

The informative report “About the Development of Smart Specialisation Strategy”

The informative report aims to inform the Cabinet of the content of Smart Specialisation Strategy (SSS) and its link with national economy growth, its development process, to explain its link with other policy planning documents, as well as to inform the Government on further actions to be taken to develop the strategy according to the guidelines of the European Commission for the development of the Smart Specialisation Strategy¹ and ex-ante assessment, as well as to the comments of 16 October 2013 of the European Commission on the proposal of operational programme of "The Growth and Employment" of Latvia for European Union's structural funds planning period 2014-2020.

Within the framework of SSS the following national economy transformation directions, priorities and specialisation areas based and described in section 2 of the informative report are defined:

Directions of the national economy transformation	Growth priorities	Smart specialisation areas
1. Change of the production and export structure in traditional economy areas	<u>1st priority:</u> More efficient use of raw materials for production of goods with greater added value, creation of new materials and technologies, and diversification of their application. Wider use of non-technological innovations and Latvian creative industry potential to produce goods and services with greater added value of national economy sectors.	1. Knowledge-intensive bio-economy
2. Future growth sectors, in which products and services with high added value exist or may appear.	<u>2nd priority:</u> The creation of such innovation system that provides support for the creation of new products and technologies within the framework of existing sectors and cross-sectors, as well as for new sectors with high growth potential based on key sectors defining the development and providing an effective new products/services identification system, and that is able to find and provide support for the creation of new products both in the existing sectoral and cross-sectoral frameworks, and creating of new sections with high growth potential.	2. Biomedicine, medical technologies, bio-pharmacy and biotechnologies
3. Sectors with	<u>3rd priority:</u>	3. Smart materials, technology and engineering systems
		4. Smart energetics
		5. Information and communication

¹ Research and Innovation Strategy for Smart Specialisation

significant horizontal impact and contribution in national economy transformation.

Improvement of energy efficiency, which include the creation of new materials, production process optimisation, introduction of technological innovations, use of alternative energy resources and other solutions.

technologies

4th priority:

Development of a modern and contemporary standard-compliant ICT system in the private and public sectors.

5th priority:

A modern, and corresponding to the future labour market demands, education system that facilitates the transformation of national economy and development of competences required for the implementation of SSS priorities, enterprising spirit and creativity at all levels of education.

6th priority:

Advanced knowledge base (basic science and scientific infrastructure) and human capital in areas of knowledge, in which Latvia has a comparative advantage and which are important in the process of transformation of the national economy: in areas of knowledge related to the smart specialisation areas (1) knowledge-intensive bio-economy, (2) biomedicine, medical technologies, bio-pharmacy and biotechnologies, (3) smart materials, technologies and engineering systems, (4) smart energetics, and (5) ICT, as well as key technologies identified by the EC (nanotechnologies, micro-and nano-electronics, photonics, advanced materials and manufacturing systems, biotechnologies).

7th priority:

Studying of the existing resources of territories and specialisation, proposing the prospective economic development opportunities and directions int. al. leading and prospective business directions in the municipal territories.

1. Description of the current situation

On 6 October 2011, the European Commission published the proposals for regulations of the Single strategic framework funds of the Cohesion policy of the European Union (hereinafter - the EU) for the planning period of 2014–2020, where principles for the establishment of funding available for EU Member States and the possible areas of support, as well as issues of the EU Cohesion fund (hereinafter - the EU funds) policy management and implementation for years 2014-2020 are set out. Proposal of the regulation that establishes common rules for issues related to the management and implementation of the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime Affairs and Fisheries Fund (hereinafter - the Proposal of general regulation) provides that the EU funds shall contribute to the economic, social and territorial cohesion in the EU, as well as support activities that insures implementation of “Europe 2020: A strategy for smart, sustainable and inclusive growth” adopted on 17 June 2010.

In appendix IV to “*Ex-ante Conditionalities*” of the proposal of general regulation, appropriate thematic and general ex-ante conditions are defined for each thematic objective and investment priority of the EU funds, as well as a concise and comprehensive set of objective criteria for their evaluation is provided. The *ex-ante* conditionality 1.1 “*the National Reform program appropriate for the Smart Specialisation Strategy should be introduced to encourage private investment in research and innovation within the framework of an efficiently functioning research and innovation system*” (hereinafter - the *ex-ante* conditionality); it shall be applied to the research and innovation area.

In order to ensure the execution of *ex-ante* conditionalities, on the meeting of the Cabinet of Ministers of 20 November 2012, an informative report, developed by the Ministry of Finance “About the preparation of assessment of the fulfilment of applicable *ex ante* conditionalities within the framework of the Single strategic framework funds of the European Union for the planning period of 2014-2020” (protocol 65, § 29), which establishes institutions responsible and co-responsible for the implementation of *ex-ante* conditions and criteria, as well as actions to be carried out for the implementation of conditionalities and deadlines of their realisation, was adopted. In the mentioned informative report it is set that for the fulfilment of an *ex-ante* conditionality the Ministry of Economics shall develop a policy planning document for the introduction of a modern industrial policy, and the Ministry of Education and Science in cooperation with the Ministry of Economics shall develop a policy planning document for the introduction of research, technology development and innovation for years 2014-2020.

For the fulfilment of the *ex-ante* conditionality, Latvia is developing the Smart Specialisation Strategy, strategic settings of which result from the National development plan for years 2014-2020, for the implementation of the Latvian national reform programme “Europe 2020” strategy, as well as for the carried out research and analysis of national industrial policy and research, technology development and innovation policy development. For the development of substantiation of the Smart specialisation strategy, the Ministry of Education and Science has carried out the

sectors` export potential analysis and assessment of the knowledge capacity in Latvia (see Appendices 2, 3 and 4 to the informative report)².

To implement priorities of the Smart Specialisation Strategy set in this informative report, its settings are included in:

- National Industrial Policy Guidelines for 2014-2020;
- Guidelines for Development of Science, Technology and Innovation for 2014-2020;
- Education Development Guidelines for 2014-2020;
- Information Society Development Guidelines for 2014-2020;
- Regional Policy Guidelines for 2013–2019;
- Latvian Tourism Development Guidelines for 2014-2020;
- Cultural Policy Guidelines for 2014-2020 “Creative Latvia”;
- Intellectual Property Rights Protection and Enforcement Guidelines for 2014-2018.

2. Smart Specialisation Strategy (SSS) and national economy growth

Smart Specialisation Strategy (SSS) foresees the development of vision, detection of competitive advantages, choice of strategic priorities and policy that maximally unlocks knowledge-based development potential of the region, thus ensuring the growth of national economy.

The objective of SSS is to increase innovation capacity, as well as to establish innovation system fostering and supporting technological progress of national economy.

The task of SSS is to ensure setting of priorities of development and regular review, targeted focusing of the investments, int. al. choice of action policy instruments appropriate for the strategy settings and development of monitoring system that are focused on strengthening the competitiveness of Latvia at the regional, European and global level.

Based on many years of experience of the OECD³ in the assessment of regional innovation capacity and policy development, the European Commission recommends the Member States to choose one of the following development strategies, while developing the Smart Specialisation Strategy for promotion of innovation:⁴

- growth, based on existing advantages (science or technology-driven growth);

² Within the framework of analysis to ascertain the view of entrepreneurs of Latvia on possible priority development directions in research and innovations in 2014-2020, during the period from 12 June to 31 July 2013, discussions with the entrepreneurs, industry associations and scientific bodies were organized, and a survey of entrepreneurs of Latvia on knowledge required for further development of companies was carried out. For the assessment of Latvia's science and research areas, analysis of bibliometry and human resources was carried out. In the analysis of bibliometry the results in an area of scientific publications, their quality, dynamics, as well as institutional concentration and analysis of age structure of scientific employees employed at research organizations of Latvia were assessed. For the assessment of the national economy potential, analysis of the export potential of sections was carried out.

³ Organisation of Economic Cooperation and Development

⁴ OECD (2011), Regions and Innovation Policy.

- support for economic transformation (identification and development of new growth areas);
- catching up, or movement towards a knowledge-based capacity building.

For the situation in Latvia, the main emphasis is on the support for economic transformation, providing science and technology driven growth and movement towards a knowledge-based capacity building. Thus, a new conceptual and complex strategy is created that includes and provides a balanced and complementary set of support instruments. At the same time, it is necessary to promote the development of not only technological innovations, but also non-technological innovations, as well as the development of entrepreneurial ability and creativity in all economy areas and social sphere.

The choice of such strategy is associated with the identified structural challenges for transformation and sustainable development of the national economy of Latvia.

Innovation system characteristic parameters

- Research and development expenditure (% of GDP) (EUROSTAT, 2012):

Latvia 0.7%	Germany 2.9%	EU-27 2.1%
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- Proportion of high-tech exports (% of total exports) (EUROSTAT, 2012):

Latvia 6.3%,	Germany 13.9%,	EU-27 15.6%
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- Proportion of the processing industry in the national economy (% of GDP) (EUROSTAT, 2012):

Latvia 14.5%,	Germany 22.4%,	EU-27 15.2%
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- Productivity in manufacturing industry (% of EU-15 level) (EUROSTAT, 2012):

Latvia 36%,	Germany 110%,	EU-27 82%
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- Number of students studying in STEM study programmes (ISCED 5-6) (EUROSTAT, 2011):

Latvia 19.9%,	Germany 32.1%,	EU-27 25.6%
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- Proportion of graduates of STEM study programmes (ISCED 5-6) (EUROSTAT, 2011):

Latvia 15.7%,	Germany 27%,	EU-27 22.6%
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- Proportion of R&D staff (% of employees in terms of FTE*) (EUROSTAT, 2011)

Latvia 0.53%,	Germany 1.36%,	EU-27 1.09%
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- Number of scientists between the ages of 55-64 (% of the total number of scientists) (EUROSTAT, 2009):

Latvia 33.8%,	Germany 17.4%,	EU-27: no data
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- International OECD assessment of students` (15-year-old) skills (PISA, 2012):
 - Levels 5-6 (the highest levels) in mathematics (%)

Latvia 8%	Germany 17%,	Average OECD assessment of countries 12.6%
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 - Level 5-6 (the highest levels) in natural sciences (%)

Latvia 4.3%,	Germany 12.2%,	Average OECD assessment of countries 8.4%
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 - Levels 5-6 (the highest levels) in reading (%)

Latvia 4.2%	Germany 9%,	Average OECD assessment of countries 8.4%
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*- Full Time Equivalent

2.1. Challenges for transformation of the national economy of Latvia

The growth pattern in the national economy is changing. During the crisis, by the decrease of large macroeconomic disproportions, the economics of Latvia became more stable and more balanced. However, it is important to ensure rapid, balanced and external shock resistant economy growth of Latvia in the future as well.

Currently, the productivity level of the national economy of Latvia is one of the lowest in the EU, economic advantages of Latvia are within low income sectors, the export structure mostly consists of production of low or medium-low technology sectors, and the export yield is low.

Currently, a competitive advantage of the national economy of Latvia is cheap labour: labour costs in Latvia are considerably lower than in the EU-15 Member States. Both cheap labour and relatively high profitability does not create incentives for changing the business model and creation of other competitive advantages. In the free labour movement conditions it will not be possible to maintain low labour costs continuously, hence the need to create incentives for new competitive advantages.

For sustainable development of the national economy of Latvia, it is necessary to promote structural changes of the economics in favour of production of goods and services with greater added value, int.al. increasing the role of the industry, manufacturing and service modernisation and export development complexity. This is an essential prerequisite for economic convergence of Latvia with the developed EU countries and for increase of the population welfare, which can be achieved by increasing the competitiveness of the economics of Latvia based on innovation.

An essential precondition for the transition to innovative economics is the strengthening of the innovation system in Latvia, eliminating its weaknesses and promoting interaction among all subjects of the innovation system: business, science and education, as well as the financial and regulatory systems.

Currently, the low level of innovations in Latvia shows that there are significant weaknesses in the existing innovation system. The identified weaknesses are related both separately with each subject of innovation system and their mutual interactions.

Latvian innovation system problems:

1) **The existing business model is poorly oriented to the innovation.**

At the moment, economic competitiveness is based on the exploitation of cheap labour and natural resources, the export structure mostly contains products of low or medium-low technology industries, the yield of export production is low, the energy intensity is high, the proportion of manufacturing industry in the national economy is insignificant, at the same time this sector has a significant role in the creation and absorption of innovations and technologies. Latvian industrial productivity level is significantly behind the EU average. The current low innovation capacity and knowledge absorption capacity in the business sector reduces the possibilities to achieve a rapid improvement of the situation⁵.

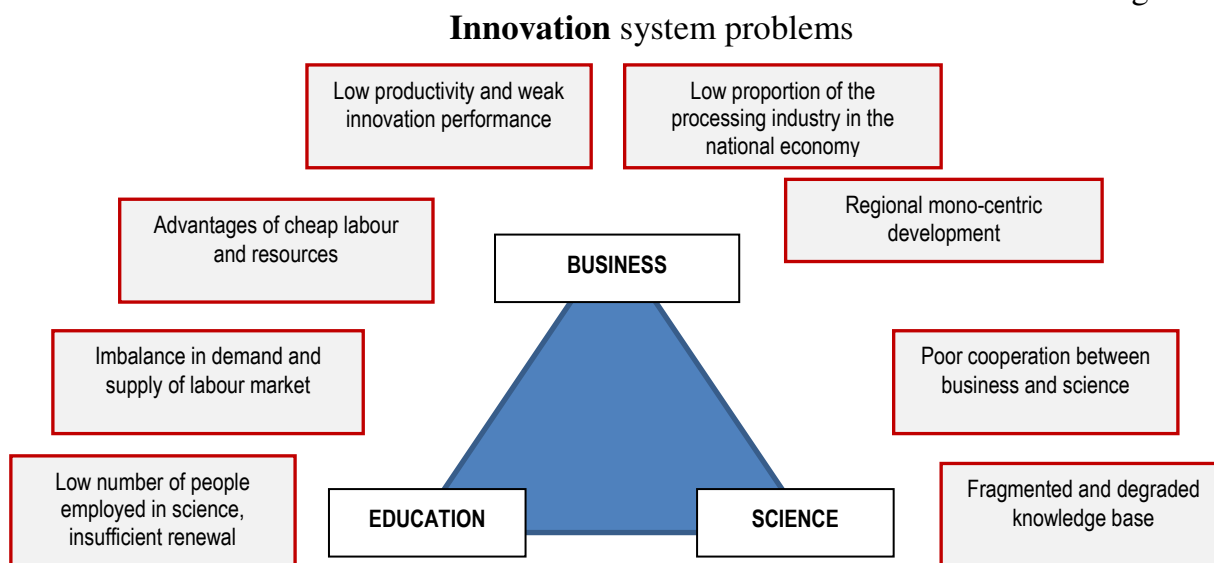
⁵ National Industrial Policy Guidelines for 2014-2020 (approved by the Order 282 of 28 June 2013 of the Cabinet of Ministers). <http://polsis.mk.gov.lv/view.do?id=4391>

- 2) **Poor collaboration between the business sector and science, as well as insufficient use of creative and intellectual capital in the creation of innovations.** In order to make the innovation system effective, cooperation among all its elements is required. In the case of Latvia, both collaboration between research institutions and researchers, and between the industry representatives is weak, which significantly restricts adoption of new technologies and innovative solutions in the production. Insufficient utilisation of creative industry potential in creation of products and technologies with additional added value and unique niche products;
- 3) **The current education system does not ensure consistency between labour demand and supply.**

If there will be no changes in the educational system, this imbalance will persist in the medium term as well. In areas that are particularly important for the development of Latvia – engineering and natural sciences -- only 21% of the total number of students studied in 2011.
- 4) **Insufficient capacity of science and research, technology development and innovation.**

Latvia has too few employees in science, research, technology development and innovation, and insufficient renewal of staff involved in these areas. Despite the increase in the number of doctoral candidates during the recent years, it is not sufficient to ensure the renewal of high-quality scientific staff and increase in the number of scientific personnel. The knowledge base is fragmented and degraded, int. al. the infrastructure of research, technological development and innovation in particular, is underdeveloped. As a consequence there is a low number of *spin of* as well as *start up* companies based in elaborations created in the public research sector. A disproportional low share of the base funding promotes non-strategic, “from project to project” oriented approach to the development of science.
- 5) **Regional mono-centric development** creates an unfavourable environment for business in regions, promotes a decrease in population and the ineffective use of resources in the region. Continued mono-centric development will decrease the competitiveness of Latvia, as the labour and infrastructure costs in a mono-centre will increase, but other growth possibilities in the regions will not be used.

Figure 1



Considering the mutual interaction of the innovation system's subjects, it is equally important to find solutions for development of the each subject, which together form an innovation capacity of Latvia, which is dynamic and evolving over time. The main task, by focusing public and attracting private resources, is to ensure that the national economy of Latvia could be able to overcome the various technological, social, and demographic challenges.

The EU has identified the following weak points in the system of innovation in Latvia:

Cooperation between entrepreneurs and scientists still remain weak and the commercialisation of research results is low.

Companies use the potential of universities insufficiently and their participation in 6 centres of competence (which are trying to bring together innovative companies and research institutions) is rather limited.

Technology transfer contact points functioning at some universities, show mediocre results. Partly because the legal framework of the intellectual property is incomplete, which does not stimulate the universities to patent their inventions.

In 2011, some clusters in such areas as electronics, as well as chemistry and pharmacy, space technology and logistics were established, however, their contribution to the added value is unclear.

Latvia has made the first attempts of modernisation by establishing nine national significance research centres, however, it seems that they are too much disproportionately focusing on academic science (Union Competitiveness Report 2011).

Cross-sectoral cooperation should also be promoted at the national and international level that focuses on the transfer of creativity and newly created knowledge, thus developing creation of new services or products and/or increasing their value. By promoting linkage of technological and non-technological, as well as

social and eco-innovation processes with business, the capacity of innovation will be strengthened, as well as more purposeful development of new products and services will be ensured. In addition, support for technology transfer services, further education, research and experiments, is needed.

2.2. Trends of the national economy transformation, priorities and Smart specialisation areas

Choice of the transformation of national economy is closely related to the overall development of national economy level and advantages (existing and potential) of competitiveness both at the national level and regional scale. Consequently, in the case of Latvia, the following trends of transformation of the national economy are required:

1. Change in production and export structure in traditional sectors of the national economy;
2. Growth of sectors, in which products and services with high added value exist or can be created;
3. Sectors with significant horizontal impact and contribution in national economy transformation.

2.2.1. Change of the production and export structure in traditional economy areas

The current structure of the national economy of Latvia is based on traditional sectors, the competitiveness of which is based on the cheap labour and available natural resources. Although the traditional sectors of the national economy in the medium term will have a great contribution to the overall economic growth and job creation, it should be noted that both cheap labour and resource availability does not create incentives for changing business models and other comparative advantages. Consequently, in order to facilitate the transformation of the national economy, it is necessary to promote structural changes in favour of the production of goods and services with a greater added value. For example, one of the exponent of added value is innovations, their development and promotion of extensive application play an important role. In turn, the sector of creative industries and the design is one of the instruments contributing to innovation in the traditional sectors of the national economy.

Economic structural changes in favour of the production of goods and services with a higher added value. Wood processing industry.

Wood processing industry is one of the largest industrial sectors, and it is an important contributor to the overall growth of the manufacturing industry. The sector accounts for over 20% of the total added value and all jobs in manufacturing industry. The wood processing is closely related to the forestry industry. These two industries together account for more than 6% of GDP and for almost 4% of all jobs.

The wood processing was one of the first industries, in which the growth resumed after extensive decline of production amounts during the crisis. From 2009 to 2012, the wood processing industry was experiencing very rapid growth and in 2012, the industry's sales were about 40% higher than before the crisis. Advantages of the industry are the provision of local resources and stable export market. The industry exports nearly 3/4 of all the produced output, mainly to the EU-15 countries.

While the most part of the exported production is currently with relatively lower added value. In the structure of exports rough timber, sawn wood products etc. are dominating. The relatively higher value added products - plywood, particle boards, craft articles, etc. account for 34% of total wood exports. The proportion of these products is almost 10 percentage points higher than in 2005, but significantly lags behind the EU-15 countries' export structure, where higher value added production, more than half of all products, contributes to export.

Structure of exports by groups of products



Clustering is one of the instruments for the consolidation and efficient use of resources. In the case of Latvia, the most important sectoral clusters are forest and wood processing cluster, agriculture and food cluster, as well as metalworking and mechanical engineering cluster. These industries experience a markedly strong product relevance, as well as a set of workforce and science skills and abilities exist in the sector. Business structures of other production industries experience a weaker interaction with other domestic companies and industries.

As for small economics, for the successful development of Latvia it is necessary to identify industries, the development of which would be desirable and possible, and to purposefully match the preparation of specialists, science, technologies and innovations and to ensure the availability of financial resources for it. Despite the low overall innovation capacity, Latvia has made considerable achievements in industry-related technologies: surface technologies and coatings, materials, engines, turbines, pumps and nano-science. Some advantages are also associated with IT and management methods, audio-visual technologies, health, pharmacy, chemistry and wood chemistry. So far in the field of research, Latvia mainly has specialised in such areas as biotechnology, ICT, energy, transportation technologies, however, material science is recognised as the most important scientific specialisation in Latvia. The metalworking and mechanical engineering, wood and wood products, food processing were in the former specialisation areas of the national

economy of Latvia. For public scientific institutions to become a driving force of innovations that provides the necessary infrastructure (testing laboratories, design offices, experimental workshops, pilot plants, etc.,), innovation infrastructure shall be built on the basis of collaboration of public and private sectors, such as public open access (available to traders) laboratories and experimental workshops and pilot plants.

1st priority:

More efficient use of raw materials for the production of goods with greater added value, creation of new materials and diversification of application. Wider use of non-technological innovations, creative industry potential of Latvia, to produce goods and services with greater added value of the national economy sectors.

This priority corresponds to the areas of specialisation “Knowledge-intensive bio-economics”, “Biomedicine, medical technologies, bio-pharmacy and biotechnologies” and “Smart materials, technologies and engineering systems.”

2.2.2. Future growth sectors, in which products and services with high added value exist or may appear.

For sustainable development of the Latvian national economy it is necessary to diversify the manufacturing industry and the exportable service sector, thus achieving a faster medium-high and high-technology industry, as well as the development of the knowledge-based sectors and cross-sectoral cooperation, which focuses on commercialisation of creativity and technological and non-technological innovation. This trend includes, for example, such *emerging* sectors as pharmacy, biotechnologies, electronics and machinery construction.

2nd priority:

The creation of such innovation system, which provides support for creation of new products and technologies within the framework of existing sectors and cross-sectors, as well as new sectors with high growth potential, based on the growth of defining key sectors that provides an effective identification system for new products/services, and the ability to find and provide support for the creation of new products both in the existing sectoral and cross-sectoral frameworks and creating of new industries with high growth potential.

Following specialisations corresponds to this priority “Smart materials, technologies and engineering systems” and “Biomedicine, medical technologies, bio-pharmacy and biotechnologies.”

2.2.3. Sectors with significant horizontal impact and contribution in transformation of national economy

This group includes areas that form the basis for the development of new, innovation-based, comparative advantages.

2.2.3.1. Innovative energy efficiency solutions and technologies

Low energy efficiency level results in both energy security and resource sustainability risks, as well as competitiveness risks. Increasing the level of energy

efficiency with the help of innovative solutions in the national economy as a whole, is a sustainable and the most cost-effective way to reduce risks, simultaneously creating additional jobs and promoting economic growth.

Characterisation of Energy Intensity

Latvia has a high level of the national economy energy intensity (the energy intensity: energy consumption relative to GDP, expressed in kg in oil equivalent per thousand euros). In 2011, the energy intensity level was 323.3 kg.oil equivalent per thousand euros, or 2.2 times higher than the EU average. During the period from 2004 to 2011, the energy consumption per unit of output produced decreased by 13.7% (EU average: 14%). However, it should be noted that, for example, the reduction in energy intensity in Lithuania was much faster - by 37%.

In the Latvian national reform programme "EU2020", the national objective to achieve major energy savings of 0.670 Mtoe in 2020 is defined for implementation of the strategy, while in the Directive 2012/27/EU on energy efficiency, established mandatory liabilities for total annual energy savings of 1.5% correspond to 0,213 Mtoe in 2020. To achieve these objectives, the existing energy efficiency potential should be acquired to the full extent. The research shows that most of the potential energy savings with the help of the state aid instruments could be reached in the building heat supply⁶, transportation and manufacturing sector⁷. The development of such innovative solutions and technologies for energy efficiency, which ensure particularly high energy savings, is necessary for a successful acquisition of this potential.

3rd priority:

Improvement of energy efficiency, which include the creation of new materials, production process optimisation, introduction of technological innovations, use of alternative energy resources and other solutions.

The area of specialisation "Smart Energetics" corresponds to this priority.

2.2.3.2. Development of information and communication technologies

New opportunities and solutions of ICT industry shall provide a greater contribution in the development of other sectors, significantly increasing their efficiency. In the Latvian National Reform Programme "EU 2020", the need to increase the development of information and communication solutions (ICT) and implementation of single digital market, was mentioned as one of the sub-measures of reform directions, thus contributing the growth of national economy, which is related to the need to provide the increasing demand for more efficient solutions in business process management and analysis. Public data and information is a resource that includes unimplemented economic and social potential. The value of data increases by disclosing them, where they can be used for creation of new products and services, as well as in creation of innovation, scientific and research work. An open, secure and interoperable public data infrastructure is one of the main solutions to increase the economic growth of the state.

⁶ <http://em.gov.lv/em/2nd/?cat=30702>

⁷ <http://em.gov.lv/em/2nd/?cat=30943>

Furthermore, equal access to the electronic communications throughout the territory of Latvia will increase the contribution of ICT in the growth and innovation of all sectors of the national economy.

Opening of the data held by the public administration implies an unrealised economic and social potential. By disclosing data to the public, they can be used for the creation of new products and services, as well as for the creation of innovation, scientific and research work. An open, secure and interoperable public data infrastructure is one of the main solutions to increase the economic growth of the state.

In the Information Society Development Guidelines for 2014-2020, priorities of ICT area in Latvia have been established, which are developed taking into consideration priorities set by The European Digital Agenda and objectives set by the European Commission for the development of Single Digital Market: Development of ICT education and e-skills, widely available internet access, modern and efficient public administration, development of e-services and digital content, cross-border cooperation for development of the single digital market, as well as the promotion of ICT research and innovation, trust and security.

Association of ICT area's investments with courses of action set by SGS shall be viewed not just through the principle of open data, but also by promoting skills to use ICT. The contribution of the ICT sector should be promoted by creating resources of digital content and ensuring their availability for creation new products and services, accordingly the base of digital content should be developed and the collaboration of ICT and other sectors should be promoted (development of language technologies, digitisation of cultural and educational content, etc...).

4th priority:

Development of a modern and contemporary standard-compliant ICT system in the private and public sectors.

This priority complies with the area of specialisation "Information and communication technologies".

2.2.3.3. Improvement of the Education System

Education is one of the foundations of national competitiveness. Within medium term and long term, national economies of developed countries will be faced with shortages of professional and highly qualified (mostly with college or higher education level) labour⁸. According to the medium-term and long-term forecasts of Latvia's labour market, restructuring of the national economy is hampered by the shortage of appropriately prepared specialists. The main challenges we will face in the future is an insufficient number of qualified professionals, mainly in the areas of natural and engineering sciences (both secondary and higher education levels), and the lack of highly qualified specialists with the skills required for the future-technical specialisation, which is combined with business and troubleshooting skills.

Main disproportions of the labour market

According to the medium-term and long-term forecasts of the labour market, with the retention of the current workforce structure, four major disproportions in the labour market have been identified:

⁸ The Informative Report of the Ministry of Economics About medium- and long term forecasts of the labour market. http://www.em.gov.lv/images/modules/items/tsdep/darba_tirgus/EMZino_21062013.pdf

- In higher education, approximately 52% of the total number of students was enrolled in the areas of Humanities and Social sciences. In the medium term, demand for these professionals will be 10% or 19 K less than supply.
- In science and engineering programs, only 25% of the total number of matriculated students. Also taking into account the age composition, in the medium term, demand will exceed supply by 27%, or 22 K.
- Annually, approximately 5% of youth enters the labour market without specific speciality and skills, while the demand for such labour force will diminish.
- The labour market has a large proportion of the low skilled - up to 2020, retraining will be required for more than 30 K of economically active population with basic education or even a lower level of education.

For resolution of these challenges, it is not enough with the increase of the number of budget allocations, improvements of the education system as a whole are required, including the development of creative thinking and fostering the development of creative partnerships at all levels of education.

5th priority:

A modern and corresponding to the future labour market demands education systems that facilitate the transformation of national economy and development of competences required for the implementation of SSS priorities, enterprising spirit and creativity at all levels of education.

2.2.3.4. Increase of the capacity of science, research, technology development and innovation.

Sufficient scientific and research capacity is an important prerequisite for the transformation of the national economy of Latvia to the knowledge and innovation-based model. Unfortunately, the current science and research capacity is weak. This is evidenced by a small number of persons employed in science (ageing of scientists, insufficient number of doctoral students), underdeveloped science and research infrastructure, lack of well equipped laboratories for implementation of technology-oriented projects, as well as a weak commercialisation potential of research results and weak cooperation between the scientific and economic sectors. Sufficient and high quality human capital, appropriate infrastructure, including the infrastructure required for technology development and innovation, and enhanced collaboration, are preconditions for investments in research and innovation to be effective, if other favourable circumstances set in.

Latvia has comparative advantages in certain areas of knowledge of the natural sciences (particularly in solid-state physics, organic chemistry, biochemistry and molecular biology, as well as computer science), engineering (particularly in electrical engineering and electronics, ceramic and composite materials, mechanics and biotechnologies), medicine (particularly in pharmacy, biomedicine and medical technologies) and agricultural sciences (particularly in agronomy and horticulture, forestry and food technologies). In these areas the knowledge base and human capital, which is the foundation of innovation capacity, create and develop specialised higher educational and scientific institutions.

6th priority:

An advanced knowledge base (basic science and scientific infrastructure) and human capital in areas of knowledge, in which Latvia has a comparative advantage and which are important in the process of transformation of the national economy: in areas of knowledge related to the smart specialisation areas (1) knowledge-intensive bio-economy, (2) biomedicine, medical technologies, bio-pharmacy and biotechnologies, (3) smart materials, technologies and engineering systems, (4) smart energetics, and (5) ICT, as well as key technologies identified by the EC (nanotechnologies, micro- and nano-electronics, photonics, advanced materials and manufacturing systems, biotechnologies).

2.2.3.5. Promotion of Balanced Territory Development

Significant differences in regional development exist in Latvia, which are also significant at the EU level. Currently, the regional mono-centric development that exist in Latvia creates an unfavourable environment for business in regions, promotes the decrease in population and ineffective use of resources of the region. The continued mono-centric development will decrease the competitiveness of Latvia, as the labour and infrastructure costs will increase in the mono-centre, but other growth possibilities in the regions will not be used. The significantly different economic activity, service availability and accessibility create different standards of quality of life and development possibilities for population of territories, and encourage the outflow of population to the more developed territories, which further reduces growth prospects of less developed areas.

Characteristics of Regional Disparities

According to Eurostat data, by the dispersion * of regional GDP per capita by NUTS 3 statistical regions in 2009 Latvia has the fourth worst result among the EU Member States (43,3%). Similar trends also are in other indicators of socio-economic development of the territories. Development indicators of the capital Riga and its surroundings are clearly higher than in the rest of the country. In 2010, Riga planning region's GDP accounted for two-thirds, or 66.9% of the country's total GDP. For 83% of urban scientific institutions, for 83% of high-tech companies, 70% of TOP 500 companies are concentrated in Riga, 60% of the total export of Latvia is formed by companies located in Riga as well. During 2000-2013, the number of population has grown only in areas around the capital, it has fallen in the rest of the country; in outermost municipalities the decrease has reached even 25-35 percent.

To reduce the disproportion among regions, the strategy "Latvia 2030", NAP 2020 and the Regional Policy Guidelines for years 2013-2019, as solutions, set promoting poly-centric development by defining a network of development centres (9 + 21 cities) of national and regional significance as a driving force.

*-The coefficient of variation expressed as a percentage. The regional variation is characterised in % of the national average GDP level. If the number is 0, then differences among the regions do not exist, namely, in absolutely all regions of the country an equal GDP is produced.

For the facilitation of a balanced development of Latvia, it is essential to promote more rapid development and increase of competitiveness in all areas. This can be achieved by more efficient use of the existing resources in regions and municipalities (infrastructure, natural, human resources, etc.).

7th priority:

Studying and specialisation of the existing resources of territories, proposing the prospective economic development opportunities and directions, int. al. leading and prospective business directions in the municipal territories.

2.3. Support Directions and Tools

Imperfections of the innovation system show that systemic market challenges dominate in the economics of Latvia. To implement the transformation of the national economy of Latvia, as well as to implement the priorities set by SSS, it is required to strengthen the innovation capacity and to create the innovation system that encourage and support the technological progress of the national economy, by developing solutions that primarily are focused on the removal of these challenges.

Indicatively, the following main support directions and tools are determined:

- 1) **Integration of the education, science, technology development, innovation, and business** (strengthening cooperation and transfer system in the area of innovation). The objective of the course of action is the improvement of collaboration skills of scientists and scientific institutions, the stimulation of scientific research focused on the creation of innovations according to the industry and market demand for new technologies and innovative solutions, as well as to support contractual researches and to ensure the protection of intellectual property generated by public resources, commercialisation and use for the creation of new exportable products and services.

Support tools:

- To create a Single technology transfer platform, which includes formation of technology transfer centres, and to expand a range of services of the technology transfer centres, thus providing support for intellectual property, testing economic rationality and technological feasibility of research results and development and implementation of commercialisation strategy (*proof of concept* fund), as well as by providing support for innovative researches, which objective is to create new commercialised knowledge and technology.
 - To ensure a wider accessibility to the research, technology development and innovation infrastructure for entrepreneurs, improving the management of scientific infrastructure and other assets that are at the disposal of the scientific institutes, simultaneously developing it in areas, where demand for education, research and industry has been identified and which has been formed according to the open access principles;
 - To continue development of competence centres as a long-term platform for collaboration of scientific institutions and entrepreneurs, by providing support for implementation of industry ordered researches and product development projects, by co-financing both individual and cooperation projects. To direct the support of Competence centres for projects of research, technology transfer and product development with greater potential economic returns and to attract the capacity to the introduction of investment in production;
 - To provide support for studies, the purpose of which is to create new knowledge to be commercialised.
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- 2) **Strengthening the innovation capacity of industries** (strengthening the demand for innovation), the objective of the course of action is to increase the capacity of

companies to develop an innovation-based competitiveness, shifting additional resources to both internal research and innovation capacity-building, and acquisition of technologies and knowledge on the outsourcing base in collaboration with research bodies, as well as by encouraging the formation of new innovative companies with rapid growth potential and attraction of funding in their early development phase.

Support tools:

- To introduce a Corporate income tax discounts on investments made in research and development, especially if the researches were carried out in collaboration with scientific institutions;
- To improve SMEs access to services that would help to create new products, services, processes, and technologies (innovation vouchers), by giving support for the purchase of services related to the research and creation of products, simultaneously expanding a range of services provided;
- To facilitate the use of non-technological innovation and Latvian creative industry potential for the development of more efficient business models, services and products and for increasing their value;
- To ensure pre-incubation and incubation services for newly established innovative companies, both by optimising business incubator network in regions and by developing innovation incubators, which are focussed on the commercialisation of research results through the newly established companies;
- To promote business start-up (motivation program);
- To create a technology development and transfer infrastructure;
- To expand the early phase investment instrument spectrum and volume by ensuring support for business ideas with the rapid growth and export potential at the phase of development of products and business model.

- 3) **The increase of the capacity and returns of the science, research, technology development and innovation** (strengthening the knowledge capacity and innovation supply) that also promotes the collaboration and integration of natural, engineering, social sciences and humanities, thus promoting the renovation of knowledge base and the growth of scientific excellence, and the creation of products and technologies with higher social and added value, thus ensuring the development of qualitative and competitive products and services.

Support tools:

- To develop human capital (support for the promotion of international cooperation, scientific groups, academic innovation grants, post-doctoral grants);
- To ensure support for researches in priority directions of science;
- To promote institutional excellence and de-fragmentation of R&D resources, to support initiatives of the European research area, to promote the development of science, research and technologies and the development of innovation infrastructure, and to support the consolidation and restructuring of institutions.

- 4) **To promote the growth of sectors, exportability and incorporation in a chain of global values.** The objective of the course of action is to promote the increase of export profitability, by rising productivity and increasing proportion of products with higher added value.

Support tools:

- To continue developing financial instruments, providing an entrepreneur with the opportunity to get a credit for commercial activities in situations, when a security held by the entrepreneur is not sufficient to attract the credit resources in necessary amount, implementing specific financial instruments for export deals of the support program for providing newly established, micro and small companies with the necessary funding, giving the support for initial investments, loans with a grant element, as well as promoting micro-credit;
- To support initiatives of the export-oriented industry cluster with the aim to focus the knowledge, abilities, skills, and resources on acquiring external markets and engaging in global production, service delivery and marketing chains;
- To support the building and reconstruction of industrial connections, territory and space, organising and developing the infrastructure required for economic activities, and promoting the manufacturing industry development
- To develop activities on acquiring external markets for entrepreneurs (participation in exhibitions, foreign visits, public stands, etc.) and for meeting requirements of specific markets (for example, additional certification of products);
- To strengthen the capacity of national and sectoral representation in key export markets, including the support for the future action and capacity-building of an external economic missions network of Latvia, as well as co-financing initiatives of organisations representing the sector, that are important for the sector;
- To support the development of new solutions for increasing the energy effectiveness and the decreasing emission and the introduction of the latest technologies in the industrial sector;
- To implement support programs for export-oriented, high added value cross-product development.

- 5) **The improvement of the education system in order to reduce disproportion of labour market.** The objective of the course of action is to promote the development of individual's professional and social skills of life and competitiveness in the working environment, including promoting the development of entrepreneurial and creative thinking at all education levels; to raise the quality of education environment by optimising the content technologies and developing appropriate infrastructure; as well as to promote access to education and to ensure effective resource management and development of institutional excellence.

Support tools:

- To modernise vocational education institutions, providing the correspondence of learning environment and content with the development of the national

economy sectors, and improving access to vocational training; to ensure practice places in companies and institutes, and more enhanced collaboration with the national economy sectors;

- To consummate higher education offer, reducing fragmentation of programmes, promoting their compliance with the economic growth and strengthening their international competitiveness; to promote the collaboration of higher schools and scientific institutes in the implementation of master and doctoral studies;
- To improve general education teachers ' competence and educational content to improve the learner's performance, especially in natural sciences and mathematics, and to avoid early school leaving;
- To develop educational research, especially in educational technology and innovation area;
- To consummate a lifelong learning system, by providing the professional development of individuals according to the changing labour market conditions.

6) Encouragement for ensuring the public data reapplication increase.

The objective of the course of action is to provide the opportunity for private, non-governmental and scientific sectors for immediate engagement in on the public data-based ICT product development, as well as for the immediate situation analysis and research, thereby promoting the creation of innovations.

Support tools:

- To enforce a set of measures, in order the data held by a public administration would be technically and legally available, they would be published pro-actively;
- To create interfaces of the public administration information system in order by using them the commercial sector would create innovative business ideas and products, int. al. in an e-commerce and e-business area.

7) To promote balanced development of territories, creating preconditions for valuable use of territory development potential and resources.

Support tools:

- The development business support public infrastructure in regions. Contributions shall be done by implementing the integrated local development programmes based on the knowledge assets existing the territories and growth potential, int. al. the evaluation of economic specialisation of the territories. To promote balanced development of regions, the support should be focused on

national and regional development centres, where resources significant for the growth and economic and social activity⁹ are concentrated. At the same time, to use advantages given by the Eastern frontier, additional support should be provided for the region of Latgale.

2.4. Monitoring institutional system of Smart specialisation strategy

One of the SSS methodological principles provides the development of a strategy monitoring system (monitoring and reassessment).

As indicated by the European Commission and its experts, the implementation of the Smart specialisation strategy is based on a process, and not a fixed choice, so the monitoring system must be flexible, which is capable to timely identify changes in any element of the strategy by offering appropriate correction of the strategy action part. One of the most flexible institutional solutions, in which a wide range of experts can be involved, and which would be able to deal with monitoring-related challenges, is a consultative institution format. For the management of SSS of Latvia, a Strategic Council of Research and Innovation (SCIL) will be established. The task of the council is to provide a forum, in which, with the participation of scientists, research funders and result users (industry), strategic objectives of SSS will be jointly set. To supervise these objectives, the MES in collaboration with the ME and ministries of other industries will develop a monitoring system of electiveness of activities to be implemented, which will be focused on the research and innovation building, capacity building, research and industry integration and public understanding of research as creative activity of the public value, and thus it will promote the development and competitiveness of Latvia.

3. Measures for further action

In order to ensure the appropriate development of SSS in accordance with the European Commission Guidelines, the development of the Smart Specialisation Strategy, as well as the comments of 16 October 2013 of the European Commission on the proposal of the programme "The growth and employment" of Latvia for European Union's structural funds programming period 2014-2020:

- 1) The Ministry of Education and Science in collaboration with the Ministry of Economy, Ministry of Finance and ministries of other industries and social partners must develop:
 - 1.1. A Smart specialisation strategy implementation plan pursuant to this informative report;
 - 1.2. A development plan of the Smart Specialisation Strategy monitoring system.

⁹ *Municipalities of 30 development centres are characterised by a high concentration of population (71%), absolute concentration of higher education institutions (100%), a large number of economically active entrepreneurs (84% of all the registered companies in the country), a high proportion of workers (81% of workers employed at a principal work are employed in these municipalities), they have attracted the largest share of the amount of direct foreign investment (more than 80%).*

- 2) The ministries of industries shall include the principles set in the Smart Specialisation Strategy in the binding sectoral policy planning documents.

Appendix:

1. References on the objections provided on the informative report objections "About the Development of the Smart Specialisation Strategy" on 195 pp.;
2. Assessment of the export potential of sectors of the national economy on 20 pp.;
3. Entrepreneur survey results on 10 pp.;
4. Assessment of the knowledge capacity on 57 pp.;
5. Scheme of the Smart Specialisation Strategy on 1p.

Applicant:

Minister for Education and Science

Vj. Dombrovskis

Endorsed by: Secretary of State

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16.12.2013 15:50

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