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## **THE LITHUANIAN INNOVATION DEVELOPMENT PROGRAMME 2014–2020**

### **I. INTRODUCTION**

1. The Lithuanian Innovation Development Programme 2014–2020 (hereinafter – Programme) has been drafted with a view to mobilising the state resources for the improvement of Lithuania’s innovativeness and development of competitive economy based on high level knowledge, high technologies, qualified human resources and smart specialisation.

2. The Programme has been drafted having regard to the State progress strategy “Lithuania’s Progress Strategy “Lithuania 2030” approved by Resolution No XI-2015 of the Seimas of the Republic of Lithuania of 15 May 2012 (*Valstybės žinios* (Official Gazette) No [61-3050](#), 2012) (hereinafter – Lithuania’s Progress Strategy “Lithuania 2030”), the National Progress Programme 2014–2020 approved by Resolution No 1482 of the Government of the Republic of Lithuania of 28 November 2012 (*Valstybės žinios* (Official Gazette) No [144-7430](#), 2012), the National Programme for the Development of Studies, Scientific Research and Experimental (Social and Cultural) Development for 2013–2020 approved by Resolution No 1494 of the Government of the Republic of Lithuania of 5 December 2012 (*Valstybės žinios* (Official Gazette) No [145-7455](#), 2012) (hereinafter – SR&D Programme), the Commission Communication of 3 March 2010 “Europe 2020: a strategy for smart, sustainable and inclusive growth”, COM(2010) (hereinafter – Europe 2020 Strategy), the Commission Communication of 6 October 2010 “Europe 2020 Flagship Initiative “Innovative Union”, COM(2010) 546 (hereinafter – Flagship Initiative “Innovative Union”) and the Commission Communication of 30 November 2011 “Horizon 2020 – the Framework Programme for Research and Innovation”, COM(2011) 808.

3. The Programme pursues a broad concept of innovation, both research-driven innovation and innovation in creative solutions, business models, industrial design, branding and services that add value for users in order to involve all actors in the innovation cycle. Not only major companies, but also micro, small and medium-sized enterprises, innovative business start-ups, business and public associations and natural persons should be involved in the development of innovation. Innovation should be developed not only in a few high-tech areas, but in all sectors, including the public sector, involving citizens, implementing and promoting both research-driven innovation and non-technological, social, organisational and other innovation. Innovation concepts used in the Programme were defined having regard to

the definitions of innovation and their explanations provided in the Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data prepared by OECD and Eurostat (2005, Third edition), the European Commission Research of 2013 “Social Innovation Research in the European Union: approaches, findings and future direction” and the European Public Sector Innovation Scoreboard.

#### 4. Terms used in the Programme:

**Innovation** – means implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relationships.

**Innovation support services** – means specialised services facilitating the commercialisation of new technologies, ideas and methods introducing to the market new or significantly improved product (good or service), implementing new (improved) technological processes of production (provision of services).

**Innovation system** – network of interrelated institutions and organisations, their linkages and means facilitating the development of new technology and innovation.

**Cluster** – means grouping of interlinked enterprises, suppliers, institutions of science and studies and other actors the members of which cooperate with each other in different areas of economic activity and initiatives for the purpose of improving efficiency of economic activity, knowledge sharing, technology transfer and development of innovative products.

**Creativity** – means complex of personal qualities that allow to achieve original, socially relevant, new quality results of activity; it is the process of mind (mental) and social process, incorporating discovery of new ideas and concepts or new links and interactions between known ideas and concepts.

**Organisational innovation** – means implementation of a new organisational structure or management methods to improve the use of knowledge, product or service quality or workflow efficiency.

**Priority area in research, experimental (socio-cultural) development and innovation development (smart specialisation)** – means group of scientific solutions, technologies, products, processes and (or) methods, responding to global or national challenges and opportunities, which can be best utilised by the Lithuanian research, development and innovation system (hereinafter - RDI).

**Process innovation** – means implementation of a new or significantly improved production or delivery methods. These methods can involve changes in equipment (including software) and (or) production organisation or combinations of such changes using innovative knowledge.

**Product innovation** – means introduction of new or significantly improved goods or services to the market.

**Marketing innovation** – means implementation of new or significantly improved marketing methods aimed at improving attractiveness of products or services or development of business in new markets.

**Social innovation** – means adaptation of new ideas (goods, services, methods) for the purpose more effective satisfaction of social needs and (or) establishment of new social linkages, partnerships or networks.

**Smart specialisation** – means advantages and potential of the institutions of science and studies, business and economic sectors as response to the global and national challenges.

**Technology** – means purposeful development, application and knowledge of tools, mechanisms, technical means, abilities, methods, systems and other intellectual resources in order to resolve a problem or perform a specific function.

**Technology centre** – means legal person or a subdivision thereof in the public or private sector, having an open-access RDI infrastructure and engaged in the activities of new or improved product development and placement on the market.

**Technological activity** – means creative activity carried out through technological methods.

**Entrepreneurship** – means individual competence to implement ideas delivering value added.

**Public sector innovation** – means implementation of new or significantly improved services, communication methods, processes or organisational methods in the public sector.

5. Other terms used in the Programme shall have the meanings assigned to them in laws and other legal acts of the Republic of Lithuania.

## II. PROGRAMME OBJECTIVES AND TARGETS

6. The strategic goal of the Programme – to enhance competitiveness of the Lithuanian economy through the development of the effective innovation system promoting economic innovation.

7. The strategic goal of the Programme was predetermined by the priorities and targets established in the Strategy “Europe 2020”. One of five quantitative targets established in the Strategy “Europe 2020” at the level of the European Union (hereinafter – EU) – investment (public and private) in research and development (hereinafter – R&D) – should account for 3% of gross domestic product (hereinafter – GDP). This target in the Strategy “Europe 2020” is linked with the need for the development of the knowledge and innovation based economy. The aim according to the National Progress Programme 2014–2020 will be the achievement of the increase of Lithuania’s R&D investments to 1.9% of GDP and maximum growth of the R&D investments in the private sector in 2020.

8. According to the data of the Statistics Lithuania, total R&D expenditure in 2012 accounted for 0.9% of GDP, and average R&D expenditures of the EU Member States amounted to 2.06% of GDP. In Lithuania, R&D expenditures of the public sector are considerably higher than business spending on R&D. In 2012, R&D expenditures of the public sector amounted to 0.66% of GDP and of business sector – 0.24% of GDP. Insufficient R&D investment and innovation skills of business are also among the reasons of low innovation level in Lithuania. However, over the recent years, R&D investment kept growing

and the RDI policy pursued by the State will create conditions for larger private sector and foreign investments in RDI. According to the data of the Statistics Lithuania, total expenditures on R&D in 2012, compared to 2011, increased by 5.1% (in 2011 increased by 28.5%). The growth of R&D expenditures is considerably influenced by the EU structural funds.

9. The Innovation Union Scoreboard developed by the European Commission helps to compare the success of the EU Member States in the innovation area and to identify the advantages and disadvantages of their innovation systems. According to the summary innovation index all EU Member States are classified into four performance groups: modest, moderate, innovation followers and innovation leaders. According to the Innovation Union Scoreboard indicators published on 26 March 2013, in 2012 the summary innovation index of Lithuania was 0.28 (in 2011 – 0.271), the average of the EU Member States – 0,544 (in 2011 – 0.531). According to the data of the Innovation Union Scoreboard, Lithuania has achieved great progress in the area of innovations. The average growth of innovativeness in Lithuania is one of the highest among 27 EU Member States – 5%. Lithuania has managed to improve the group membership from a “modest” innovator to a “moderate” innovator together with Italy, Spain, Portugal, Czech Republic, Greece, Slovak Republic, Hungary and Malta. The Programme is aimed at enhancing the innovativeness of Lithuania’s economy and at achieving that the summary innovation index of Lithuania in 2020 reaches the average index of 28 EU Member States.

10. Lithuania’s relative strengths lie in human resources and finance and support. For community designs and employment in knowledge-intensive activities growth rates are the highest among all Member States. High growth is also observed for non-R&D innovation expenditures and income from community trademarks and licenses and patents abroad. Despite the growth of the aforementioned indicators, their values compared to other EU Member States are low and do not guarantee Lithuania’s progress according to the summary innovation index. The gap between Lithuania and EU average in the area of innovations is mostly predetermined by lack of openness, excellence and attractiveness of research system, small number of patent applications, small number of doctoral graduates from third countries, insufficient amount of R&D investments of businesses.

11. In developing a modern economy of higher added-value, Lithuania’s Innovation Strategy for the Year 2010–2020 approved by Resolution No 163 of the Government of the Republic of Lithuania of 17 February 2010 (*Valstybės žinios* (Official Gazette) No [23-1076](#), 2010) (hereinafter – Innovation Strategy) captured all innovation related areas and measures. The implementation of the Innovation Strategy was assessed on the basis of the Innovation Union Scoreboard developed by the European Commission. The interim assessment of the Innovation Strategy performed in 2012 and results of the Innovation Union Scoreboard 2013 show that measures applied by the State for research, development of technology and innovation over the past years had a positive impact on business investments in RDI.

12. According to the global innovation index of 2013 published in the Report “Global Innovation Index 2013” of the World Intellectual Property Organisation (hereinafter – Report “Global Innovation Index 2013”), among 142 countries of the world Lithuania ranks 40th, Estonia – 25th and Latvia – 33rd. The Report of the World Intellectual Property Organisation indicates sufficiently low innovation efficiency index of Lithuania: in 2013 Lithuania came in 105th among 142 countries of the world. According to the innovation efficiency index Latvia ranks 74th (2013) and Estonia, respectively, 51st (2013).

13. According to the information contained in the Communication from the Commission of 21 March 2013 “State of the Innovation Union 2012: Accelerating Change”, COM(2013) 149, Lithuania occupies the last place in the EU in terms of index of economic impact of innovation (2010–2011). The value of Lithuania’s index is 0.22, while the EU MS average is about 0.55. On 13 August 2013, the Commission presented the Communication “Measuring innovation output in Europe: towards a new indicator”, COM(2013) 624, offering a new innovation output indicator used to measure the economic impact of innovations: whether innovative ideas and research results reach the market in the form of competitive products. In terms of this indicator Lithuania is among the EU Member States that are mostly lagging behind – it is in the next-to-last position. This once again proves the need to reorganise the innovation system of Lithuania so that RDI investments translate into competitive products, new jobs, markets and promote economic growth. In order to achieve higher economic impact of innovations, the innovation development objectives and goals set in the Programme until 2020 will create the grounds for more effective development of innovations.

14. The first objective of the Programme – to develop innovative society by developing new knowledge and its application (hereinafter – the first objective of the Programme).

According to the Report “Global Innovation Index 2013”, the indicators defining the level of education and research of Lithuania in 2013 are relatively high (35th position among 142 countries). Lithuania is distinguished by highly-skilled human resources and ranks 20th in terms of the education level indicators. However, this potential of knowledge, research, and creativity of citizens, entrepreneurship and innovativeness is still insufficiently utilised. Therefore, the implementation of this objective is aimed at creating the environment favourable to innovative society.

The implementation of the first objective of the Programme is supported by the implementation of the first and second objectives of the SR&ED programme, the targets intended for these objectives and respective measures provided for in 2013–2015 Action Plan of the respective SR&ED approved by Order No V-579 of the Minister of Education and Science of 25 June 2013 (*Valstybės žinios* (Official Gazette) No [68-3445](#), 2013) and funds committed for their implementation.

15. Target 1 of the first objective of the Programme – to develop high-level knowledge, and research and development activities.

Acquiring knowledge required for innovations is directly linked with research, therefore the development of knowledge-based economy will be aimed at utilising the available intellectual potential, creating conditions for high level R&D activities satisfying the needs of society and economy, developing effective RDI infrastructure, enhancing the competence of Lithuanian researchers, promoting their mobility, developing favourable conditions for young researchers to seek scientific career – facilitate internships in science-intensive enterprises and technology centres and promote international and intersectoral collaboration.

Considering the business needs, R&D outcomes and knowledge accumulated both in higher education and research institutions of Lithuania and foreign countries, through the participation in the European and regional R&D networks should be employed for the purpose of developing the areas of smart specialisation. Therefore it is necessary to promote the international cooperation by integrating with the European Research Area, to concentrate the available R&D and know-how potential and to use the experience of other countries for building competitive advantage and addressing social challenges.

16. Target 2 of the first objective of the Programme – to develop creativity, entrepreneurship, innovativeness and practical skills and qualification corresponding to market needs within the system of higher education and studies.

The system of higher education and studies is of high significance for the development of creativity, entrepreneurship and innovativeness. The Communication from the Commission of 9 January 2013 “Entrepreneurship 2020 Action Plan: reigniting the entrepreneurial spirit in Europe”, COM(2012) 795, (hereinafter – Entrepreneurship 2020 Action Plan) emphasises the importance of the development and training of entrepreneurship at all levels and the fact that knowledge gained through entrepreneurial studies in educational institutions help to form vital skills and attitudes that are important in for the development of business. The Programme is aimed at stimulating the interest of children and youth in RDI in early stages of education. In addition to providing business management, technological and R&D knowledge, the system of higher education and studies will prepare youth for continuing creative activity, teach them to independently address arising problems and transfer knowledge to others. The implementation of this target is supported by SR&ED programme which provides for promoting R&D among schoolchildren and students.

The Programme will aim at improving the culture of innovations in Lithuania both within the system of higher education and studies, but also among the public creating the medium conducive to the dissemination of innovation related knowledge, involving technically minded children and youth in the practical development of technologies, disseminating know-how about high technologies, innovations and their benefits for the society, that would contribute to the formation of value-related attitudes encouraging to engage in innovation.

Although Lithuania has highly-skilled human resources, which are identified as a relative strength of Lithuania in the Innovation Union Scoreboard, business representatives of

Lithuania miss specialists of technology possessing knowledge product manufacturing and business technology, able to manage the product and innovation life cycle. In order to ensure the labour force qualifications corresponding to labour market needs, help enterprises to respond to market needs and enhance their innovation skills, special attention will be devoted to the improvement of general education, vocational training and study programmes and process, creating conditions for such system of development of technical creativity, entrepreneurship and technical skills in which in addition to educational institutions, business enterprises and their associated structures would participate. Private educational initiatives represent one of the ways to fill in the gaps in the system of formal education and provide a good medium for the development of new forms, content and innovativeness of learning. Moreover, it is necessary to identify the available competences and their demand in implementing the systems of monitoring the supply of the technological and innovative competences and the need for them.

17. Target 3 of the first objective of the Programme – to promote the development of innovative business, creating favourable conditions and providing knowledge about starting the innovative business.

Entrepreneurial abilities to change and improve, take new decisions help in getting ideas into actions and implementing innovations. In 2013, Lithuania in the Global Entrepreneurship Development Index (hereinafter – GEDI) Table of the countries is in positions 30–32, slightly falling behind Estonia (25th position) and outpacing Latvia (positions 34–36). The USA rank the first according to GEDI, followed by Sweden and Denmark, Australia is in position 4, and Canada is also one of the first five positions (research in Lithuania is carried out by the International Business School of Vilnius University).

In order to promote the development of new innovative businesses, in addition to theoretical entrepreneurial knowledge it is also necessary to provide assistance for starting the innovative business. The transfer of knowledge into business requires not only exclusive ideas, but also practical business skills. Individuals starting business lack information about markets, potential partners and business development, face shortage of funds for the implementation of new ideas, acquisition of premises and creation of the effective presentation of the product. The setting-up and market entry of new innovative enterprises is based on their abilities to realise and manage their product life-cycle and is a complex process, which requires greater knowledge. At this critical starting phase of the innovative business public services and measures of support for the start of business are important: assistance of mentors, assistance for commercialisation of innovative ideas, services of technological innovations, business incubation and business promotion measures aimed at rapid growth of enterprises (business accelerators). Support for young researchers and new knowledge-intensive enterprises created by them will facilitate the effective use of knowledge developed in the institutions of science and studies, as specified in SR&ED programme. According to the data of the Commission, consultation on review of results of the

Entrepreneurship 2020 Action Plan, almost 62% of respondents indicated that business start-ups need support for the implementation of innovations.

18. The second objective of the Programme – to enhance innovation potential of business (hereinafter – the second objective of the Programme).

Innovations can guarantee the survival and development of business and provide it with competitive advantage. Innovations should become a driving force of competition, so that productivity of Lithuania's economy and added-value delivered by it reaches the average of the EU Member States. According to the data of the Global Competitiveness Report 2013-2014, Lithuania is the 48th among 148 economies in terms of the global competitiveness index, and earlier it was 45th among 144 countries. Lithuania is in the 16th position among the EU Member States.

19. Target 1 of the second objective of the Programme – to promote investments in activities delivering high value added.

Low business investments in R&D and weak innovative capacities of business are reflected in the assessment of innovation results and predetermine the competitiveness of Lithuania's economy. Knowledge and technology intensive sectors are relatively small and the impact of their development on Lithuania's economy is insignificant yet. The bigger part of value added delivered by Lithuania's economy comprises products and services of traditional industry (transport, tourism). Almost all Lithuanian enterprises operate in value added chains of lowest profitability: as suppliers of raw materials, producers and exporters of intermediate parts of products or just fulfil orders of large companies, without trying to create higher value added products. But with production costs increasing it will be more difficult for such companies to maintain competitive advantage, because the strategy of low costs in the long-term perspective is uncompetitive. Due to a considerably larger contribution to the general structure of economy the promotion of innovativeness, efficiency management skills in traditional industry might have an increasingly stronger positive impact on Lithuania's economy at large. The innovation of production process based on management methods of business processes might increase productivity. A wider application of design and other non-technological innovations might be one of the factors influencing the creation of higher value added products, improving efficiency and more sustainable use of resources.

Foreign direct investments can facilitate the changeover to sectors delivering high value added. Seeking a positive long-term impact of foreign direct investments Lithuania should focus on attracting these investments to those business sectors, which need highly skilled workforce and which generate high value added in the long-term perspective. In order to attract foreign direct investments to RDI and other activities creating higher value added, active measures supporting such investments will be implemented focusing on high value added investment projects of smart specialisation area and aimed at promoting the business of higher value added services.

One of the barriers for investments in higher value added and RDI is shortage of capital, because innovations are related with higher risk, prolonged project pay-off period and



large investments. The innovative business mostly need seed capital to guarantee the required funding during the first years of operations of the company. Loan funds are often incapable of financing the start-up of business of high and medium high technologies when it is quite difficult to forecast the investment return or recovery of invested funds, therefore these activities are carried out by venture capital funds. Venture capital contributes to the development of innovative enterprises and enables them to create good jobs. The venture capital market in the Baltic Region is in a rather early development phase yet. According to the data of the European Venture Capital Association, in 2009, venture capital investments in the Baltic States accounted for mere 0.01% of GDP and were the lowest at the EU level. The established Baltic Innovation Fund and venture capital measures implemented by the private company Investment and Business Guarantees contribute to the development of venture capital and help to address business financing problems. During the coming financial period of 2014–2020 measures of financial engineering aimed at venture capital investments might become an important driving force of the economy.

20. Target 2 of the second objective of the Programme – to promote the introduction of new products to the market.

In order to achieve the main result of the process of innovations – new products, it is necessary to develop ideas during the innovation cycle into products necessary for the market and society. The data of the Innovation Union Scoreboard show that Lithuania lags behind the EU Member States' average in the number of small and medium-sized enterprises (hereinafter – SME) implementing technological and non-technological innovations. According to the data of the Innovation Union Scoreboard 2013, the share of SMEs implementing innovations in Lithuania accounted for 21% of all SMEs (the average of the EU Member States is 38%), while the share of SMEs implementing non-technological (organisational, marketing) innovations made up 26% (EU average – 40%). Lithuania also considerably lags behind the average of the EU Member States in terms of intellectual property protection and income from licensing of intellectual property. According to the data of the European Patent Office and the World Intellectual Property Organisation, over the past 5 years the number of the European patent applications (in 2012 – 18; in 2008 – 11) and international patent applications filed under the Patent Cooperation Treaty (in 2012 – 30; in 2008 – 18) has been increasing annually, but the results of the Innovation Union Scoreboard show that the ratio of the international patent applications filed by Lithuanian applicants to GDP is more than by 13 times below the average of the EU Member States.

Small-scale innovations enable SMEs to grow, find their markets and consumers, offer products of higher value added and thus improve their competitiveness. However, in order to enter international markets, it is not enough to focus only on small projects of the development of local products. The generated value added will be small as long as the state has no enterprises creating innovative, unique products capable of competing in global markets. The process of creation of product innovations needs large investments and is related to risk, in order to make Lithuania an advanced state creating innovative products, it is

necessary to support SMEs – to simplify the processes of product creation and market entry, to facilitate the adequate protection of created intellectual property, to use intellectual property rights belonging to international corporations, to simplify the licensing, to look for new markets and niches, and to promote export. Also, it is necessary to devote greater attention to the experimental development activity, which helps to successfully apply knowledge for the creation of the state-of-the-art technologies and new competitive products, enterprises and institutions of science and studies.

21. Target 3 of the second objective of the Programme – to promote the cooperation between different sectors by creating innovations and developing innovations of high impact.

According to the survey “Evaluation of the effectiveness of cooperation between Lithuanian science and business and coordination of financing opportunities” conducted in 2011 by the Public Policy and Management Institute and the Association “Žinių ekonomikos forumas” and insights offered in 2013 by the Research and Higher Education Analysis Monitoring Centre and the Private Company “Visionary Analytics” on the long-term national challenges to the Lithuanian economy and society, the intersectoral dissemination of innovations and technologies in Lithuania is insufficient for the development of innovative future products and services. The intersectoral cooperation and incentives in the areas of high impact on other sectors will accelerate the development and utilisation of new innovative products.

The so-called Key Enabling Technologies (hereinafter – KETs) represent an important source of innovations. They offer key technological innovations, which can be applied in producing the great majority of higher added-value products or more efficient production processes, by promoting higher efficiency of the use of energy and resources. KETs are very knowledge intensive and require large investments in R&D. KETs can stimulate the advancement of all industries and sectors of economy and thus are very important in increasing the competitiveness of economy. According to the Communication from the Commission of 26 June 2012, COM(2012) 341, such technologies include nanotechnology, micro/nanoelectronics, including semiconductors, advanced materials, biotechnology and photonics.

As specified in the Communication from the Commission of 28 February 2013 “EU Space Industrial Policy: releasing the potential for economic growth in the space sector, COM(2013) 108, the technologies of space and related areas are characterised by high impact on other sectors, knowledge intensity, large investments in R&D and delivery of high added-value innovative products. Activities of the sector of space and related areas are intensively expanding beyond the traditionally set boundaries, gradually involving manufacture of products for daily use and rendering of services in practical fields of activities, for instance, satellite communication (telephone communication, internet access, television broadcasting), satellite navigation (transport management and control, time and frequency services, defence)

as well as the Earth observation (meteorology, environment, protection, security, defence, management of resources and crises). In Lithuania the sector of space and related areas is still developing, therefore the National programme on development of research, technology and innovation in the space sector for 2010–2015 and the Action plan for the programme implementation in 2013–2015 approved by Order No 4-1032 of the Minister of Economy of 29 November 2013 (*Valstybės žinios* (Official Gazette) No [124-6333](#), 2013) provides incentives for the consolidation of this sector and promotion of the use of its results in other areas.

Based on the Communication from the Commission of 26 August 2010 “A digital agenda for Europe”, COM(2010) 245, the information and communication technology drives value creation and growth processes across all sectors of economy. The data of analysis conducted by the Research and Higher Education Analysis Monitoring Centre and the Private Company “Visionary Analytics” have shown that information and communication technology has a great impact on the dissemination of technology and innovation in different sectors in Lithuania. ICT solutions are widely employed in the information systems of electronic banking, health care, transport, education and other sectors. Although the ICT sector of Lithuania directly creates 2.2% of GDP (2011) and of the EU – 5% of GDP, the contribution of this sector to the total growth of productivity is considerably larger due the dynamics characteristic of this sector, innovations and impact on changes in other sectors.

As energy and other natural resources keep reducing and are becoming more expensive, the demand for technologies that use energy and raw materials efficiently and are environmentally-friendly is growing. The success of the future industry will be based on the use of innovative green technology. Introduction of the green technology in business helps to enhance its competitiveness, create new jobs and new business opportunities. Application of innovative solutions in business enables to reduce to the maximum extent the generation of waste and by-products in production processes or to recycle generated waste and by-products in production as raw materials. Lithuanian business capacities and the need for the creation and implementation of green innovation are weak. According to the Eco-Innovation Scoreboard 2012 prepared on request of the European Commission, Lithuania is the last among 27 Member States of the EU in the area of implementation of eco-innovations. It is important to achieve that business focus on the conservation of environment, eco-innovation and green marketing becomes not only an obligation, but also the normal practice in creating products and services of higher value added.

The role of creative and cultural industries in the development of different sectors keeps growing, because creative activity is necessary for the advancement of all sectors. Creative and cultural industries are characterised by the exclusive need for the intellectual capital, openness for the state-of-the art technologies and use of creative knowledge for the delivery of high value added in other sectors. The Communication from the Commission of

26 September 2012 “Promoting cultural and creative sectors for growth and jobs in the EU”, COM(2012) 537, specifies that the sector of cultural and creative industries and design account for about 3.3% of the EU GDP (2010). The EU documents emphasise that cultural and creative industries and design sector are an important driving force of progress and innovations of other sectors. Furthermore, the role of design, architecture and advertising in promoting investments in new consumer-oriented technologies, eco-efficient, digital technologies and solutions is highly relevant.

The implementation of this target aims at promoting cooperation between different sectors, using potential synergies by developing new goods and services, introducing new technologies in different areas (manufacturing, transport, agriculture, energy, etc.). Cooperation of different sectors in developing and providing innovative services can contribute to addressing social challenges, health promotion of society, education of youth, increase of employment, reduction of social exclusion and other areas.

22. The third objective of the Programme – to promote the cooperation creation of value networking, development and internationalization (hereinafter – the third objective of the Programme).

In order to ensure the international competitiveness, it is necessary to develop the interaction between business enterprises and institutions of education and studies and RDI system, encourage their integration in the global value chains providing access to the global resources of knowledge and ideas. Insufficient cooperation between business and science hinders the concentration of the existing potential of the sectors of economy and RDI, distinguishing the available advantages and employing them for the creation of higher value added.

The international cooperation in the area of innovations is significant for the implementation of this objective, as it enables both, Lithuanian business and science to participate in the international projects while developing and applying high technology and innovation. Involvement in the activities of international organisations and networks and participation in the activities of innovative projects guarantees better development of the Lithuanian industry of high technologies, enhances the competitiveness of Lithuania and makes it easier for enterprises to find new markets for innovative goods and services.

23. Target 1 of the third objective of the Programme – to promote cooperation between business and science and transfer of knowledge and technology.

The data of the Global Competitiveness Report 2013–2014 show that according to the university-industry collaboration indicator Lithuania ranks 28th among 148 countries and earlier it was 29th among 148 countries of the world. In 2013, Lithuania was in the 12th position among the EU Member States, and in earlier years in was 13th. Although the situation is improving, collaboration between companies and institutions of research and studies is still inefficient. Because of insufficient cooperation between the participants of the system of science, business and studies, knowledge necessary for the development of new products or innovations does not reach the companies and researchers from the institutions of

science and studies lack skills necessary for the assessment of business needs. Researchers from the public sector possess very scarce information about the possibilities of commercialisation of results of scientific research, and have insufficient technology transfer skills and knowledge for starting business. Due to the lack of competence and (or) external assistance the bigger part of ideas generated in the institutions of research and studies do not develop into innovative products. SMEs cannot employ researchers, because they lack financial resources for the experimental development activities. Thus, the gap emerges in the whole cycle of innovation – from the idea to its implementation in the market – due to low cooperation between business and science and poor implementation of research results in the market. Therefore, for the purpose of implementing the Programme it is necessary to join the efforts of ministries responsible for the R&D and innovation policy in promoting the activities related to the creation of technologies and their transfer to other activity related to commercialisation of research results. Certain activities are already supported through the implementation of the SR&ED Programme.

Five integrated science, studies and business centres being created in Lithuania (hereinafter – valleys) should make efficient use of the concentrated potential of the institutions of science and studies, human resources and RDI infrastructure for the purpose of developing and promoting active networking in value creation chains and their synergy. However, the conducted studies and research have shown that in implementing the valley development programmes the services provided by the institutions of research and studies still do not satisfy the business needs. As specified in the Study of Clusters (2012) conducted by the Association “Žinių ekonomikos forumas”: “the services provided by valleys are inconsistent with business needs, they do not attempt to create the value added for business, are unmotivated to attract the business sector and are focused only on serving the interests of research”. According to the conclusions of the “ERAWATCH Country Report 2012: Lithuania” of the European Commission information platform on research and innovation policies and systems of Member States (ERAWATCH): “collaboration between public science and the business sector needs to be improved. The limited purchase of R&D results from universities is an indication for this weakness. The science valleys were expected to strengthen the links between universities, PROs and businesses, however most of funds are invested in buildings and laboratories, while the scale of support for professional innovation services, IPR rights and joint research projects is very low.” Given that business needs have been insufficiently taken into account in valleys and open access research centres when developing investments in higher education and research infrastructure, it is likely that the infrastructure concentrated at present in the open access research centres will not have enough business orders. However, the process of creation of valleys and their development is still continuing, therefore it is expected to speed up this process and increase its efficiency during the new period of provision of the EU structural assistance by implementing joint initiatives and joint projects of business and science. Taking into account the weaknesses of the existing

RDI infrastructure the technological centres will be developed in order to implement the stages of all levels of the technology readiness system.

The RDI infrastructure, which is being developed, should guarantee the end-to-end cycle of innovations – from the idea of a new product to its placement on the market, therefore it is especially important that the Ministry of Economy and the Ministry of Education and Science responsible for the creation and development of valleys coordinate their investments in the infrastructure of valleys taking into account the needs of both business and science representatives.

While developing the RDI infrastructure due attention should be devoted to ensuring the creation and testing of the model and prototype of the experimental development activity, which also covers the examination of the concept of idea, demonstration of the prototype, procedures of standardisation and certification, pilot production and preparation of the product for the market. The newly created technology centres will facilitate the expansion of experimental development activities by creating new products and introducing them to the market. Technology centres can operate both as a legal person or its subdivision in the private and public sector. Technology centres may be created and developed using private funds, funds of the state and municipal budgets of the Republic of Lithuania, EU and other international financial assistance. In order to successfully fulfil their main functions in the system of innovations, the envisaged technology centres must be strategically oriented towards the accelerated growth of value added delivered by the economy of Lithuania, as well as towards the growth of the international integration of science and business and enhancement of competitiveness in Lithuania. For the purpose of ensuring the operation of technology centres planned by the state, it is envisaged to assign the functions of their administration to science and technology parks (hereinafter – STP). Activities of technology centres and STP should rely on qualified science and business cooperation intermediaries possessing knowledge of technology transfer and capable of managing the cycle of innovations, therefore the respective attention will be devoted to the training, professional development and employment of these specialists.

Until present, Lithuania did not have the targeted policy of STP – public authorities, institutions of research and studies and business entities have been interested in different types and priorities of STP activities, there is not a single legal act regulating STP activities. There are many projects and measures implemented by STP, but there is no common coordination of the implementation and monitoring of results. The present infrastructure of STP does not ensure competitiveness, STP activities are not based on results, activities of different STP are duplicated, there are too many indirect functions, and all this reduces the operating efficiency. STP should guarantee coherent functioning of the system of innovations. The provision of packages of good quality services coordinated between STP should become the priority of STP system in Lithuania in the following areas: development of innovative business, promotion of the culture of innovations, technology transfer services, business consulting services, promotion of networking and services of incubation of innovative enterprises. In

future STP activities and created infrastructure should be more focused on the processes of experimental, demonstrational and production activities.

The role of STP in valleys is to represent business interests, promote RDI activities, clustering and be intermediaries between business and science. STP activities should be aimed at the existing and potential participants of valleys, attempts to attract business entities and business investments. STP, as valley participants should attract new participants, foreign partners; initiate joint RDI projects and be their coordinators; act as key providers of innovation support services responsible for the setting up of innovative enterprises in the valleys; become the main intermediaries in collaboration between business and science. STP should initiate and develop clusters in the valleys: maintain collaboration between potential or existing participants of clusters, initiate joint projects, help to find suitable financing and partners, perform the functions of coordination of joint cluster projects – identify the needs of cluster participants, their interests and activity areas, potential, assist potential project participants in identifying joint projects, help to coordinate, develop and expand them involving other entities of the system of innovations.

The implementation of the Programme is aimed at enhancing the international collaboration of science and business between the innovation system participants to provide business with access to the most recent knowledge and R&D achievements. The international partnership will be strengthened involving both the EU European innovation partnership and regional initiatives, the EU Strategy for the Baltic Sea Region (approved by the European Council on 29–30 October 2009 in Brussels) and other initiatives that help in joining the EU, national and regional level participants.

24. Target 2 of the third objective of the Programme – to promote the development of clusters and integration in the global value chains.

The clustering of innovative enterprises enable to create higher value added products, reduce spending on RDI through the acquisition of the infrastructure required for the development of knowledge, technology and activities, create more opportunities for training, promote flexibility, facilitate in reducing the time of introduction of new products into the market and the risk related to the innovation activity, as well as to enhance competitiveness of companies. Joining the clusters is one of the opportunities to gain the larger share of export markets, because it is rather complicated for a company to compete alone. Seeking the international competitiveness, the clusters can help the insertion of SMEs into global knowledge and innovation networks, utilise the opportunities provided by them by delivering higher value added.

The creation and activities of clusters, as of a special form of collaboration or a business model in Lithuania is quite a novelty, therefore there is a lack of competence related to clusters, their benefits, management and collaboration, as well as development of the value chain. Insufficient culture of collaboration between clusters is the main factor suppressing their development – even successfully operating companies select their partners carefully, potential partners are treated as competitors who are after their market share. The conducted

studies (“Study of clusters” (2012) and “Cluster facilitation models” (2013)) have shown that Lithuania lacks strong and sustainable clusters, their operation depends on the implementation of the EU structural assistance projects, the incentives to strengthen relationships between cluster members are insufficient. Given that the bigger part of clusters in Lithuania have been set up not long ago, with a view to enhancing the cluster development processes, it is envisaged to improve the maturity of the existing clusters, ensure their consistent development, promote investments in the development of clusters and attraction of new members, support investments in the acquisition of innovative technologies and equipment and renovation of industrial premises.

It is difficult to overcome the unwillingness to cooperate and shift to cooperation in the cluster, in particular where many companies produce similar products and compete for the same clients. Therefore, in implementing this task, it is important to encourage the culture of the need for collaboration and innovations, promoting the cluster development advantages already at the institutions of education and studies and creating the environment for the dissemination of information about the potential benefits of clusters, management specifics and business cooperation, creation of the value chain through the cluster facilitators’ services, success stories, media, seminars, and conferences.

The assessment of the internationalisation of clusters in Lithuania allows concluding that the great majority of cluster formations participate in the international projects (EUREKA, Eurostars, the EU’s Seventh Framework Programme for Research), but they lack funds and skills for maintaining relationships with the international partners, analysing international markets and developing joint strategies and initiatives of clusters. The Lithuanian market is small, thus its integration with the global networks is very important. The Programme is aimed at providing incentives for national clusters to merge with global value chains, in particular in the Baltic Sea Region, while encouraging the Lithuanian clusters to develop the international partnership. This would facilitate in opening new markets, implementing innovations, participating in the activities of RDI centres at the global level, while keeping pace with the global tendencies and seeking the international competitiveness.

In addition to the development of business clusters, the intersectoral partnerships and networks will be encouraged to enable the development of innovative and community needs based settlement of social problems, the sharing of experiences and good practices.

25. The fourth objective of the Programme – to increase efficiency of innovation policy-making and implementation and promote innovation in the public sector (hereinafter – the fourth objective of the Programme).

In implementing the Flagship Initiative “Innovative Union”, in 2013, the European Commission launched the European Public Sector Innovation Scoreboard to assess the public sector of the EU Member States. The effective public administration can be a significant factor in promoting innovations. The EU Member States were assessed according to 22 indicators grouped on the basis of 7 dimensions: human resources and quality public services, capacities to innovate, innovation drivers and barriers, innovations in public administration,



business performance effects of the public sector and innovative procurement. Lithuania was among countries with less than half (13) scores below average, such as Czech Republic (14), Poland (14), Italy (13), Hungary (12), Slovakia (12), Germany (11) and Greece (11). Five countries – the public sector innovation leaders – with the highest score of above average performance are Sweden, Switzerland, Malta, Denmark and Netherlands. The relative strength of Lithuania lies in human resources. The identified relative weaknesses comprise innovation barriers (insufficient financial resources, legal environment, organisations and managers unwilling to risk, lack of initiative, etc.). Also, Lithuania has a very small share of organisations applying innovations. Lithuania is also falling behind according to the indicators of capacities to innovate capturing organisations that apply new improved processes and methods or improved public services. The implementation of innovations in the public sector that help to address social challenges will be one of the significant future innovation policy areas.

26. Target 1 of the fourth objective of the Programme – to create regulatory environment promoting innovations and to improve the institutional framework for the formation and implementation of the innovation policy.

Insufficiently clear legal regulation of the R&D policy has a decisive impact on the implementation of the innovation policy. RDI, as the public relations area, at present is partially regulated by the Republic of Lithuania Law on Education (*Valstybės žinios* (Official Gazette) No [23-593](#), 1991; No [38-1804](#), 2011), the Republic of Lithuania Law on Higher Education and Research (*Valstybės žinios* (Official Gazette) No [54-2140](#), 2009), the Republic of Lithuania Law on the Budget Structure (*Valstybės žinios* (Official Gazette) No [24-596](#), 1990; No [4-47](#), 2004), the Republic of Lithuania Law on Taxes on Profits of Legal Persons (*Valstybės žinios* (Official Gazette) No [110-3992](#), 2001) and their secondary legislation. The promotion of innovations as of one of the most significant activities ensuring the competitiveness of the national economy however is not regulated by any of these legal acts.

Scientific research, applied research in particular, should be focused more on business needs; therefore the R&D assessment system should be revised. At present institutions of higher education and research are assessed and the state budget funds for R&D are allocated according to the scientific results of the higher education and research institutions and funds received from economic entities for the fulfilment of R&D orders on the basis of R&D agreements concluded with economic entities. Such assessment system does not encourage the higher education and research institutions to engage in R&D activities focused on the creation of new innovative products. R&D activities of higher education and research institutions should be assessed and funds should be allocated also taking into account the following results of the experimental activities: creation of a prototype, technology, invention, know-how, licence and production output.

The R&DI policy formation and implementation weaknesses identified in the studies conducted by the Public Policy and Management Institute and the Association “Žinių ekonomikos forumas” were as follows: fragmentation of the institutional RDI financing

system and capacities; insufficient RDI expert competence and consultancy function in the policy formation; unsystematic integration of the monitoring, assessment and review functions in the RDI policy formation and implementation cycle, lack of more active involvement of other ministries or institutions concerned in the promotion of RDI activities, absence of institutions systematically performing the function of monitoring and analysis. Separate monitoring and assessment elements include activities of the Ministry of Economy, the Lithuanian Innovation Centre, and the Agency for Science, Innovation and Technology and results of contracted research intended for this purpose. Such research allows to satisfy the needs for information, but do not contribute to the systematic RDI policy improvement process. The institutions implementing the policy of innovations and providing the innovation support services should effectively contribute to the implementation of the innovation policy. The research performed by the Centre for Research and Higher Education Monitoring and Analysis Centre and the Private Company “Vision Analytics” and analysis of services provided by institutions participating in the implementation of RDI policy has shown that it is necessary to avoid the duplication of the provided services and optimise the implementation of RDI policy in order to ensure the effective work of these institutions.

One more important aspect is that at present the bigger part of STP are using the state or municipal property transferred to them on the loan-for-use basis for the implementation of functions assigned by the Republic of Lithuania Law on Higher Education and Research. However, Article 13(4) of the Republic of Lithuania Law on management, use and disposal of state and municipal assets (*Valstybės žinios* (Official Gazette) No [54-1492](#), 1998; No [60-2412](#), 2002) establishes that persons to whom state or municipal assets have been transferred for gratuitous use may not lease them or otherwise transfer for use to third persons. Pursuant to the provisions of the Republic of Lithuania Law on management, use and disposal of state and municipal assets, the enterprises cannot settle in the premises transferred to STP – due to the existing collision of different legal acts STP cannot perform their main functions. The outstanding legislative problems impede the attraction of business investments to the RDI infrastructure created in valleys: STP, technology centres, technology business incubators. Therefore it is necessary to address the problem of management of the immovable property of STP improving applicable legal acts to define the cases and methods for transferring the state and municipal immovable property to STP, enabling STP to perform properly their direct functions. STP is one of the measures facilitating the development of innovations and stimulating technological development.

27. Target 2 of the fourth objective of the Programme – to create measures stimulating the demand for innovations that help to address social, economic and environmental challenges.

In order to understand and address social problems of the modern society and to improve the quality of life, the creative attitude, which is individualized or adaptable to small groups, is needed and traditional social policy measures should be combined with social innovations considering the specific context. It is important to promote the creation and

development of social innovations, in order to ensure more effective services to the family, children, socially vulnerable groups, increase employment of residents, their transition in the labour market and socially useful activities, using for that purpose the cooperation potential of the public, private and civil society sectors and research institutions.

The role and significance of the social and private sector innovations keeps growing, because traditional solutions have become insufficient for addressing the long-standing and environmental problems. There is a great need for innovations in public and social sectors in order to promote positive changes, seeking efficiency of the public sector performance, saving resources and opportunities of wider inclusion of social and economic partners.

One of weaknesses of the Lithuanian innovation system is insufficient use of the measures to increase demand for innovations. Due to that it is difficult to stimulate the private sector to implement innovations in such areas of strategic significance like consumption of energy, health care, waste management, etc. Every year more than LTL 12 billion of the state budget funds is spent in Lithuania in the public procurement process, and these funds might also be useful in promoting innovation – increasing the demand for innovative solutions. Although legal acts regulating public procurement allow carrying out the innovative public procurement, the contracting authorities avoid that and avoid assuming additional risks related to the acquisition of the innovative solution because they lack competences and practice, and there is insufficient guidance on the implementation of innovative public procurement.

Pre-commercial procurement or the so-called state orders for R&D represent one more way of addressing significant social challenges in the public sector, when the state procures R&D for addressing social challenges. Pre-commercial procurement increases innovation capacities of companies, stimulates innovation activities contributing to the fostering of business and science partnership through the development of products necessary for settlement of social and economic problems. Currently Lithuania has no model of the organisation of pre-commercial procurement, and the existing legal regulation does not create preconditions facilitating the emergence of innovative products through the public procurement organised by the public sector.

### **III. SMART SPECIALISATION AREA**

28. The Programme is aimed at the creation of the effective Lithuanian innovation system and facilitating innovations of different areas with priority given to those areas that have the greatest impact on the country's competitiveness.

29. No country can be a leader in all areas, therefore it is important to choose the priority areas where Lithuania could make the best use of limited resources and achieve the optimal results. Each country has its unique characteristics, different resources and seeks competitive advantage in using them. The Strategy "Europe 2020" proposes using the national and regional RDI and innovation systems for smart specialisation.

30. With a view to identifying the advantages and potential of the sectors of economy, higher education and science, the Ministry of Education and Science together with the

Ministry of Economy and other interested ministries has initiated the process of identification of the smart specialisation areas of Lithuania. The smart specialisation areas are aimed at consolidating the foundations of competitiveness of Lithuania's economy and contributing to the implementation of the main areas of the EU RDI policies. The smart specialisation areas will facilitate in mobilising limited resources and accelerate the development of research-intensive sectors of economy, technological and non-technological innovations.

31. Involving the international panel of experts, the Research and Higher Education Monitoring and Analysis Centre has analysed the situation of R&D, studies and innovations. On the basis of completed analysis experts grouped economic sectors according to their contribution to value added and investments in R&D. In Lithuania, the following sectors deliver high value added, successfully export their products, make large investments in R&D and have skilled workforce (in the analysis they are designated as the natural priorities): manufacture of computer, electronic and optical products; computer programming, consultancy and information services; manufacture of pharmaceutical products and preparations; manufacture of machinery and equipment; production of metals and metal products. The so-called niche sectors are also noted for large R&D investments and development of innovations: manufacture of electrical equipment, manufacture of motor vehicles, trailers and semi-trailers; insurance and pension funds; architecture and engineering; advertising and market research. These sectors can be identified as innovators, but many of them are relatively small in terms of delivered value added and number of employees. Over the recent years the following main economic sectors mostly influenced the growth of Lithuania's economy, created the largest value added, exported the largest volumes and employer the largest numbers of workforce: manufacture of food products, beverages and tobacco; manufacture of chemicals and chemical products; plant and animal production; forestry and logging; transport and logistics services; telecommunications and financial services. The following sectors have the growth potential, but they are exposed to challenges of competitiveness (in the analysis they are called "sectors at a crossroads"): fisheries and aquaculture; rubber and plastic products; collection, treatment and supply of water; wholesale and retail trade; air transport; postal and courier activities; publishing. In the analysis these sectors are identified as users of innovation rather than innovators. Thus, although the growth of Lithuanian economy is predetermined by traditional sectors, their global competitiveness will depend on the ability to use advanced technology and implement innovation.

32. The smart specialisation areas have been identified having regard to the global and national challenges, the sectors of Lithuanian economy, RDI potential and opportunities for the establishment and competition in global markets. On the basis of analysis of the panel of independent international experts and findings of discussions the following challenges relevant for Lithuania have been identified: low business productivity, lack of advanced technology, innovative processes, products and services; gap between skills and labour market needs, underdeveloped talents and creative potential; lack of business, science, intersectoral and international partnership in creating and applying knowledge, technology and innovation

in practice; insufficient diversification of energy sources, high energy price, inefficient and ineffective use of energy; worsening demographical situation; uneven regional development, poverty, illegal work and low social cohesion.

33. The priority (smart specialisation) areas of scientific research, experimental (socio-cultural) and innovation development identified on the basis of comparison of the existing potential of Lithuania with challenges and opportunities, and having regard to the findings of analysis conducted by the independent international expert panel, surveys, discussions with the academic and business community, were approved by Resolution No 951 of the Government of the Republic of Lithuania of 14 October 2013 (*Valstybės žinios* (Official Gazette) No [112-5582](#), 2013). In order to implement the smart specialisation areas and their priorities, as specified in the aforementioned Resolution of the Government of the Republic of Lithuania, the Ministry of Economy and the Ministry of Education and Science are drafting the Programme of priority areas in research, experimental (socio-cultural) development and innovation development (smart specialisation) and of the implementation of their specific priorities.

34. Measures covered by the action plan of the programme will facilitate in promoting the established specific priorities of the smart specialisation area stimulating the competitiveness of the economy of Lithuania.

#### **IV. IMPLEMENTATION OF THE PROGRAMME**

35. The Programme shall be implemented according to the action plan (hereinafter – Action Plan). The Action Plan covers the measures of implementation of all objectives and targets of the Programme to be implemented over the period established in the Action Plan. In addition to the measures of implementation of the smart specialisation areas and their priorities, the objectives and targets of the Programme also cover other initiatives and measures conducive to RDI and necessary for the effective system of innovations. The Action Plan indicates the period of implementation of each measure, the implementing entity (entities) and the source of funding. The Action Plans being prepared cover two periods: 2014–2017 and 2018–2020.

36. The Action Plan coordinated with the ministries concerned shall be approved by the Minister of Economy.

37. The implementation of the Programme shall be financed from the general appropriations approved for the respective authorities responsible for the implementation of the Programme actions in the Republic of Lithuania Law on the approval of financial indicators of the state budget and municipal budgets of the respective year, EU funds and other legally obtained proceeds.

38. The implementation of the Programme shall be coordinated by the Ministry of Economy. The achievement of the criteria of assessment of the Action Plan and of the objectives and targets of the Programme specified in the annex to the Programme shall be carried out by the interinstitutional working group for the supervision of the Programme

comprising representatives of the ministries concerned and institutions implementing the Programme. The information about the implementation of the Action Plan and objectives and targets of the Programme shall be collected and analysed and the Programme Implementation reports in each calendar year shall be provided by the Agency for Science, Innovation and Technology.

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Annex to  
the Lithuanian Innovation Development  
Programme 2014–2020

**ASSESSMENT CRITERIA OF THE OBJECTIVES AND TARGETS OF THE LITHUANIAN INNOVATION DEVELOPMENT  
PROGRAMME 2014–2020 AND THEIR VALUES**

Seq. No	Description of the objective and target	Description of the assessment criterion	Value of the assessment criterion			Institution in charge of data submission (data source)
			status (year)	2017	2020	
1.	Strategic goal of the Lithuanian Innovation Development Programme 2014–2020 (hereinafter – Programme) – to enhance the competitiveness of the Lithuanian economy by creating an efficient system of innovation stimulating the innovativeness of economy	Summary innovation index	0.28 (2012)	0.4	0.54	Ministry of Economy (Innovation Union Scoreboard)
2.	The first objective of the Programme – to develop innovative society by developing new knowledge and its application	Percentage population aged 30–34 having completed higher education or education equated to it	48.7 (2012)	min 40	min 40	Ministry of Education and Science (Eurostat)
		Employment in knowledge-intensive sectors (percentage)	9 (2010)	11	13.6	Ministry of Social Security and Labour (Innovation Union Scoreboard)
		Percentage population employed in high technology and medium-high technology manufacturing industries	2.9 (2011)	3	3.2	Ministry of Economy (Statistics Lithuania)

Seq. No	Description of the objective and target	Description of the assessment criterion	Value of the assessment criterion			Institution in charge of data submission (data source)
			status (year)	2017	2020	
2.1.	Target 1 of the first objective of the Programme – to develop high-level knowledge, and research and development activities	Percentage ratio of higher education sector and government sector spending on research and development (hereinafter – R&D) to GDP	0,66 (2012)	0,7	1,0	Ministry of Education and Science (Statistics Lithuania)
		R&D level (position)	39 (2013)	32	25	Ministry of Education and Science (Global Innovation Index)
2.2.	Target 2 of the first objective of the Programme – to develop creativeness, entrepreneurship, innovativeness and practical skills and qualification corresponding to market needs within the system of higher education and science	Students of physical and engineering sciences as percentage of all students	22,1 (2010)	24	27	Ministry of Education and Science (Eurostat)
		Percentage of educational institutions implementing programmes promoting creativity and innovative thinking	30	70	90	Ministry of Education and Science
		Private spending on education as percentage of GDP	0,69	0,8	0,9	Ministry of Education and Science (Eurostat)
2.3.	Target 3 of the first objective of the Programme – to promote the development of innovative business, creating favourable conditions and providing knowledge about the start of the innovative business	Number of active small and medium-sized enterprises (hereinafter – SMEs), number of natural persons engaged in individual activity per 1,000 population	65 (2010)	75	80	Ministry of Economy
Seq. No	Description of the objective and target	Description of the assessment criterion	Value of the assessment criterion			Institution in charge of data submission (data source)
			status (year)	2017	2020	



3.	The second objective of the Programme – to enhance innovation potential of business	Value added delivered by high technology and medium-high technology manufacturing industries as percentage of total value added in manufacturing industry	23,1 (2011)	25	27	Ministry of Economy (Statistics Lithuania)
		SMEs implementing innovations as percentage of all SMEs	15,67 (2010)	20,5	35	Ministry of Economy (Innovation Union Scoreboard)
3.1.	Target 1 of the second objective of the Programme – to promote investments in activities delivering high added-value	Business sector spending on R&D as percentage of GDP	0,24 (2012)	0,5	0,9	Ministry of Economy (Statistics Lithuania)
		Spending of enterprises on innovations not related to R&D as percentage of total turnover of enterprises	1,27 (2010)	1,5	1,7	Ministry of Economy (Innovation Union Scoreboard)
3.2.	Target 2 of the second objective of the Programme – to promote the introduction of new products to the market	SMEs implementing new products or processes as percentage of all SMEs	21,39 (2010)	35	40	Ministry of Economy (Innovation Union Scoreboard)
		Sales of products new to the market and enterprise as percentage of total turnover of enterprises	6,64 (2010)	10	14	Ministry of Economy (Innovation Union Scoreboard)
		Number of patent applications according to the Patent Cooperation Treaty (PCT) per billion GDP as purchasing power parity	0,31 (2010)	0,5	0,9	Ministry of Economy (Innovation Union Scoreboard)
Seq. No	Description of the objective and target	Description of the assessment criterion	Value of the assessment criterion		Institution in charge of data	

			status (year)	2017	2020	
3.3.	Target 3 of the second objective of the Programme – to promote the cooperation between different sectors by creating innovations and developing innovations of high impact	High-technology manufacturing industry's value added as percentage of GDP	0,2 (2011)	0,5	0,6	Ministry of Economy (Statistics Lithuania)
		ICT sector's value added as percentage of total value added	2,5 (2012)	2,2	3	Ministry of Transport and Communications (Statistics Lithuania)
		Lithuanian eco-innovation indicator (position in the EU)	27 (2012)	24	20	Ministry of Economy (Eco-Innovation Scoreboard)
		Enterprises implementing non-technological innovation as percentage of all enterprises	26,3 (2012)	30	35	Ministry of Economy (Innovation Union Scoreboard)
4.	The third objective of the Programme – to promote the cooperation creation of value networking, development and internationalization	Collaboration of universities and business (position)	28 (2013)	25	19	Ministry of Economy (Global Competitiveness Index)
		Innovative SMEs engaged in collaboration activities with other enterprises or institutions as percentage of all SMEs	8,76 (2010)	10	12	Ministry of Economy (Innovation Union Scoreboard)
Seq. No	Description of the objective and target	Description of the assessment criterion	Value of the assessment criterion		Institution in charge of data	

			status (year)	2017	2020	submission (data source)
4.1.	Target 1 of the third objective of the Programme – to promote cooperation between business and science and transfer of knowledge and technology	Cooperation between enterprises implementing technological innovation with national research bodies (percentage)	9,3 (2010)	12	15	Ministry of Economy (Statistics Lithuania)
		Cooperation between enterprises implementing technological innovation with universities (percentage)	14,9 (2010)	17	20	Ministry of Economy (Statistics Lithuania)
4.2.	Target 2 of the third objective of the Programme – to promote the development of clusters and integration in the global value chains	Cluster development level (position)	102 (2013)	100	70	Ministry of Economy (Global Innovation Index)
5.	The fourth objective of the Programme – to increase efficiency of innovation policy-making and implementation and promote innovation in the public sector	Innovation efficiency rating (position)	105 (2013)	90	70	Ministry of Economy (Global Innovation Index)
5.1.	Target 1 of the fourth objective of the Programme – to create regulatory environment promoting innovations and to improve the institutional framework for the formation and implementation of the innovation policy	Business entities positively assessing services provided by R&D and innovation promotion institutions (percentage)	–	70	80	Agency for Science, Innovation and Technology
5.2.	Target 2 of the fourth objective of the Programme – to create measures stimulating the demand for innovations that help to address social, economic and environmental challenges	Innovative public procurement as percentage of total public procurement	1,17 (2012)	2	5	Ministry of Economy (Public Procurement Office)