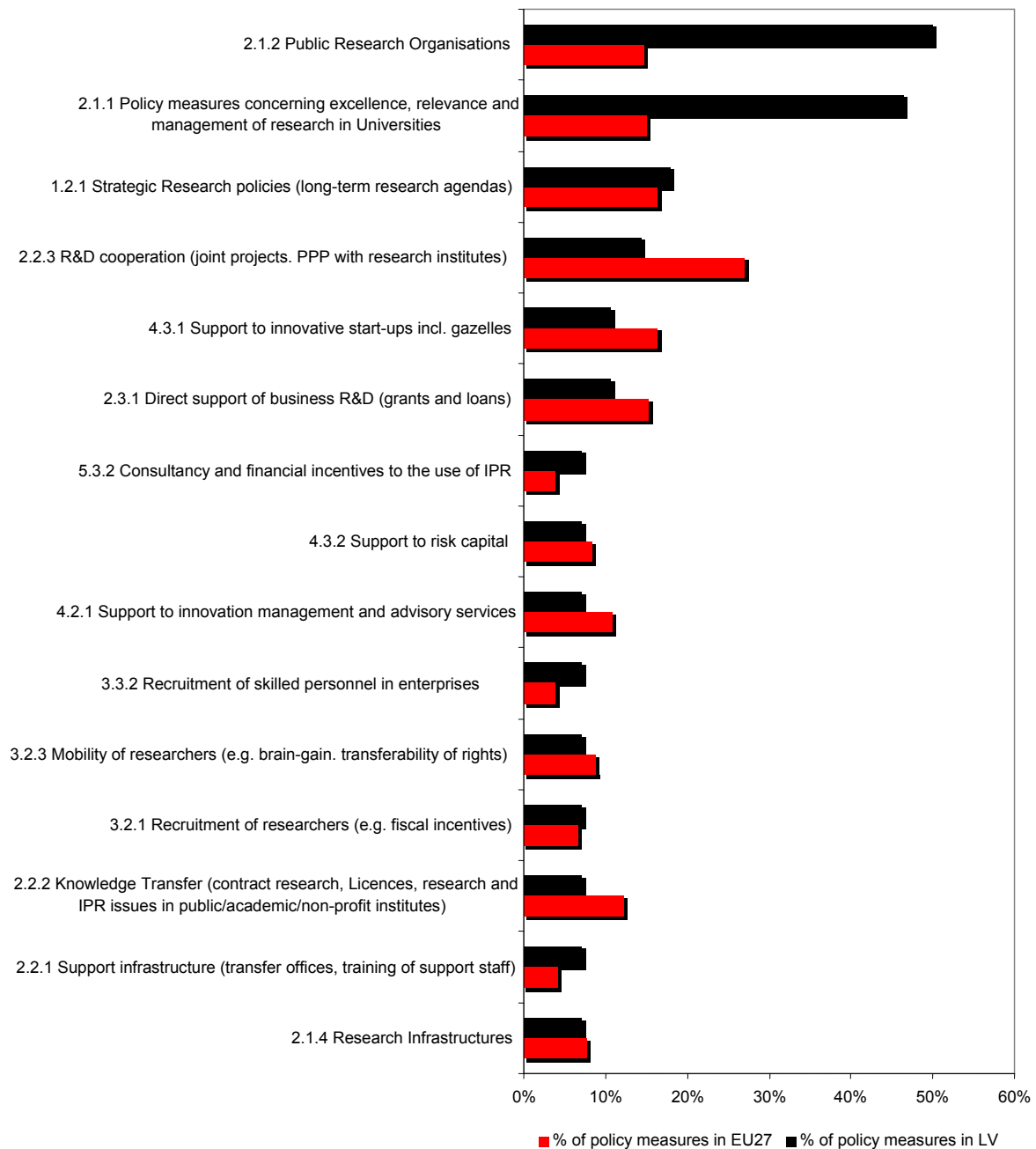


Figure 2. Estimated annual budget allocations per policy priority in Latvia

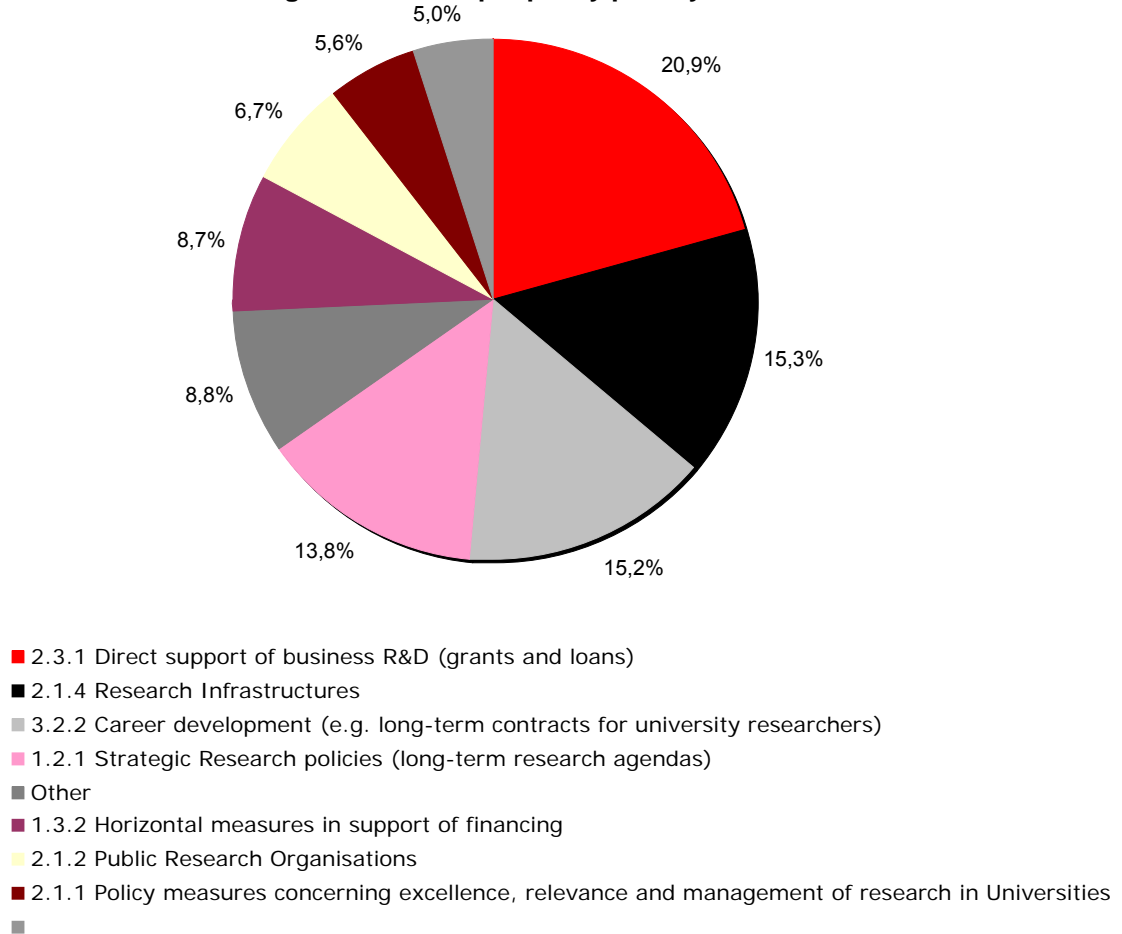


Figure 3. Estimated annual budget spent on policy priority and number of support measures in Latvia

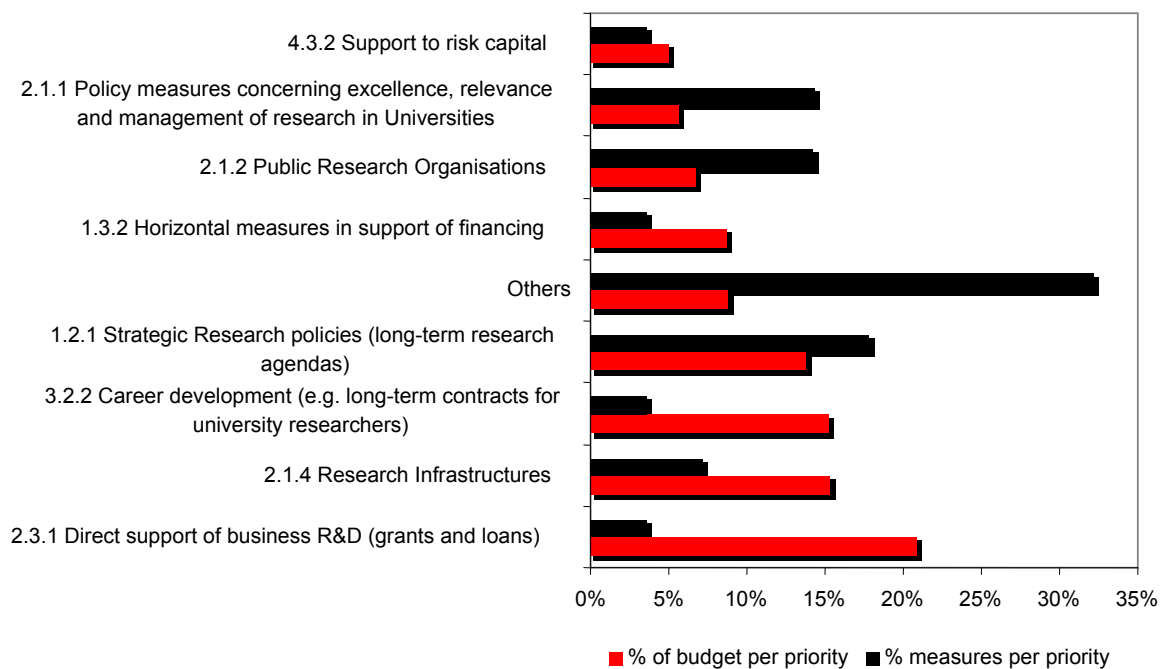


Figure 4. Targeted R&T fields by support measures in Latvia compared to EU27

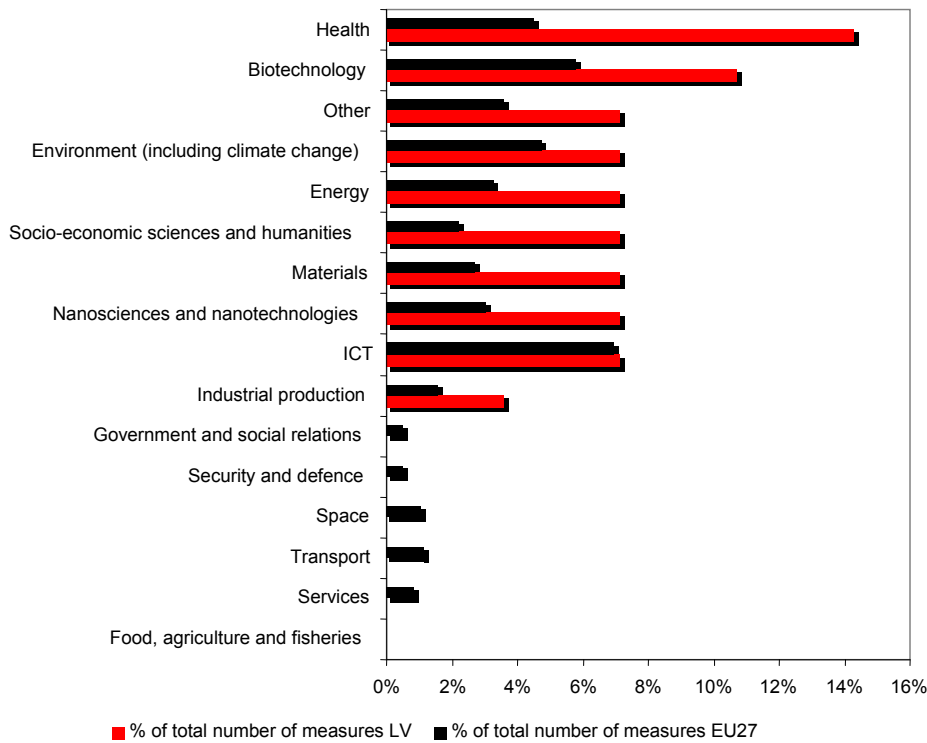


Figure 5. Target groups of support measures in Latvia compared to EU27

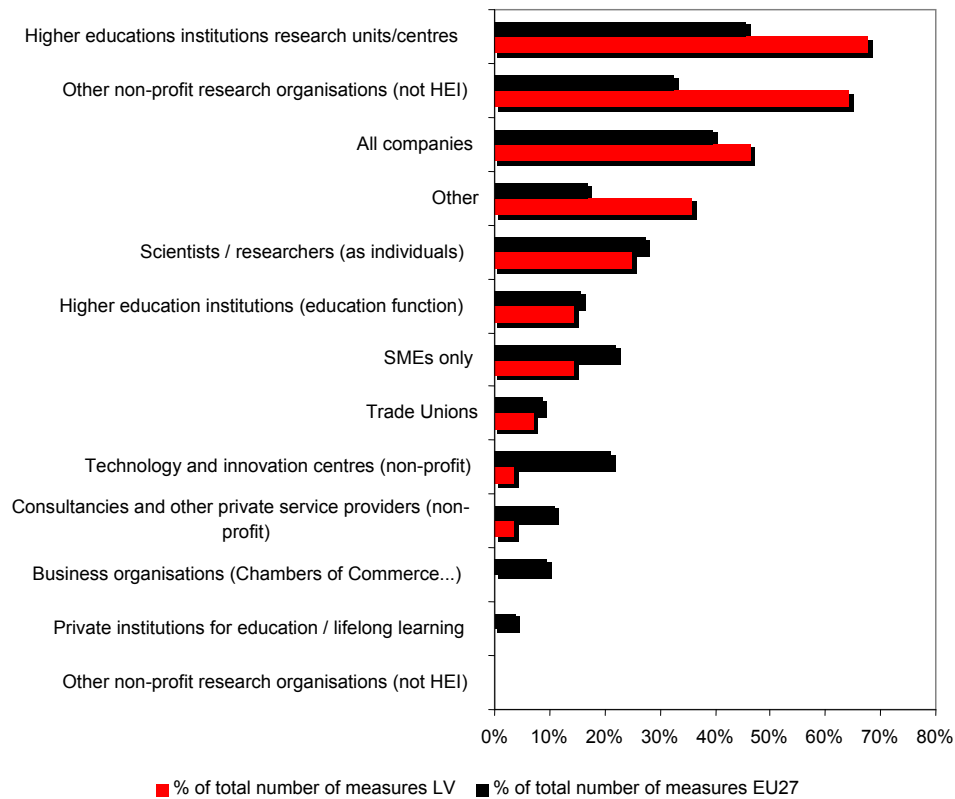


Figure 6. Aspects of Innovation process targeted by measures in Latvia compared to EU27

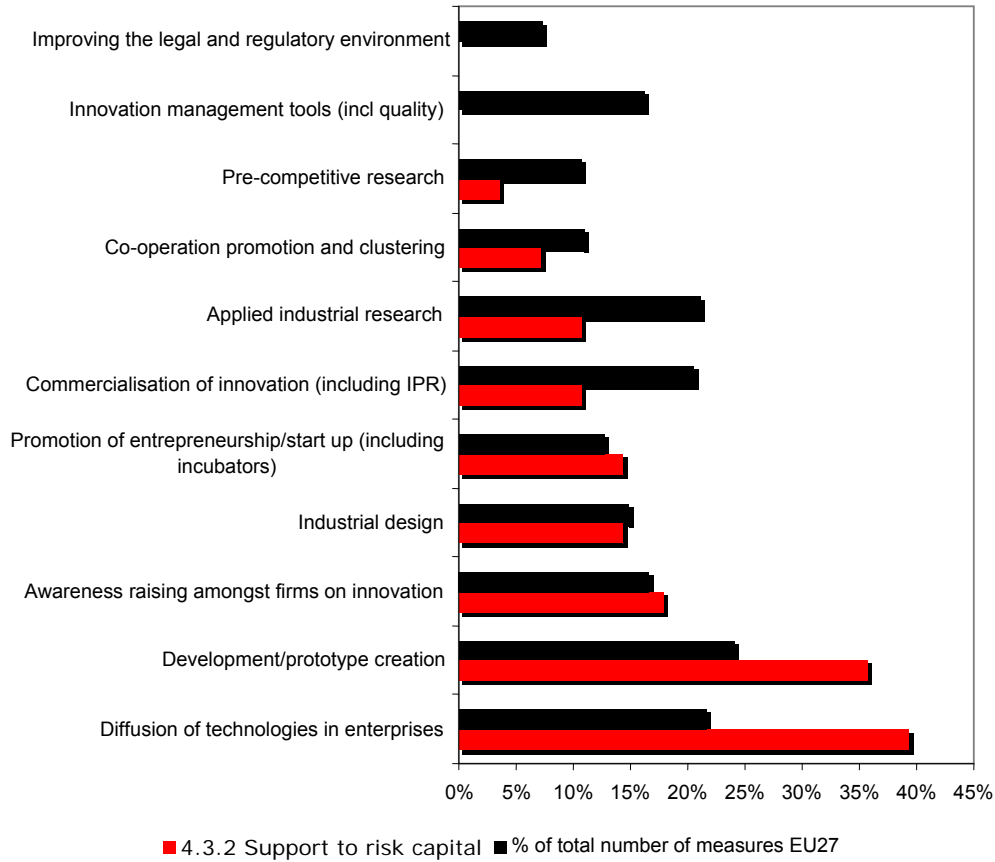


Figure 7. Forms of funding of support measures in Latvia compared to EU27

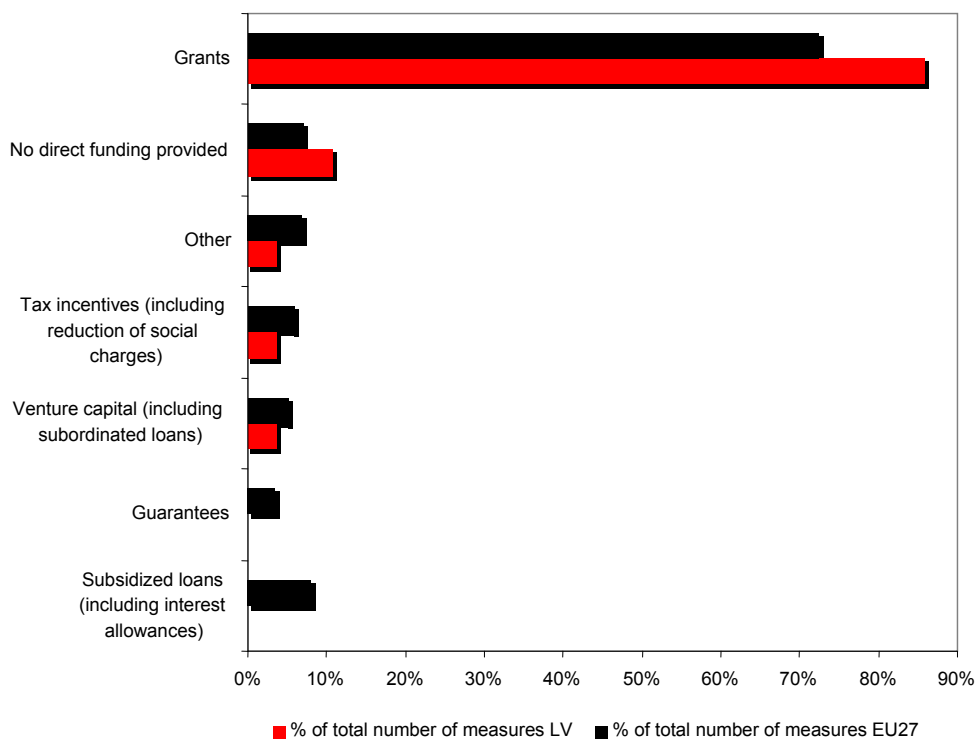
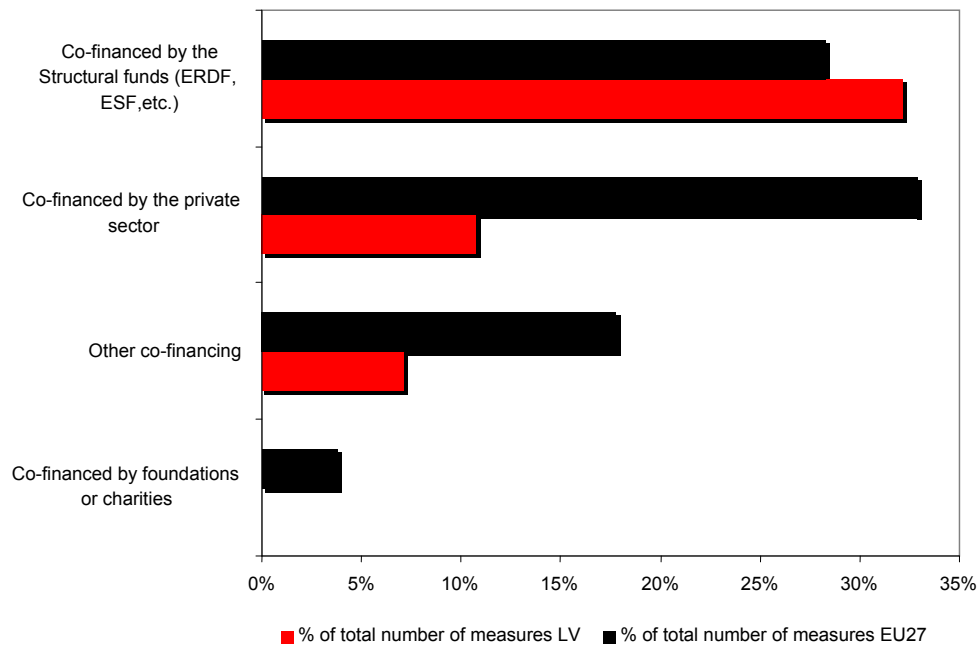


Figure 8. Sources of co-financing of support measures in Latvia compared to EU27



Annex 2: Abbreviations

BERD	Business expenditure for research and development
BICEPS	Baltic International Centre for Economic Policy Studies
BSR	Baltic Sea Region
CIS	Community innovation survey
CSB	Central Statistical Bureau
EC	European Commission
EIPR	European Innovation Progress Report
EIS	European Innovation Scoreboard
EIU	Economist Intelligence Unit
EPO	European Patent Office
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
EURES	European Employment Services (The European Job Mobility Portal)
FDI	Foreign Direct Investment
GCR	Global Competitiveness Report
GDP	Gross domestic product
GERD	Gross expenditure on research and development
GOVERD	Government intramural expenditure on research and development
HEIs	Higher education institutions
ICT	Information and communication technologies
IMF	International Monetary Fund
IPI	Investment promotion intermediary
IPR	Intellectual property rights
LCCI	Latvian Chamber of Commerce and Industry
LIDA	Latvian Investment and Development Agency
NGOs	Non-governmental organisations
MoE	Ministry of Economics
MoES	Ministry of Education and Science
MoF	Ministry of Finance
MoRDLG	Ministry of Regional Development and Local Government
MSs	Member States
NDC	National Development Council
NDP	National Development Plan
NRP	National Reform Plan
NSRF	National Strategic Reference Framework
OP	Operational Programmes
PPP	Public private partnership
PPS	Purchasing Power standard
R&D	Research and development
SFs	Structural Funds
SII	Summary Innovation Index
SMEs	Small and medium-sized enterprises
SSH	Social sciences and humanities
S&E	Science and engineering
S&T	Science and technology
USA	United States of America
ZINIS	Knowledge and Innovation System Department at LIDA
WAIPA	World Association of Investment Promotion Agencies

Bibliography

- Adamsone-Fiskovica A., Kristapsons J., Lulle A. (2009a). Erawatch Analytical Country Report 2009: Latvia. European Commission, Research Directorate-General. To be published on <http://cordis.europa.eu/erawatch/>
- Adamsone-Fiskovica A., Kristapsons J., Tjunina E., Ulnicane-Ozolina I. (2009b). Moving Beyond Teaching and Research: Economic and Social Tasks of Universities in Latvia. *Science and Public Policy*, Volume 36, Number 2, March 2009, pp. 133-137(5).
- Adamsone-Fiskovica A., Kristapsons J., Ulnicane-Ozolina I. (2008). INNO-Policy TrendChart - Policy Trends and Appraisal Report: Latvia. European Commission, DG Enterprise. 32 pp. Available at: http://www.proinno-europe.eu/extranet/upload/countryreports/Country_Report_Latvia_2008.pdf
- Andersons, B. (2008). Presentation at the conference Researchers Mobility in Latvia: Present Situation and Perspectives, Riga, Latvia, June 5.
- BICEPS (2007). EU Funds Macroeconomic Impact Assessment. First stage report (January 2007). Riga. 65 pp. Available at: http://www.esfondi.lv/upload/01-strukturfondi/petijumi/report_111108_en.pdf
- BICEPS (2008). EU Funds Macroeconomic Impact Assessment. Second stage report (June 2008). Riga. 20 pp. Available at: http://www.esfondi.lv/upload/01-strukturfondi/petijumi/Phase_2_report_final_020708.pdf
- Cabinet of Ministers (2009). Governmental Action Plan for Implementation of the Intended Activities of the Cabinet of Ministers headed by Valdis Dombrovskis. Approved on 11 August 2009. (In Latvian: Valdības rīcības plāns Deklarācijas par Valda Dombrovskā vadītā Ministru kabineta iecerēto darbību īstenošanai.) Available at: http://www.mk.gov.lv/doc/2005/MKpl_070809_VRP.2839.xls
- Central Statistical Bureau of Latvia (2008). Research and Development and Innovation Statistics. Riga. 68 pp.
- EC (2009). Implementation of the Lisbon Strategy Structural Reforms in the Context of the European Economic Recovery Plan: Annual Country Assessments: A Detailed Overview of Progress Made with the Implementation of the Lisbon Strategy Reforms in Member States in 2008. Commission of the European Communities. Available at: http://www.era.gv.at/attach/annualass_detail.pdf
- Economist Intelligence Unit (2009). A New Ranking of the World's Most Innovative Countries, April 2009. 40 pp. Available at: http://graphics.eiu.com/PDF/Cisco_Innovation_Complete.pdf
- EIRP (2009). European Innovation Progress Report 2008. European Commission, DG Enterprise. 83pp. Available at: http://www.proinno-europe.eu/admin/uploaded_documents/EIRP2008_Final_merged.pdf
- EIS 2008 (2009). European Innovation Scoreboard 2008: Comparative Analysis of Innovation Performance. Available at: http://www.proinno-europe.eu/EIS2008/website/docs/EIS_2008_Final_report.pdf
- Fridrihsone M. (2009). Latvian Chamber of Commerce and Industry: Clear Criteria Needed to Set Economy Priorities. Daily *Dienas bizness*, 20 July 2009. (In Latvian: LTRK: tautsaimniecības prioritāšu noteikšanai vajadzīgi skaidri kritēriji). Available at: http://www.db.lv/a/2009/07/20/LTRK_tautsaimniecibas_pr
- Gavare J. (2009). We Have Whooped it Up Too Much, Now we Need to Change Fast. Daily *Dienas Bizness*, 2 April 2009. (In Latvian: Esam pārāk «aizdzīvojušies», tagad vajag strauji

- mainīties). Available at:
http://www.db.lv/2/spitejotkrizei/a/2009/04/02/Esam_parak_aizdzivojushies
- GCR (2008). The Global Competitiveness Report 2008-2009. World Economic Forum. Geneva, Switzerland 2008. 513 pp. Available at: <http://www.weforum.org/pdf/GCR08/GCR08.pdf>
- Graudins U. (2009). Latvia Needs Knowledge-Based Economy Model. Daily *Latvijas Avize*, 6 August 2009. (in Latvian)
- GF Konsultācijas Ltd. (2009). Pre-Research on the Possibilities of Simplifying the Management System of the European Union Funds. Study commissioned by the Ministry of Finance. Riga. (In Latvian: Priekšizpēte par Eiropas Savienības fondu vadības sistēmas vienkāršošanas iespējām). Available at:
http://www.esfondi.lv/upload/Petijumi_un_izvertējumi/GF_Konsultācijas_priekšizpetes_zinojums_3103.pdf
- Hazans M., Philips K. (2009). The Post-Enlargement Migration Experience in the Baltic Labor Markets. EU Labor Markets After Post-Enlargement Migration. Kahanec M., Zimmermann K. F. (Eds.), Springer-Verlag: Berlin - Heidelberg - New York, 320 pp.
- Hollanders H., van Cruysen A. (2008). Rethinking the European Innovation Scoreboard: A New Methodology for 2008-2010. September 2008. 44pp. Available at: http://www.proinno-europe.eu/admin/uploaded_documents/EIS_2008_Methodology_Report.pdf
- Innobarometer (2009). Analytical Report. European Commission, Directorate General Enterprise and Industry. 166pp. Available at: http://www.proinno-europe.eu/admin/uploaded_documents/Innobarometer_2009.pdf
- Iveja, D. (2009). Depicting Latvia's Spatial Perspective. Discussion on the Long-Term Strategy Paper Latvia 2030. Daily *Latvijas Vestnesis*, (In Latvian: Iezīmējas Latvijas telpiskā perspektīva). Available at: <http://www.lv.lv/?menu=doc&id=193276> (In Latvian)
- Kalnina, A., Sumane, S. (2008). Study on Foreign Researchers (in Latvian). Available at: http://www.euraxess.lv/dokumenti/Sumane_Kalnina_05.06.2008.ppt#256,1
- Kokorevics, A. (2008). Presentation at the conference Researchers' Mobility in Latvia: Present Situation and Perspectives, Riga, Latvia, June 5.
- Konsorts Ltd. (2007). Assessment of the Progress in Implementation of the National Lisbon Programme of Latvia. Final report (October 2007). Study commissioned by the Ministry of Economics. Riga. 83 pp. (In Latvian: Latvijas nacionālās Lisabonas programmas īstenošanas progresa izvērtēšana). Available at:
http://www.em.gov.lv/em/images/modules/items/item_file_18302_lp.pdf
- Laboratory of Analytical Research and Strategies (2007). The Potential Project Applicant's Demand for Financial Support under the EU Structural Funds Entrepreneurship and Innovation Activities for the Programming Period 2007-2013. Final report. (In Latvian: Potenciālais projektu pieteicēju pieprasījums pēc finanšu atbalsta uzņēmējdarbības un inovāciju aktivitātēs 2007-2013.gada plānošanas period). Available at: http://www.esfondi.lv/upload/01-strukturfondi/petijumi/FM_ESF_PetijumaGalazinojums_27_11_2007.pdf
- Laboratory of Analytical Research and Strategies (2008). Sustainable Development Strategy of Latvia until 2030. Refined first draft. November 2008. (In Latvian: Latvijas ilgtspējīgas attīstības stratēģija līdz 2030. Gadam). Available at: http://www.latvija2030.lv/upload/lias_1redakcija_pilnv_final.pdf
- Lannin, P. (2009). Analysis – Latvia Still Faces Uphill Climb Despite IMF Deal. *Reuters*, 29 July 2009. Available at: <http://www.futurespros.com/news/interest-rates-news/analysis-latvia-still-faces-uphill-climb-despite-imf-deal-73954>

- Latvian Chamber of Commerce and Industry (2009). Entrepreneurs' Plan for the Stimulation of the Latvian Economy. (In Latvian: LTRK uzņēmēju plāns Latvijas ekonomikas stimulēšanai). Available at: <http://www.chamber.lv/pub/index.php?lid=310&lang=lat>
- Leilands & Putnis Ltd. (2009). The Strategy for Companies Under New Economic Conditions. Association of Latvian Business consultants. February 2009. 12pp. [In Latvian: Uzņēmumu stratēģija jaunos ekonomiskos apstākļos]. Available at: <http://www.leiput.lv/lv/petijums>
- Levalde V. (2009). Government Invests More than a Billion in the Parex Bank. Daily *Dienas Bizness*, 29 June 2009. (In Latvian: Valdība Parex bankā ieguldījusi vairāk nekā miljardu latu). Available at: http://www.db.lv/a/2009/06/29/Valdiba_Parex_bank_a_iegul
- LIDA (2009). Public Report of the State Agency: Latvian Investment and Development Agency for 2008. Riga. (In Latvian: Valsts aģentūras Latvijas Investīciju un attīstības aģentūra 2008.gada publiskais pārskats). Available at: http://www.liaa.gov.lv/uploaded_files/00JAUNIE00/KVNN/Publiskais%20pārskats_2008.pdf
- Lursoft (2009). Lursoft Statistics: Number of Liquidated Enterprises by Years and Forms of Entrepreneurship. Available at: http://www.lursoft.lv/stat/ur_stat_124.html (accessed on 18 August 2009) (in Latvian)
- Memorandum of Understanding between the European Community and the Republic of Latvia (2009). Available at: http://ec.europa.eu/latvija/documents/pievienotie_faili/29.01.09.mou.doc
- Ministry of Economics (2005). National Lisbon Programme of Latvia for 2005-2008. Available at: http://www.em.gov.lv/em/images/modules/items/item_file_18074_2.pdf
- Ministry of Economics (2007). Programme for Promotion of Business Competitiveness and Innovation for 2007-2013. (In Latvian: Komerčdarbības konkurētspējas un inovācijas veicināšanas programma 2007. – 2013. Gadam). Available at: http://www.em.gov.lv/em/images/modules/items/item_file_17546_emprog.doc
- Ministry of Economics (2008a). Report on the Economic Development of Latvia. December 2008. Available at: http://www.em.gov.lv/images/modules/items/EM_Report_December_2008_PDF.zip
- Ministry of Economics (2008b). Report on Progress in Implementation of the National Lisbon Programme of Latvia. October. Available at: http://www.em.gov.lv/images/modules/items/LV_Report_on_NLPL_Oct_2008.pdf
- Ministry of Economics (2009a). The National Economy of Latvia: Macroeconomic Review, No.2 (39), 2009. Available at: <http://www.em.gov.lv/images/modules/items/390709eng.doc>
- Ministry of Economics (2009b). Informative Report on the Proposals for the Economic Recovery in a Medium-Term Period. Presented to the Cabinet of Ministers on 4 August 2009. (In Latvian: Informatīvais ziņojums par priekšlikumiem ekonomikas atveseļošanai vidēja termiņa period). Available at: <http://www.em.gov.lv/images/modules/items/030809.doc>
- Ministry of Economics (2009c). Report on the Economic Development of Latvia. June 2009. Available at: http://www.em.gov.lv/images/modules/items/EM_Report_June_2009_PDF.zip
- Ministry of Education and Science (2009). Draft Guidelines for Development of Science and Technology for 2009-2013. Submitted to the Cabinet of Ministers on 12 March 2009. (In Latvian: Zinātnes un tehnoloģijas attīstības pamatnostādnes 2009-2013.gadam). Available at: http://www.mk.gov.lv/doc/2005/IZMPam_120309_pamatn.806.doc
- Ministry of Finance (2007a). National Strategic Reference Framework for 2007-2013. Available at: http://www.esfondi.lv/upload/NSRF_2007-07-10_draft.pdf

- Ministry of Finance (2007b). Operational Programme 'Human Resources and Employment'. Last modified on 16 July 2009. Available at: http://www.esfondi.lv/upload/04-kohezijas_politikas_nakotne/op/1_DP_2009-08-04_ENG.pdf
- Ministry of Finance (2007c). Operational Programme 'Entrepreneurship and Innovations'. Last modified on 16 July 2009. Available at: http://www.esfondi.lv/upload/04-kohezijas_politikas_nakotne/op/2_dp_2009-07-28_ENG.pdf
- Ministry of Finance (2008). Programme for Stabilisation of the Latvian Economy and Growth Resumption. (In Latvian: Latvijas ekonomikas stabilizācijas un izaugsmes atjaunošanas programmas ieviešanas rīcības plāns). Available at: <http://www.likumi.lv/doc.php?id=188155>
- Ministry of Regional Development and Local Government (2006). National Development Plan of Latvia for 2007-2013. Available at: http://www.nap.lv/in_site/tools/download.php?file=files/text/National_development_plan_2007-2013_eng.pdf
- National Development Council (2009). Recommendations for the Stabilisation and Advancement of the National Economy of Latvia. April 2009. (In Latvian: Priekšlikumi Latvijas tautsaimniecības stabilizēšanai un uzlabošanai). Available at: <http://www.nap.lv>
- PKC Ltd. (2008). The Evaluation of Impact of the EU Structural Funds on Regional Development in Latvia. Study commissioned by the Ministry of Finance. Riga. (In Latvian: Eiropas Savienības struktūrfondu 2004.-2006.gada plānošanas periodā apstiprināto projektu ietekme uz reģionālo attīstību Latvijā). Available at: <http://www.esfondi.lv/upload/01-strukturfondi/petijumi/PKC-Zinojums-2008augusts.pdf>
- Register of Enterprises (2009). <http://www.ur.gov.lv>
- State Audit Office (2008). Audit report: Assessment of the Operation of the Ministry of Economics and the State Agency. Latvian Investment and Development Agency in the Promotion of Business Development. (In Latvian: Ekonomikas ministrijas un valsts aģentūras „Latvijas Investīciju un attīstības aģentūra” darbības izvērtējums uzņēmējdarbības (komercdarbības) attīstības veicināšanā.) Available at: <http://www.lrvk.gov.lv/index.php?id=1759> (29.12.2008.)
- Swedbank (2009a). Baltic Macroeconomic Review. April 2009. 27 pp. (In Latvian: Baltijas makroekonomiskais apskats). Available at: <http://www.swedbank.lv/lib/lv/Baltijas%20makroekonomikas%20apskats%202009%20Aprilis.pdf>
- Swedbank (2009b). The Baltic Outlook: Update. Macro Outlook: The Baltic Region. Swedbank. July 2009, 10 pp. Available at: <http://www.swedbank.lv/lib/en/Baltic%20Outlook%20Update%20July%202009.pdf>
- Ward A. (2009). Latvia Accepts IMF Aid Stipulations. *Financial Times*, 28 July 2009. Available at: <http://www.ft.com/cms/s/0/4b08fcb2-7ade-11de-8c34-00144feabdc0.html>
- World Bank Group (2009). Global Investment Promotion Benchmarking 2009. Summary report. Available at: [http://www.ifc.org/ifcext/fias.nsf/AttachmentsByTitle/GIPB2009/\\$FILE/GIPB2009.SummaryReport.pdf](http://www.ifc.org/ifcext/fias.nsf/AttachmentsByTitle/GIPB2009/$FILE/GIPB2009.SummaryReport.pdf)
- Zumbrun J. (2009). The World's Hardest-Hit Economies. *Forbes.com*, 8 July 2009. Available at: <http://www.forbes.com/2009/07/08/economics-iceland-ireland-business-beltway-countries.html>