GOVERNMENT OF THE REPUBLIC OF LITHUANIA

RESOLUTION
No 1262

of 24 November 2008

APPROVING THE PROGRAMME FOR THE DEVELOPMENT OF SAULĖTEKIS, AN INTEGRATED CENTRE/VALLEY OF SCIENCE, STUDIES AND BUSINESS

Vilnius

For the purpose of implementing the provisions of Objective 4 detailed in Part 2 "Implementation of Macroeconomic Policy" of the National Lisbon Strategy Implementation Programme for 2008-2010, approved by Resolution No 1047 of 1 October 2008 of the Government of the Republic of Lithuania (*Valstybės žinios (Official Gazette)* No 124-4718, 2008), and following paragraph 21 of the Concept for the Establishment and Development of Integrated Centres/Valleys of Science, Studies and Business, approved by Resolution No 321 of the Government of the Republic of Lithuania of 21 March 2007 (*Valstybės žinios (Official Gazette)* No 40-189, 2007), having regard to the decisions taken on 17 July 2008 at the sitting of the Commission on Science, Technologies and Innovations set up by Resolution No 366 of 4 April 2005 of the Government of the Republic of Lithuania *Valstybės žinios (Official Gazette)* No 45-1449, 2005; No 114-4644, 2007), and with regard to Minutes No TE-34 taken on 22 October 2008 at the sitting of the Commission on the Development of Integrated Centres/Valleys of Science, Studies and Business, set up by Order No ISAK-1118/4-231 of 5 June 2007 of the Minister of Science and Education and the Minister of Economy (*Valstybės žinios (Official Gazette)* No 64-2465, 2007*),* the Government of the Republic of Lithuania has resolved:

1. To approve the Programme for the Development of SAULĖTEKIS, an Integrated Centre/Valley of Science, Studies and Business (as appended).

2. To commit the Ministry of Education and Science to approve the following:

2.1. the list of laboratory equipment for the SAULĖTEKIS Integrated Centre/Valley of Science, Studies and Business s by 2 March 2009;

2.2. the Action Plan for the Coordination of the Development of Centres/Valleys of Science, Studies and Business by 2 March 2009.

3. To commit the Ministry of Education and Science, the Ministry of Economy, the Ministry of Environment, the Ministry of Finance and the Governor Administration of Vilnius County to take part in the implementation of the Development Programme of the

SAULĖTEKIS Integrated Centre/Valley of Science, Studies and Business (hereinafter referred to as “the Programme”).

4. To recommend that the following organizations are involved in the implementation of the Programme: Vilnius University, the Vilnius Gediminas Technical University, the public enterprise Saulėtekio slėnis (Sunrise Valley), Vilnius City Municipality, the public institution The Central Project Management Agency, AB Turto Bankas, the Association of Institutes of Physical Science and Technology, and the association established by the initiators of the SAULĖTEKIS Integrated Centre/Valley of Science, Studies and Business.

Acting Prime Minister Gediminas Kirkilas

Acting Minister of Education and Science Algirdas Monkevičius

GOVERNMENT OF THE REPUBLIC OF LITHUANIA

RESOLUTION

APPROVED by
Resolution No 1262 of the Government of the
Republic of Lithuania of 24 November 2008

THE PROGRAMME FOR THE DEVELOPMENT OF SAULĖTEKIS, AN INTEGRATED CENTRE/VALLEY OF SCIENCE, STUDIES AND BUSINESS

I. GENERAL PROVISIONS

1. The Programme for the Development of SAULĖTEKIS, an Integrated Centre/Valley of Science, Studies and Business aims at a rational deployment and concentration of the potential of the Lithuanian science and studies in the fields of physics, technology and civil engineering, and seeks to provide conditions for its further development with a view to establishing a world-class centre of science and studies and knowledge-intensive business. The SAULĖTEKIS Integrated Centre/Valley of Science, Studies and Business (hereinafter referred to as "the Valley") has to help generate new ideas and technologies in the mentioned areas, promote them, develop and roll out new hi-tech products and new services, as well as attract foreign direct investment in high technologies. The location of the Valley is the following: Vilnius, the Saulėtekis Alley, Vilnius University, the Vilnius Gediminas Technical University and the territories of the public enterprise Saulėtekio slėnis (Sunrise Valley) Science and Technology Park (hereinafter referred to as "the STP").

2. The main fields of research carried out in the Valley and practically applied by businesses are consistent with the highest level research potential and technological expertise concentrated in the Valley; they are as follows:

2.1. lasers and optical technologies;

2.2. materials science and nanotechnologies;

2.3. semiconductor physics and electronics;

2.4. civil engineering.

3. The coordinators of the Programme: the association established by Valley members, the Ministry of Education and Science, the Ministry of Economy and Programme implementers specified in the Annex.

4. The Programme has been drafted following the Concept for the Establishment and Development of Integrated Centres/Valleys of Science, Studies and Business, approved by Resolution No 321 of the Government of the Republic of Lithuania of 21 March 2007

(*Valstybės žinios (Official Gazette)* No 40-189, 2007), the High Technology Development Programme for 2007-2013, approved by Resolution No 1048 of the Government of the Republic of Lithuania of 24 October 2006 (*Valstybės žinios (Official Gazette)* No 114-4356, 2006*)* and in pursuance with Order No ISAK-207/4-33 of the Minister of Science and Education and the Minister of Economy of 29 January 2008 on the Invitation to Draft Programmes for the Development of Integrated Centres/Valleys of Science, Studies and Business (*Valstybės žinios (Official Gazette)* No 22-828, 2008*),* the Common Cooperation Programme for Research, Science and Business, approved by Order No ISAK-563 of the Minister of Science and Education of 3 March 2008 (*Valstybės žinios (Official Gazette)* No 29-1036, 2008), the National Complex Programme, approved by Order No ISAK-2336 of the Minister of Science and Education of 3 December 2007 (*Valstybės žinios (Official Gazette)* No 7-262, 2008; No 122-4641, 2008).

5. The Programme has been drafted in pursuance with the goals, priorities and objectives laid down in Priority 3 "Research Capacity Building" of the Operational Programme for the Development of Human Resources (endorsed by Decision K(2007)4475 of the European Commission of 24 September 2007), Priority 1 "Research and Development for Competitiveness and Growth of the Economy" of the Operational Programme for Economic Growth for 2007-2013 (endorsed by Decision K(2007)3740 of the European Commission of 30 July 2007) with a view to implementing The Lithuanian Strategy for the Use of European Union Structural Assistance for 2007-2013 (endorsed by Decision K(2007)1808 of the European Commission of 26 April 2007).

6. Projects implementing separate measures of the Programme shall be in line with project management and funding rules laid down in Resolution No 1443 of the Government of the Republic of Lithuania of 19 December 2007 (*Valstybės žinios (Official Gazette)* No 4-132, 2008*),* the conformity rules regulating expenditure and funding of projects implemented in the framework of the Lithuanian Strategy for the Use of European Union Structural Assistance for 2007-2013 and the operational programmes for the implementation of this strategy approved by Resolution No 1179 of the Government of the Republic of Lithuania of 31 October 2007 (*Valstybės žinios (Official Gazette)* No 117-4789, 2007), and the National Project Planning Description, approved by Order No ISAK-997 of the Minister of Science and Education of 8 April 2008 (*Valstybės žinios (Official Gazette)* No 44-1665, 2008), as well as other relevant legal provisions.

7. According to the provisions of the Programme, economic benefit generated by the Valley will be available for individual economic entities which will make use of the Valley infrastructure or research outcomes in as much as that does not contradict with the EU and Lithuania's legislation on national assistance.

8. Centres of excellence established in the Valley shall ensure that the available equipment is freely accessed by all interested legal and natural persons. The rules for the establishment and management of open access centres shall be issued by the Minister of Education and Science.

II. BACKGROUND ANALYSIS

9. The document “Innovations in the Sixth Framework Programme” published by the European Commission’s Research Directorate-General states that publicly funded research does not have to end up with the creation and subsequent dissemination of new knowledge, but to acquire wide application. This approach is essential as we try to overcome the European paradox of having strong fundamental research and weak innovations. The mentioned document views innovation-related activities as any actions which apart from the dissemination, would also focus on the application of the results of research and development projects (R&D)”. Thus, the EU Directive aims to promote applied technological research, as technology concept is closely related with the end product of R&D presented in the form of inventions or “know-how” employed as instruments or processes to develop new cutting edge products or services for the market.

10. Fragmentation of the Lithuanian potential of science and studies and the absence of critical mass represent the main reasons why R&D lacks effectiveness and university studies are not sufficiently based on research. The implementation of the ERA consolidation principles proposed by the European Commission is especially significant and can make an essential contribution to the strengthening of the Lithuanian system of science and studies as well as to the reorganization of the network of research institutes. In Lithuania, it is necessary to bring together people working in the R&D area and to concentrate and build R&D infrastructure at those institutions that claim to have top researchers and where equipment may be used in the most efficient manner. At the same time, Lithuanian research institutions would be provided with an opportunity to join the ERA network of research infrastructure, which is currently being developed.

11. The system of science and studies remains relatively unattractive to the best specialists. With the mobilization of the Lithuanian intellectual potential, better conditions for a more rational utilization of funds for research infrastructure and upgraded equipment at hands of research institutions, competent researchers could better fulfil their capabilities as they address R&D-related issues and raise top-level specialists. These institutions would become visible internationally, join the activities of international organizations dealing with R&D problems that are also relevant to Lithuania, and would finally be able to take advantage of the possibilities created by the ERA.

12. The level of business investment in R&D is primarily determined by the Lithuanian business structure, in which the most research-intensive business sectors of high and medium-high technologies take a relatively modest share. In 2007, business R&D spending accounted for only 28.5% of the total R&D spending across the country. A distinct gap between business operators and institutions of science and studies is for the most part preconditioned by the fact that small and narrow-niche research institutes may offer to businesses only a very limited range of services, when there is a need to address emerging

R&D issues. On the other hand, small research institutes are incapable to set up and run units dealing with subsequent commercialization of research results. That is also a disadvantage in the process of establishing new research-intensive businesses. According to the data of the Department of Statistics under the Government of the Republic of Lithuania, the employment in the high and medium technology industry in Lithuania has reduced from approximately 3.03% in 2003 to 2.48% in 2006.

13. Lithuania is a small country and for that is unable to generate knowledge across all the fields of science, therefore it has to focus on the most promising ones in terms of deliverables and the available potential. The research institutions concentrated in the Valley have their greatest potential in the following areas: lasers and optical technologies, materials science and nanotechnologies, electronics and optoelectronics as well as civil engineering. These areas are expected to maintain further development across the globe; therefore, they are promising and can produce a breakthrough given adequate conditions are provided in the Valley.

14. Lasers and laser technologies are among the priorities of the Lithuanian science and technologies listed in relevant strategic documents and the Programme of Development of High Technologies. This field has thirty years history and is renowned for scientific achievements and world-wide recognition. With over ten year development history in Lithuania, laser technologies continue to increase their share in the global laser market. Lithuanian laser companies are the only ones to manufacture in Lithuania world-class research equipment (laser systems, nonlinear optic devices). The sales of Lithuanian laser companies (members of the Association of Laser and Light Science and Technologies Association) have been growing annually 20% and amounted to LTL 64 m in 2007; export accounted for LTL 55 m. The products have been exported across the world. With 6% global market share gained during the recent decade, the Lithuanian laser manufacturers are still set to achieve at least ten times larger share of the industrial laser market. The growing potential of the sector has been demonstrated by six new laser and optical technology companies opened up in 2006-2007 alone. This fast pace in the development can only be ensured by close cooperation between business and science which has lately been best demonstrated through the activities of the Applied Research Laboratory jointly established by the Institute of Physics and UAB Ekspla, and joint laboratories of Vilnius University Laser Research Centre and companies Altechna, as well as Šviesos Konversija and Standa, which are involved in the development of joint projects of High Technology Programme or contract research services. In 2007, the physicists of Vilnius University and laser business were granted the Award for Partnership Advancement marking the importance of Lithuanian laser science and industry concentration for the breakthrough in the world markets.

15. Scientists working in the area of material engineering and nanotechnologies have gained global acclaim for their achievements in metal corrosion, microbiological degradation of materials, nanostructure surface formations and electro-catalysis. The Institute of Chemistry is involved in the development of environment-friendly technologies intended for

the production of multi-component nanostructure coatings exhibiting excellent corrosion and thermo resistance and other relevant features. Research products have been used for the production of detectors, sensors and nanodevices. The scientists continue their successful cooperation with local and foreign counterparts and companies (Toyota Motor Co., Japan; Ebara Udylite Co. Ltd., Japan, AB Achema, UAB Vilniaus Ventos Puslaidininkiai (Venta Semiconductors) state enterprise Lietuvos Monetų Kalykla (Lithuanian Mint)). The successful cooperation has given birth to the two new companies: UAB Chromtech and UAB Chemeta. Vilnius University and the Institute of Physics have been successfully conducting research related to the synthesis of nanostructure formations and the characteristics of multifunctional substances (ion fluids, ferroelectric, ferric, ferroelectric ceramic materials, relaxors, thin coatings, nanoformations and compounds). These activities find wide support in the EU through research programmes as FP, COST; Alexander von Humboldt Foundation, Germany, the bilateral Ukraine-Lithuania Research Programme and the Lithuanian State Science and Studies Foundation. Close ties have been maintained with the hi-tech company Aixtron AG, Germany.

16. Semiconductor physics and electronics are research areas with over forty years history and are concentrated in the Institute of Semiconductor Physics, the Institute of Physics, Vilnius University Faculty of Physics, Vilnius University Institute of Material Science and Applied Research and the Vilnius Gediminas Technical University. The research carried out in the Institute of Physics is marked for its complex and diverse nature. It has given birth to a number of new achievements in the development of new organic and inorganic materials, semiconductor structures and microelectronic, optoelectronic and radiation detection devices, and their characterization through optical, electric, microwave and noise methods. Researchers working in these fields have gained wide acclaim across the world. They are also known as developers of modelling methods for electric and electronic systems, IT technologies and physical processes. Remarkable results have been achieved in the fields of semiconductor optoelectronics, ultra-fast spectroscopy of semiconductors, terahertz photonics and solid state lighting. This work is being done within the framework of national and international programmes as well as under the contracts with the following companies: UAB Vilniaus Ventos puslaidininkiai (semiconductors), Baltic Scientific Instruments Ltd. 3M, Imation and Samsung Electronics. Semiconductor physics and electronics researchers have established several spin-offs (UAB OPS, Teravil, Hortiled, Tikslioji Sintezė). Researchers working in these fields are world-known; their works are published by world-famous international publications, they deliver speeches in prestigious conferences and conduct seminars and trainings in different academic institutions abroad. The value of new semiconductor research is demonstrated by over thirty patents in the USA, Europe and Japan. Many of the researchers in this field are winners of Lithuanian and international awards for scientific achievements.

17. The Vilnius Gediminas Technical University, a major Lithuania's research centre for civil engineering, has been closely cooperating with Lithuanian construction –related

entities and foreign research institutions. It has the concentration of the Lithuanian research talents in the field. The research in civil engineering has gained a particular importance in the face of the current energy crisis which is also relevant to Lithuania, as it is highly probable that following the decommissioning of the Ignalina Nuclear Power Plant, Lithuania will find itself as a result confronted with negative consequences. Valley research would enable the development of new energy-efficient building systems which could be produced at the Lithuanian factories which are undergoing fast modernization; while building systems which are currently in production could also be upgraded in the meantime. The research outcomes would enable to enhance solutions in terms of energy efficiency. The Vilnius Gediminas Technical University is also working on the harmonization of the Lithuanian architectural design-related legislation with relevant EU requirements.

18. Economic development in the future can only driven forward by high and medium technology applications in production as well as the development and production of globally competitive innovative products attributed to the hi-tech category. The competitiveness of the Lithuanian economy and its capacity to integrate globally is directly related to the production of high qualification specialists, the capacity of the science to generate new ideas and develop new technologies, innovation driven business and public resources to support this activity. Therefore, it is important to improve the environment for studies, science and knowledge intensive business in terms of the development of high-tech products and technologies. Integrated Centres/Valleys of Science, Studies and Business could largely contribute in this regard.

19. A feasibility study done in the framework of PHARE projects has revealed that the development of the Valley would result in twice as many researchers working in business entities, a 20% increase in business R&D investment and double R&D spending in companies specializing in lasers and light technologies, material science and nanotechnologies, semiconductor physics, electronics and organic electronics. It would also give rise to many companies involved in the development of strategically important innovations; this type companies are still sporadic in Lithuania (approximately 1% of total number of companies). The Valley would enlarge the activity scope of knowledge-intensive businesses, particularly the ones in line with the Valley priorities; this would enhance national economic structure and long-term competitiveness.

20. The necessity to consolidate R&D resources on the institutional and simultaneously on the geographical level is emphasized not only in EU strategic documents. Attention to that was also drawn for a number of times in the findings of experts who evaluated the situation in Lithuania, namely those of the study “Lithuanian Research Evaluation” (1996) carried out by the Research Council of Norway, the World Bank study “Lithuania – Aiming for a Knowledge Economy” (2003), the Science Council of Lithuania study Proposals Regarding the Implementation of the Recommendations Presented in the World Bank Report "Lithuania. Development of a Knowledge Economy" (2004), a feasibility study on the development of the infrastructures of humanities and social sciences in Lithuania

in the context of European Research Area by the Lithuanian Workgroup on the Humanities and Social Sciences (2005), Evaluation Report on Lithuania by the CREST mixed political experts' group of the Open Method of Cooperation (2007), and a study on the optimization of the infrastructure of science and studies by the National Development Institute (2008).

21. Currently an effective cooperation between the institutions with physical and technological bias is hampered by a considerable distance in between them: they have been located in four different Vilnius areas at about 7-15 km apart from each other. This geographical dispersion (Saulėtekis Valley, Savanorių Avenue, the streets of Naugardukas and Goštautas) has been basically determined by a historical background i.e. all of them had been established before the restoration of the independence of Lithuania. Moreover, the research institutes are located separately from the related study establishments thus preventing students from working in these institutes. The transfer of these institutes to the territory of the Valley would place them into the neighbourhood of Vilnius University and the Gediminas Technical University, facilitate modernisation and make the equipment available for the research institutes, students and the stakeholders. The merger of the the Institute of Physics, the Institute of Semiconductor Physics and the Institute of Chemistry into the Centre of Physical and Technological Sciences, and the incorporation of the Institute of Theoretical Physics and Astronomy in Vilnius University, and the integration of the Institute of Thermal Insulation in the Vilnius Gediminas Technical University would implement the reorganisation of the institutes of physical and technological sciences provided for in Resolution No 989 of the Government of the Republic of Lithuania of 1 October 2008 on the Approval of the Reorganization Plan for the Network of State Research Institutions Related to the Development of Centres (Valleys) of Science, Studies and Business (*Valstybės žinios (Official Gazette)* No 117-4453, 2008) and generate required critical mass of researchers and equipment for a breakthrough in the mentioned areas.

22. The Valley location: Saulėtekis Alley, Vilnius, the territories of Vilnius University, the Vilnius Gediminas Technical University and the STP. The territory covers 156 ha and lies in the prestigious area of the Vilnius City nicely integrated in the natural and built-in city environment. The largest Lithuanian universities – Vilnius University and the Vilnius Gediminas Technical University – have their faculties, research units, laboratories and hostels for students and researchers-trainees in that territory. 62 ha have been allocated for the development of knowledge economy nucleus, including 2.4 ha for business support infrastructure.

23. This place has already mobilized the basic components required for the functioning of the Valley, i.e. qualified researchers working in breakthrough fields and their research potential, modern infrastructure and possibilities provided by it; favorable environment in terms of work and recreation and business support infrastructure.

24. Eight from 17 high level research centres and 7 researcher teams from 23 listed by the Centre for Quality Assessment in Higher Education will be operating in the Valley.

25. The Valley under development is in line with both regional as well as municipal legislation: the Vilnius Regional Development Plan for 2007-2013, approved by Decision No 10.9-6 of the Vilnius Regional Development Council of 8 June 2007, the Vilnius City Strategic Development Plan, approved by Decision No 607 of the Vilnius City Council of 19 June 2002, and the Vilnius City Master Plan approved by decision No 1-1519 of the Vilnius City Council of 14 February 2007.

III. THE GOAL AND OBJECTIVES OF THE PLAN

26. The goal of the Plan is to create an integrated centre/valley of science, studies and business for the development of the sectors of physical, technological and civil engineering through the development of business, internationally competitive fundamental and applied research, as well as the preparation of human resources to work in the mentioned R&D areas.

27. The main tasks of the Programme are as follows:

27.1. to concentrate in one location the available potential of the scientific research, studies and knowledge-intensive business as regards physical, technological and civil engineering sciences; reorganize the network of state institutes of physical sciences; and develop research infrastructure indispensable for the operation of the breakthrough trends in research and study institutions as well as mobilize scientific potential;

27.2. to develop infrastructure for science-business cooperation (STP), including business incubation aimed at the encouragement of high-tech driven start ups; as well as the technology centre aimed at demonstration and field-testing of new technologies turning them into innovative products and services.

IV. VALLEY DEVELOPMENT

28. The construction of the basic infrastructure of the Valley, its provision with basic equipment, and employment of major scientific workforce has been planned for 2009-2012. The core, i.e. the National Centre of Physical and Technological Sciences with open access laboratories have been scheduled to be built in 2012, and the Civil Engineering Centre and Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access have been planned to be completed in 2010.

29. The first phase (2008-2010) will be marked by the establishment of the gravity centres of the Valley. The following works and actions have been projected to be completed in this period:

29.1. The establishment of the Association of the Institutes of Physical and Technological Sciences by the Institute of Physics, the Institute of Semiconductor Physics and the Institute of Chemistry;

29.2. The establishment of the Association of the Valley whose members and stakeholders will be research and study institutions, public administration bodies, business

entities, business support organisations, business and other associations, other legal and natural persons having expressed their interest to participate in the development of the Valley;

29.3. Planning and beginning of the construction of the National Centre of Physical and Technological Sciences covering 33 000 sq m;

29.4. The establishment of the state research institute: the Centre of Physical and Technological Sciences with its integral units: the Institute of Physics, the Institute of Chemistry and the Institute of Physics, the Institute of Semiconductor Physics;

29.5. The establishment of the National Centre of Physical and Technological Sciences operating on the basis of joint activity and partnership agreement, the stakeholders being Vilnius University, the Vilnius Gediminas Technical University and the Centre of Physical and Technological Sciences. Arranging for the open access facility of the National Centre of Physical and Technological Sciences;

29.6. Planning and building a superstructure of Vilnius University Laser Research Centre at 10 Saulėtekio Alley (total area 650 sq m). Purchasing and assembling equipment for the laser complex Naglis;

29.7. Opening up and equipping the Civil Engineering Centre on the premises of the Vilnius Gediminas Technical University, putting it to operation following the incorporation of the Thermo-isolation Institute of Vilnius Gediminas Technical University in the Vilnius Gediminas Technical University.

29.8. The construction and launch into operation of the first STP building (6300 sq m). The delivery of the first STP services;

29.9. Drafting a technical design for the second STP building (7700 sq m) and beginning of its construction. The building will house a technological business incubator with laboratories as well as a technology demonstration and field-testing centre;

29.10. External and internal communications built in the area of 1.8 ha owned by the public company Saulėtekio slėnis (Sunrise Valley). Territory preparation for the development of private investment in STP;

29.11. Purchase and installation of certain equipment at currently available Valley stakeholder premises enabling to start research work in the sectors important for high-tech driven business before the new infrastructure is built. Once the new infrastructure is in place, this equipment will have to be moved to new laboratories within the period of three months. The list of such equipment shall be approved by the Ministry of Education and Science following the consultations with the Association of the Valley. The Ministry shall grant a purchasing permission once it is convinced that premises for temporary use of the equipment are ready. The list does not include equipment which following its initial installation cannot be later moved to new premises.

30. The second phase (2011-2013) will be marked by an intensive Valley development. The main works and actions will be the following:

30.1. Opening up and putting to operation adequately equipped superstructure of Vilnius University Laser Research Centre;

30.2. Completed construction and launch into operation of the Scientific Communication Centre with a digital technical library.

30.3. Completed construction of the National Centre for Physical and Technological Sciences with open access laboratories, housing the latest research equipment. The transfer of some of the premises of the National Centre of Physical and Technological Sciences to Vilnius University, the Centre of Physical and Technological Sciences and the Vilnius Gediminas Technical University under the right of trust or use as prescribed by law.

30.4. Starting to transfer to the Valley the Faculty of Chemistry of Vilnius University, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Transport Engineering of the Vilnius Gediminas Technical University, the Institute of Physics, the Institute of Chemistry, the Institute of Semiconductor Physics and the Vilnius University Research Institute of Theoretical Physics and Astronomy;

30.5. Opening and putting to operation the National Centre of Physical and Technological Sciences with open access laboratories; housing the latest research equipment.

30.6. The second STP building (7700 sq m) becomes operational;

30.7. The completion and putting to operation the Technology Demonstration and Field-testing Centre with the living lab;

30.8. Starting construction of the third STP building (up to 10 000 sq m) designed for large foreign and national company research units;

30.9. Drafting and adopting legislative amendments necessary for a successful operation of the Valley;

30.10. The launch of joint study programmes of Vilnius University and the Vilnius Gediminas Technical University.

31. During the first and the second phases, 33 laboratories will be established.

32. The majority of new laboratories will be set up in the National Centre of Physical and Technological Sciences, including the following laboratories: Optical Coating, Optical Component Characterisation, Optical Component Procession, Laser Macro-procession, Laser micro-procession technologies, Femtosecond Micro-fabrication, Laser Micro-prototyping, Sample Testing, Joint Laboratory for Coherent Light Source, Synthesis of Inorganic Functional Materials, Electrochemical Material Research, Chemical Analysis and Sensors, Multifunctional Materials and Nanostructured Polymers, Radio-wave and Microwave Spectroscopy, Process Spectroscopy, Structural Research, Mass Spectrometry, Centre and Laboratory for Nuclear Energy Physics and Environment, Microtechnological Processes, Design and Research Laboratory for Microelectronic and Nanoelectronic Systems, Photoelectric Technology, Cultivation of Semiconductor Materials, Microwave and Optoelectronics and Supercomputer.

33. Due to physical incompatibility, civil engineering-related labs will be established on the current premises of the Vilnius Gediminas Technical University. They will include: the Building Construction Laboratory, the Building Materials Laboratory, the Building Energy and Microclimate Systems Laboratory, the Road Technology Laboratory, the Geodesic

Laboratory, the Geotechnical field Research Laboratory, the Environment Technology Laboratory, the Laboratory for the Research of Physical and Mechanical features of the Soil (some of the labs, covering approximately 600 sq m, will be established in the National Centre of Physical and Technological Sciences).

34. Considering the investment made by the Ministry of Education and Science, Vilnius University funding and funds from previous two projects supported by the EU structural funds, the High Intensity Laser Laboratory of Vilnius University Laser Research Centre (Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access) will be established in the superstructure of Vilnius University Laser Research Centre at 10 Saulėtekio Alley.

35. Due to physical incompatibility, Valley radiological research laboratories remain in the current territory of the Institute of Physics in Vilnius, 231 Savanorių Avenue along with a technology development hub and a complex of laboratories equipped from the EU structural funds 2004-2006.

36. The Valley infrastructure will be available for regular use by 500 scientists and researchers, over 300 doctoral students, over a thousand master degree students and over a thousand undergraduates studying or working in the fields of physics and technology as well as civil engineering.

37. One-stop-shop with adequate equipment and infrastructure will prevent overlapping functions; enable an effective use of public resources, which in the end will save money for better equipment; while the open access will provide for more users of such equipment, thus raising its effectiveness and cost-efficiency.

38. The Valley will strengthen scientific research, maintain the level of scientific research in the established fields, and encourage scientific research in new potential fields. The Valley will employ a considerable number (about 1/3) of the best Lithuanian talents having gained world acclaim. It will provide for public infrastructure, open access research laboratories, while the mobilization of the research potential will enable to achieve higher benchmarks in research priorities.

39. The quality of studies will undergo an essential improvement: Vilnius University and the Vilnius Gediminas Technical University in cooperation with the Valley institutes will develop new interdisciplinary and cross-field study programmes (including PhD), designed to meet the requirements of technology-driven business and raise the demand for labour force. As private Valley partners, business entities will have their say as regards the development and quality of university study programmes.

40. The creation of the Valley will contribute to the implementation of the goals of the sustainable R&D policy developed by the EU; high technologies (laser and light technologies, material science and nanotechnologies, semiconductor physics and electronics, civil engineering) will have more possibilities to compete internationally and impact global markets.

Programme implementation measures shall meet the requirements of the Strategy for the Use of the European Union Structural Funds of Lithuania for 2007-2013, some of operational programmes, their appendixes, and funding terms of reference. The EU structural support is the largest funding source.

41. The socio-economic benefit will be demonstrated by a growing competitiveness of high technology-driven businesses; in particular as regards the major specializations of the Valley, considerably larger GDP share generated by business, and increased possibilities for it to compete in the world markets. With a possible injection from the FDI, the GDP share generated by high-tech companies would increase fourfold. Specialists produced in the Valley as well as scientific research and research outcome commercialization conditions will allow for the practical application of the knowledge generated at the Valley.

42. Close cooperation between business and science in the Valley will improve working conditions for scientists and researchers create new jobs for high qualification specialists and high-tech managers, thus preventing them from leaving abroad and encouraging returning those who had left, and will attract more foreign scientists.

43. Large scientific potential and qualified staff will help attract more foreign direct investments. The STP premises, attractive commercialization conditions will beckon international corporations to have their research conducted in Lithuania, which will improve the image of the Lithuanian science and will attract extra funds to finance the activities of research institutions.

44. Conditions provided by Science and Technology Park for business start-up and development will facilitate the commercialization of research outcomes, new spin-offs, which would grow to several dozens during the second phase of the Valley development, and would continue to grow steadily.

45. Open access laboratories of the National Centre of Physical and technological Sciences and other centres will enable business to access infrastructure necessary to carry out scientific research. Better interaction between business and studies will improve the quality of the studies: higher qualification specialists and developed R&D infrastructure will increase absorption potential of business companies. Better qualified specialists will enable companies to step up the roll-out of innovations, thus increasing their domestic and global competitiveness.

46. The geographical proximity of the companies representing the same high-tech sector and immediate neighbourhood of research institutions will also encourage them to make their own investments and set up their own laboratories which could be rented under market terms for other companies or scientific institutions nearby. The same will apply to the implementation of the mechanisms for technology transfer.

47. New R&D infrastructure will be maintained and run from the funds received in the framework of national and international scientific programmes, contracted customized research, and allocations from the budget of the Republic of Lithuania for scientific research carried out by post-graduate students.

48. The Valley will increase the competitiveness of the Lithuanian scientists participating in the EU programmes for fundamental and applied research. The continuity of the priority fields of research should be ensured by R&D demonstration activity programmes of the 7th Framework programme as well as projects from the 8th Framework Programme.

49. Close cooperation between science, studies and diverse businesses will ensure better qualifications of specialists, and their faster involvement in scientific activity and production; it will also enable to project more precisely a market specialist demand thus providing a necessary supply. R&D project implementation in cooperation with business entities will enable students and teachers to have a better understanding of market needs. This will improve qualifications of trained specialists and will help to utilise research infrastructure more effectively and will diversify research.

50. Cooperation between science and business will cover scientific research and its application in business as well as studies and the integration of students in labour market.

IV. PROGRAMME EVALUATION CRITERIA

51. Indicators of Programme deliverables:

51.1. the number of R&D infrastructure development projects;

51.2. the number of established (equipped) and operating scientific research centres;

51.3. total area of (open access) research laboratories established;

51.4. the number of research laboratories established (equipped), including laboratories, an integral part to the centres);

51.5 the number of jobs created in the Valley laboratories for scientists and other researchers;

51.6. the number of national R&D projects;

51.7. the number of international R&D projects;

51.8. the number of R&D projects contracted by Lithuanian economic entities;

51.9. the number of R&D cooperation agreements signed between research institutions and companies (by 2013);

51.10. the percentage of feasibility studies which served as the basis for the development and application of technologies;

51.11. the number of new study programmes;

51.12. the number of articles published in international journals on the subject of breakthrough fields of the Valley;

51.13. the number of new international patents registered;

51.14. the number of dissertations defended on the subject of breakthrough fields of the Valley;

51.15. the number of infrastructure development projects of communication centres for the transfer of technologies under implementation;

51.16. the number of projects on improved environment through R&D and innovations;

51.17. the a number of international events, fairs or other events raising awareness about Valley activities;

51.18. the number of knowledge-intensive companies established within three years following the implementation of the Programme;

51.19. the number of small and medium business entities established in the science and technology park and business incubator within three years following the implementation of the Programme;

51.20. the number of annual joint projects with science and research institutions and participants;

51.21. the number of companies having made use of innovation support services;

51.22. total amount of private funds attracted for the implementation of R&D projects.

VI. DELIVERABLES

52. The following deliverables of the Programme 2013 have been projected:

52.1. twenty-five R&D infrastructure development projects will be completed;

52.2. three scientific research centres will be established (and equipped);

52.3. total area of research laboratories of common use (open access) will be approximately 16 thousand sq m;

52.4. thirty-three research laboratories, including the ones belonging to the centres, will be established and equipped;

52.5. sixty new jobs for scientists and other researchers will be created in the Valley;

52.6. at least 100 national R&D projects will be carried out;

52.7. at least 30 international R&D projects will be carried out;

52.8. at least 20 R&D projects will be carried out on the order of companies;

52.9. over 40 R&D agreements between research institutions and companies will be signed (by 2013);

52.10. 15% of feasibility studies will serve the basis for the development and application of technologies;

52.11. at least 10 new study programmes will be developed;

52.12. Two thousand five hundred articles will be published in international journals on the subject of breakthrough fields of the Valley;

52.13. at least 20 new international patents will be registered;

52.14. at least 80 dissertations will be defended on the subject of breakthrough fields of the Valley;

52.15. one infrastructure development project for the centres of technology transfer and communication will be carried out;

52.16. at least 5 environment improvement projects through R&D and innovations will be carried out;

52.17. at least 5 international events, fairs or other events raising awareness about Valley activities will be arranged;

52.18. twenty new knowledge-intensive companies will be established within three years following the implementation of the Programme;

52.19. forty small and medium business entities will be established in the science and technology park and business incubator within three years following the implementation of the Programme;

52.20. fifteen annual joint projects will be carried out with science and research institutions;

52.21. forty companies will make use of innovation support services;

52.22. the total of 250 m private funds will be attracted for the implementation of R&D projects;

53. The implementation of the Programme objectives will generate the following outcomes in the breakthrough fields of the Valley:

53.1. the scope of production and sale of Lithuanian laser companies will grow several times;

53.2. industrial laser applications will be developed and settle in this segment of the market;

53.3. new multifunctional materials using conjugated polymers will be developed;

53.4. a breakthrough will happen in the area of new chemical and biological sensors, with subsequent commercialization;

53.5. terahertz photonic components and systems for security and diagnostic applications will be developed;

53.6. new technologies for synthesis and purification of large amounts of new organic electronic materials; more of these materials will be exported;

53.7. specialized semiconductor light sources will be developed and commercialized;

53.8. low-cost solar battery technologies will be used in spin-offs;

53.9. new construction materials, building structures and technologies based on microtechnology and nanotechnology will be developed;

53.10. application of more advanced and energy efficient materials, structures and technologies will bring construction costs down;

53.11. national construction standards and requirements will be harmonized with relevant EU legislation;

53.12. some Valley laboratories will become part of the distributed (deployed over several locations) infrastructure of the European Strategy Forum on Research Infrastructures or other international research infrastructure;

53.13. regular attempts will be made to attract foreign direct investment.

VII. IMPLEMENTATION, MONITORING AND SUPERVISION OF THE PROGRAMME

54. The Programme is funded from EU structural funds and other programmes coordinated by the Ministry of Education and Science, the Ministry of Economy and other ministries.

54.1. The measures for the implementation of the objective specified in paragraph 27.1 of the Programme are directly related with the implementation of the Common Cooperation Programme for Research, Science and Business, approved by Order No ISAK-563 of the Minister of Science and Education of 3 March 2008, the measures provided for in Priority 1 "Research and Development for the Growth of Economy" of the Operational Programme for Economic Development, and measures coordinated by the Ministry of Education and Science provided in the National Complex Programme, approved by Order No ISAK-2336 of the Minister of Science and Education of 3 December 2007.

54.2. The measures for the implementation of the objective specified in paragraph 27.2 of the Programme are directly related with the goals, priorities, and objectives of Priority 1 "Research and Development for the Growth of Economy" of the Operational Programme for Economic Development, which implement the Lithuanian Strategy for the Use of European Union Structural Assistance for 2007-2013.

55. The Programme shall run from 2008 to 2013.

56. Programme implementation measures, implementers and preliminary financial requirements for the implementation of these measures shall be specified in the Annex.

57. The Association of the Valley and the implementers of Programme measures and activities shall submit to the Ministry of Education and Science information on individual national projects. Planning of individual national projects which are in line with Programme measures and actions, and fall within the coordination framework of the Ministry of Education and Science, is arranged in pursuance with the requirements laid down in Order No ISAK-977 of 8 April 2008, of the Minister of Education and Science on the Approval of National Project Planning Guidelines.

58. Individual Programme implementation projects shall be monitored by the public institutions the Central Project Management Agency and the Business Support Agency, the Support Foundation European Social Fund Agency, the Ministry of Education and Science and the Ministry of Economy following the indicators specified in the Annex.

59. The Association of the Valley and the implementers of Programme measures (projects) shall submit to the Ministry of Education and Science an annual progress and achievement report from 20 June to 20 December. At the end of the year, the Ministry of Education and Science shall submit, together with its annual performance report, a report on physical and financial indicators of the Programme to the Government of the Republic of Lithuania.

60. Programme and project evaluation (strategic analysis, monitoring of qualitative and quantitative performance indicators and an ongoing, mid-term and final evaluations) shall be effected in pursuance with the Plan for the Evaluation of the European Union Structural Support, approved by Order No 1K-018 of the Minister of Finance of 15 January 2008 (*Valstybės žinios* (*Official Gazette)* No 9-314, 2008).

61. State property obtained during the implementation of the Programme shall be transferred to the Valley stakeholders under the right of trust or right of use following the procedure prescribed by law.

62. The integral part of the Programme: Description of Justification and Implementation of the Programme for the Development of SAULĖTEKIS, an Integrated Centre/ Valley of Science, Studies and Business (Annex).

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Annex to the Programme for the Development
of SAULĖTEKIS, an Integrated
Centre/ Valley of Science, Studies

DESCRIPTION OF JUSTIFICATION AND IMPLEMENTATION OF THE PROGRAMME FOR THE DEVELOPMENT OF SAULĖTEKIS, AN INTEGRATED CENTRE/ VALLEY OF SCIENCE, STUDIES AND BUSINESS

I. PURPOSE OF DESCRIPTION

1. The description of the justification and implementation of the Programme for the Development of SAULĖTEKIS, an Integrated Centre/Valley of Science, Studies and Business aims to justify infrastructural, financial, and organisational measures required for the creation and successful operation of the SAULĖTEKIS Integrated Centre/Valley of Science Studies and business (hereinafter referred to as "the Valley"). The Valley – a link between science, studies and business – is expected to develop internationally competitive fundamental and applied research as well as post-graduate studies.

II. PROGRAMME RATIONALE

2. Open access research infrastructure (hereinafter referred to as "the RI"), developed in the process of the implementation of the Programme for the Development of SAULĖTEKIS, an Integrated Centre/Valley for Science, Studies and Business (hereinafter referred to as "the Programme") together with already existing research capacities of the Valley stakeholders, will enable the integration between science, studies and business in the Valley, as well as the creation of a favourable environment for knowledge and technology transfer to business.

3. The Concept for the Establishment and Development of Integrated Centres (Valleys) of Science, Studies and Business, approved by Resolution No 321 of the Government of the Republic of Lithuania of 21 March 2007 *(Valstybės žinios (Official Gazette) No* . 40-1489*, 2007)* (hereinafter referred to as "the Concept") maintains that the Valley is a territorial concentration (the totality of legal entities) of the capacities of scientific research, studies and knowledge-intensive business with shared or related infrastructure, which makes a targeted contribution to the development of knowledge society and knowledge economy, thus reinforcing Lithuania's international economic standing. The Programme fully matches with the conception of the Valley. The development of the Valley in the first place seeks a rational deployment and concentration of the capacities of the Lithuanian science and studies in the fields of physics, technology and civil engineering.

4. The centre of the Valley as per Vilnius City Master Plan – the Saulėtekis University Camp – has been designed to serve as a knowledge economy hub. The Valley concentrates around its nucleus, the National Centre of Physical and Technological Sciences, which finds itself in the developing complex area covering 33 000 sq m; it should house the majority of open access laboratories, except civil engineering laboratories which, due to their physical incompatibility (vibration and shocks being incompatible with the conditions necessary for the production and research of microformations and nanoformations) will be opened up on the premises of the Vilnius Gediminas Technical University. Another laboratory (laser and light technology) the High Intensity Laser Laboratory of Vilnius University Laser Research Centre (Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access) will be established in the superstructure of Vilnius University Laser Research Centre at 10 Saulėtekio Alley (area: 650 sq m) from the funds invested by the Ministry of Education and Science, Vilnius University and the two EU structural fund projects of previous years. Other physically incompatible (radiological research) laboratories shall remain in the current territory of the Institute of Physics in Vilnius, 231 Savanorių Avenue, along with a technology development hub with a complex of laboratories equipped from the EU structural funds 2004-2006.

5. The centre will provide the best research conditions for the scientists from the Faculty of Physics, and the Faculty of Chemistry of Vilnius University, the Institute of Material Science and Applied Sciences, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Fundamental Sciences, the Faculty of Environmental Engineering and the Faculty of Construction of the Vilnius Gediminas Technical University, the Institute of Physics, the Institute of Chemistry, the Institute of Semiconductor Physics and the Vilnius University Research Institute of Theoretical Physics and Astronomy, Vilnius University Laser Research Centre and other institutions. The main fields of research carried out in the Valley and practically applied by businesses are consistent with the highest level research potential and technological expertise concentrated in the Valley; they are as follows:

5.1. lasers and optical technologies;

5.2. materials science and nanotechnologies;

5.3. semiconductor physics and electronics;

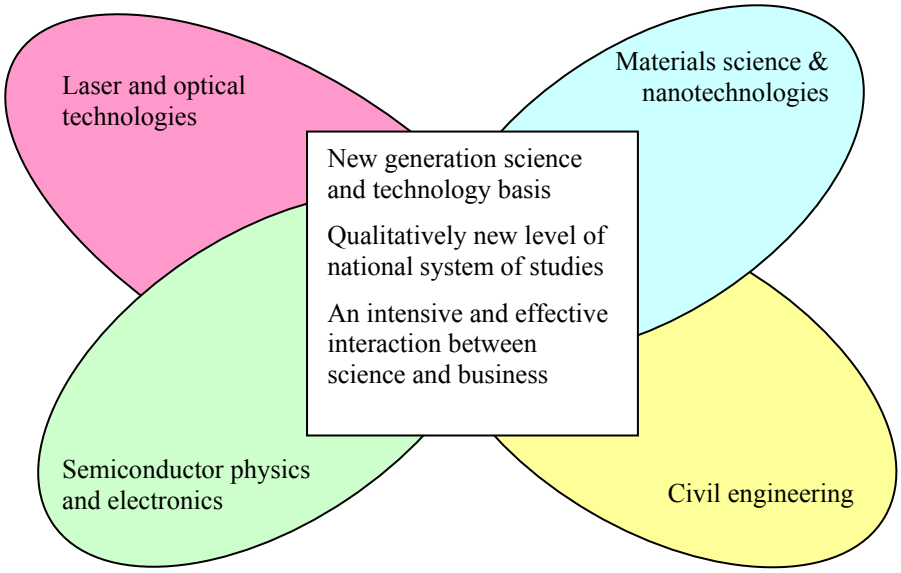
5.4. civil engineering.

6. A more effective participation of business entities in Valley activities will be encouraged through science and technology park (hereinafter referred to as “the STP”) of the public enterprise Saulėtekio slėnis (Sunrise Valley) – another component of the Valley; its major specialization matches the above specified Valley trends. The STP is turning into a gravity centre for high-tech-driven and research knowledge based business as well as for the FDI.

7. The Scientific Communication Centre with the integrated library of Vilnius University and the digital technical library of the Vilnius Gediminas Technical University will be an important communication and knowledge centre for students, scientists, researchers and

all the Valley participants. The IT Application Centre will be open for the services of all the scientific and business community in the Valley.

8. The need for Valley development and its benefit is based on three essential segments which bring together in one place (the territories of Saulėtekis Alley, Vilnius University, the Vilnius Gediminas Technical University and STP) qualified scientists and researchers, modern infrastructure providing an array of possibilities, study institutions producing specialists for knowledge-intensive sectors, and business support infrastructure.



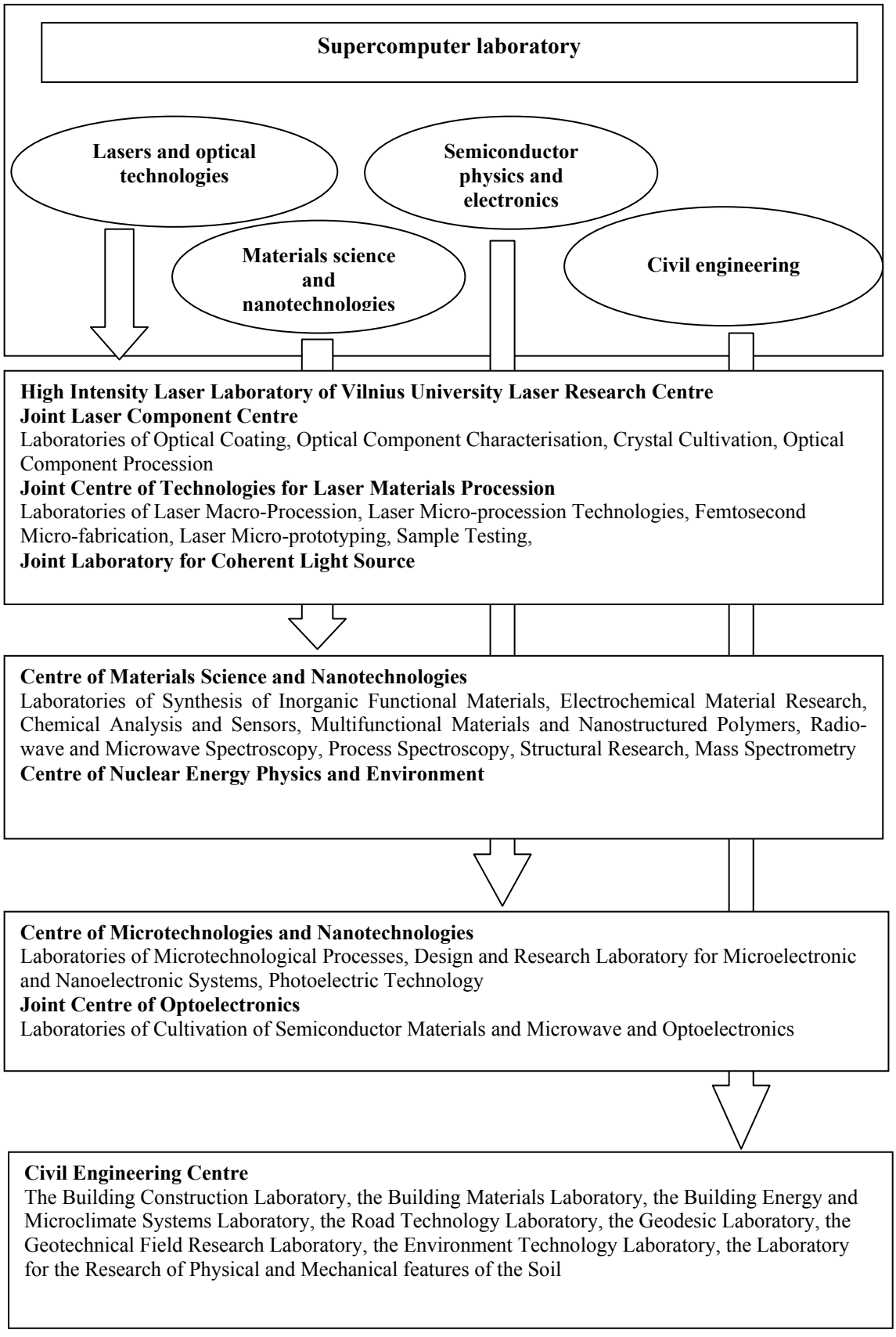
Picture 1. **Valley concentration diagram**

9. Concentration of the potential in one location (Picture 1) has many advantages, particularly in such a small state as Lithuania, whose industry is neither strong, nor extensively developed; besides, it has a narrow range of high-tech companies and its science is still very fragmented due to historical circumstances, therefore financially unable to achieve necessary level of development and infrastructure for new trends of research. Not only will the technological infrastructure of the Valley enable an effective utilization of the accumulated potential thus encouraging a closer interaction between science, studies and business, as well as favourable climate for business, but also the creation of the basis for technologies, which otherwise would not be affordable for stand-alone universities, research institutes or business entities.

III. ORDER OF PRIORITY, LOGICAL CORRELATION AND BASIC IMPLEMENTATION PRINCIPLES OF THE PROJECTS

10. During the first phase of the Valley development (2009–2010), it has been foreseen to establish new laboratories at the National Centre of Physical and Technological Sciences (Picture 2) and construct a superstructure of Vilnius University Laser Research Centre with all the necessary premises and equipment as well as irregular premises meeting specifications for the installation of large facilities. Some of the Valley laboratories for civil engineering due to the physical incompatibility (vibration and shocks being incompatible with the conditions necessary for the production and research of microformations and nanoformations) will be opened up on the premises of the Vilnius Gediminas Technical University. Other physically incompatible (radiological research) laboratories shall remain in the current territory of the Institute of Physics in Vilnius, 231 Savanorių; this place will also be home to a technology development hub of the National Centre of Physical and

Technological Sciences with a complex of laboratories equipped from the EU structural funds 2004-2006.



Picture 2**. Valley components and structure of the National Centre of Physical and Technological Sciences**

11. There will be a parallel development of business support infrastructure and services bringing together higher education, science and research establishments and industrial entities. To this end, the Valley will expand the STP to encompass the infrastructure of business incubation designed to promote the growth of new high technology-driven companies, and the technology centre designed to showcase and test new technologies, as a result translating them into innovative services and products. The STP will be developed in three phases. In 2008, during the first phase of the Programme, a science and technology park covering 6 300 sq m will be built with a business incubator which has been granted over LTL 10.5 m in EU structural support. The project will be funded from the budget of Vilnius City (LTL 6 m) and bank loan (up to LTL 12 m). The total value of the first phase projects amounts to more than LTL 28 m. Details about the second phase funding are specified in Tables 2 and 3. The third phase development has been planned long-term. Moreover, the Valley will develop services promoting innovations and entrepreneurship.

12. Table 1 provides financial requirements which are based on preliminary estimates and project proposals.

Table 1. Preliminary need for funds for the development of the R&D and technology transfer infrastructure in the Valley

Facility name	Works	Total preliminary budget / LTL 1000
National Centre of Physical and Technological Sciences (Vilnius, Saulėtekio Alley)	construction of the complex of laboratory buildings (approx 33000 sq m)	166 000
	procurement of open access scientific and technological equipment	101 500
Development of Vilnius University Laser Research Centre (Vilnius, Saulėtekio al. 10)	construction of a superstructure (approx 650 sq m) on the second and third floors	4 000
	equipment procurement for Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access	8 700
Civil Engineering Centre of the Vilnius Gediminas Technical University (Vilnius, Saulėtekio al. 11)	procurement of open access scientific and technological equipment	21 000
Phase 2 in STP development	Construction of the second building of STP and building engineering infrastructure	82 200
Total		383 400

IV. MEASURES IMPLEMENTING PROGRAMME OBJECTIVES

13. The implementation measures are in line with the objectives of the Programme. Monitoring over the implementation of individual projects of the Programme is effected by implementers specified in Table 2, who provide project administration with the required information.

Table 2. Measures implementing programme objectives

Objectives	Measures	Implementers	Duration	Preliminary need for funds, LTL thousands					
				total	2009	2010	2011	2012	2013
1. To concentrate in one location the available potential of the scientific research, studies and knowledge-intensive business as regards physical, technological and civil engineering sciences; reorganize the network of state institutes of physical sciences; and develop research infrastructure indispensable for the operation of the breakthrough trends in research and study institutions as well as mobilize scientific potential	1.1. To construct a complex of buildings of the National Centre of Physical and Technological Sciences	Vilnius University, Vilnius Gediminas, Institute of Physics, Institute of Chemistry, Institute of Semiconductor Physics.	2009–2011	66 000 (the Ministry of Education and Science, ERDF) 90 000 (the State Property Renovation Programme) 10 000 (the National Investment Programme)	49 000	90 000	17 000 10 000		
	1.2. To procure open access equipment and technologies for the National Centre of Physical and Technological Sciences	Vilnius University, Vilnius Gediminas, Institute of Physics, Institute of Chemistry, Institute of Semiconductor Physics	2009–2012	100 300 (the Ministry of Education and Science, ERDF) 1 200 (other funds)	15 000 300	20 000 400	59 000 500	6 300	
	1.3. To build a superstructure of Vilnius University Laser Research Centre	Vilnius University	2009–2010	4 000 (the Ministry of Education and Science, ERDF)	3 000	1 000			
	1.4. To procure equipment for Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access	Vilnius University	2009–2011	8 700 (the Ministry of Education and Science, ERDF))	2 000	5 000	1 700		
	1.5. To procure open access science and technology equipment for the Civil Engineering Centre of the Vilnius Gediminas Technical University	Vilnius Gediminas Technical University	2009–2011	21 000 (the Ministry of Education and Science, ERDF)	9 000	8 000	4 000		

Objectives	Measures	Implementers	Duration	Preliminary need for funds, LTL thousands					
				total	2009	2010	2011	2012	2013
	1.6. To transfer the Faculty of Chemistry of Vilnius University, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Transport Engineering of the Vilnius Gediminas Technical University	Vilnius University, Vilnius Gediminas Technical University	2010–2013	250 000 (the State Property Renovation Programme)		1 500	94 500	110 000	44 000
	1.7. To establish the Association of the Valley	Vilnius University, the Vilnius Gediminas Technical University, the Association of the Institutes of Physical and Technological Sciences, the Institute of Theoretical Physics and Astronomy of Vilnius University , public enterprise Saulėtekio Slėnis and other entities	2008	–					
	1.8. To coordinate the implementation of the Programme	The Association of the Valley	2009–2012	3 000 (the Ministry of Education and Science, ESF)	759	900	731	610	
2. To develop infrastructure for science-business cooperation (STP), including business incubation aimed at the encouragement of high-tech driven start ups; as well as the technology	2.1.To implement the second phase of the development of the Valley SPT	Public enterprise Saulėtekio Slėnis, Vilnius University	2009–2012	40 000 (the Ministry of Economy, ERDF) (including 15 000 for engineering infrastructure) 42 200 (other funds)	6 500 2 200	25 500 10 000	8 000 20 000	10 000	

Objectives	Measures	Implementers	Duration	Preliminary need for funds, LTL thousands					
				total	2009	2010	2011	2012	2013
centre aimed at									
demonstration and testing of new technologies turning them into innovative products and services.	2.2. to develop entrepreneurship and innovation driven services	Public enterprise Saulėtekio Slėnis, Vilnius University	2009–2012	2 356 (the Ministry of Education and Science, ESF) 2 250 (the Ministry of Economy, ERDF) 394 (other funds)	500 500	500 1 000	1 000 500 194	356 250 200	

V. FUNDING SOURCES FOR PROJECTS MEETING PROGRAMME MEASURE OBJECTIVES

14. Individual Programme implementation projects shall be carried out in pursuance with the project administration and funding requirements of the provided for by the EU structural funds (ERDF and ESF) as well as the relevant national legislation. Implementers of the projects to be funded according to the National Project Planning Description shall submit supplementary descriptions as required by the Ministry of Education and Science or other ministries.

Table3. Funding sources for Programme implementation projects

Project No.	Programme implementation projects	Preliminary need for funds, LTL thousands	Funding sources, LTL thousands					
			Ministry of Education and Science		Ministry of Economy ERDF	State Property Renovation Programme	National Investment Programme	Others
			ERDF	ESF				
1.	Creation and development of R&D infrastructure in the Valley							
1.1.	Construction of the complex of buildings of the National Centre of Physical and Technological Sciences	166 000	66 000			90 000	10 000	

Project No.	Programme implementation projects	Preliminary need for funds, LTL thousands	Funding sources, LTL thousands					
			Ministry of Education and Science		Ministry of Economy ERDF	State Property Renovation Programme	National Investment Programme	Others
			ERDF	ESF				
1.2.	Procurement of open access equipment and technologies for the National Centre of Physical and Technological Sciences	101 500	100 300					1 200
1.3.	Construction of a superstructure on the second and third floors of Vilnius University Laser Research Centre	4 000	4 000					
1.4.	Equipment Procurement for Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access	8 700	8 700					
1.5.	Procurement and installation of open access science and technology equipment for the Civil Engineering Centre of the Vilnius Gediminas Technical University	21 000	21 000					
1.6.	Transfer of the Faculty of Chemistry of Vilnius University, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Transport Engineering of the Vilnius Gediminas Technical University	250 000				250 000		
1.8.	Coordination of the implementation of the Programme	3 000		3 000				
2.	STP creation and development							
2.1.	Phase 2 STP development	82 200			40 000			42 200
2.2.	Development of entrepreneurship and innovation driven services	5 000		2 356	2 250			394
	Total	641 400	200 000	5 356	42 250	340 000	10 000	43 794

VI. PRELIMINARY PROGRAMME IMPLEMENTATION SCHEDULE

15. The implementers of the measures of the Programme and the Association of the Valley shall oversee the implementation of the schedule for one year following the date of the launch of the Programme.

Table 4. Preliminary schedule for Programme implementation

		2008	2009				2010				2011				2012				2013			
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1.	Creation and development of Valley R&D infrastruct.																					
1.1., 1.2	Establishment and construction of the National Centre of Physical and Technological Sciences, equipping laboratories				■	■	■	■	■	■	■	■	■	■	■	■	■	■				
1.3., 1.4.	Establishment of the Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access																					
	Construction of a superstructure on the second and third floors, equipping laboratories				■	■	■	■	■	■	■	■	■	■								
1.5.	Establishment of Civil Engineering Centre of Vilnius Gediminas Technical University, procurement and installation of open access science and technology equipment																					
	Equipping laboratories			■	■	■	■	■	■	■	■	■	■	■								
	Investment and technical Project preparation	■	■	■																		
	Construction and equipping				■	■	■	■	■	■	■	■	■	■								
1.6.	Transfer of the Faculty of Chemistry of Vilnius University, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Transport Engineering of the Vilnius Gediminas Technical University						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.8.	Coordination of Programme implementation		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
2.	STP creation and development																					
2.1.	Phase 2 STP development																					
	Investment and technical Project preparation		■	■	■	■																
	Construction and equipping					■	■	■	■	■	■	■	■	■								
2.3.	Developing entrepreneurship and innovation services		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				

VII. MAJOR MONITORING INDICATORS FOR PROGRAMME IMPLEMENTATION PROJECTS

16. The monitoring indicators of the measures which meet the objectives of the Programme implement the indicators provided for in Priority 1 “Research and Development for the Growth of Economy” and Priority 2 “Increasing Business Productivity and Improving Environment for Business” of the Operational Programme for Economic Growth, as well as Priority 3 “Research Capacity Building” of the Operational Programme for the Development of Human Resources. Implementers of individual projects consistent with the measures of the Programme shall submit individual project indicator reports to the Association of the Valley.

Table 5. Monitoring indicators for Programme implementation projects

Type of indicator	Title of indicator	Measure unit	Objectives 2015 in figures (part of the Programme)
Measure indicator	1. Development of R&D infrastructure		
Product	R&D infrastructure development projects	number	25
Outcome	scientific research centres established and in operation	number	3
	total area of research laboratories of common use (open access)	sq m	16000
	research laboratories established (equipped);	number	33
	new jobs for researchers created	number	60
	R&D projects under implementation:	number	
	national	number	100
	international	number	30
	Contracted by Lithuanian economic entities	number	20
	R&D agreements between research institutions and companies concluded (by 2013)	number	40
	Programmes created and rolled out on the basis of feasibility studies	percent	15
	new study programmes developed;	number	10
	articles published in international journals	number	2500
	new European patents registered	number	210
	dissertations defended on the subject of breakthrough fields of the Valley;	number	80
	2. Valley technology transfer and infrastructure of development system and capacity building		
Project	infrastructure development project for the centres of technology transfer and communication	number	1
Product	R&D and environment improvement projects	number	5
	international events and fairs arranged	number	5
	new knowledge-intensive companies established within three years following the implementation of the Programme	number	20

Type of indicator	Title of indicator	Measure unit	Objectives 2015 in figures (part of the Programme)
Outcome	small and medium business entities established in the STP and business incubator (within three years following the implementation of the Programme)	number	40
	annual joint projects carried out together with science and research institutions	number	15
	Companies having benefited from innovation support services	number	40
	Private investment attracted	LTL m	250

VIII. ORGANIZATIONAL PLAN OF THE PROGRAMME

17. Organizational measures are designed to ensure cooperation between Valley initiators and participants, coordination of interests and public access to the infrastructure developed in the Valley (Table 6).

Table 6. Organizational measures supporting Programme implementation

Organizational measure	Aims, objectives and functions
Association activities	Functions of the Association: Implementation of the Valley goals; Tuning stakeholder interests; Representation of stakeholder interests; Endorsement of Valley development documents among the stakeholders; Coordination the development of the Valley; Implementation of the Programme, prioritization of activities and projects; Ensuring added value to benefit science, studies, business and public at large; Commitment to efficiently run the Valley; Measurement, monitoring and evaluation of Valley performance; Making Valley activities and outcomes public, ensuring open operation; Ensuring horizontal cooperation between the integrated centres/valleys of science, studies and business with a view to an effective use of the property, research outcomes and resources; An effective cooperation between science and business; Ensuring open access and effective use of R&D infrastructure.
Valley agreement	The agreement lays down the provisions regarding the distribution of roles, commitments and responsibilities of stake holders. The principle provisions of the agreement are as follows: Valley initiators and stakeholders shall lay down in the agreement their interests and needs in relation to the Valley infrastructure; and assume responsibility for the Valley infrastructure; research and business entities shall participate in the implementation of certain Valley projects on the basis of short-term contracts; jobs shall be created to encourage exchanges among researchers and attract best talents.

IX. PROGRAMME MANAGEMENT CHART

18. The Association of the Valley is established to coordinate the development of the Valley and tune the interests of science, studies and business. Association founders and members can be: science and study institutions, their associations, public administration bodies, business entities, business support organisations, business and other associations, other legal and natural persons, having expressed interest to participate in the development of the Valley. The structure of the Association is provided in Picture 4.

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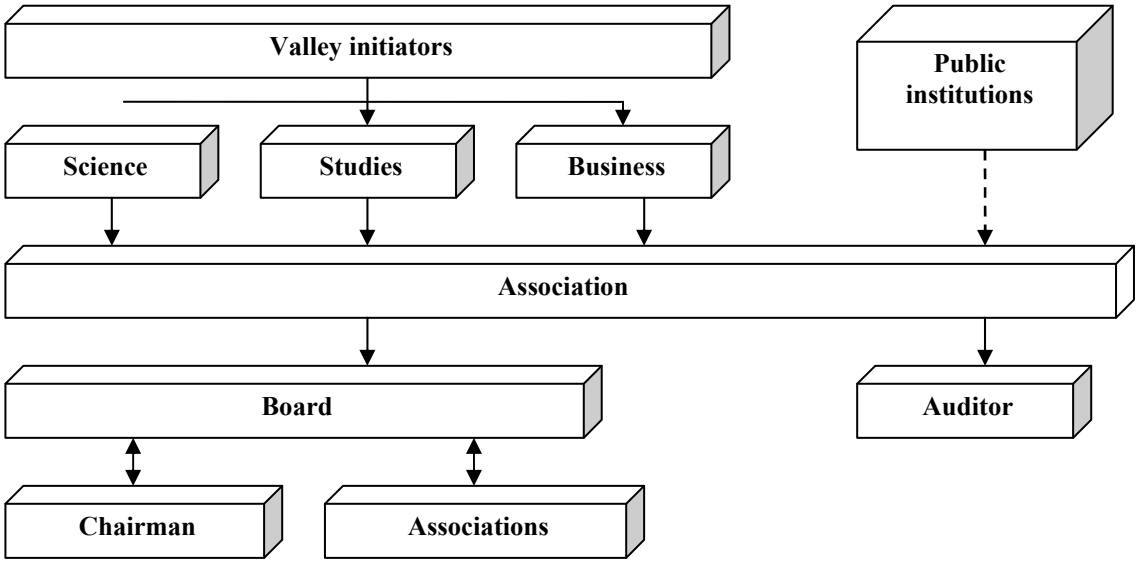

Table4. **Valley Association structure**

19. The Association of the Valley shall implement the goals of the Valley, coordinate and represent stake holder interests, endorse Valley development documents among stake holders, coordinate the development of the Valley, prioritize activities and projects, ensure added value which will benefit science, studies, business and public at large, and have an all-times commitment to efficiently run the Valley, measure, monitor and evaluate Valley performance, it shall make Valley activities and outcomes public, ensure open activity, horizontal cooperation between the integrated centres/valleys of science, studies and business with a view to an effective use of the property, research outcomes and resources, an effective cooperation between science and business, and arrange an open access to R&D infrastructure in pursuance with the requirements provided by the Ministry of Education and Science. Implementers of individual measures (projects) of the Programme shall be responsible for the implementation process. To ensure that the Association is run effectively, a management board shall be set up with the representation from science, studies and business institutions and entities as well as authorities (the Ministry of Education and Science and (or) the Ministry of Economy.

20 It has been foreseen for the science-business interaction to be coordinated by the public enterprise Saulėtekio Slėnis. The interaction between science and business will be achieved through the following measures:

20.1. looking into the scientific potential and business needs consistent with the Valley priorities; arranging for practical interaction between science and business;

20.2. creating favourable climate for spin-offs, arranging for experimental production, as well as incubation;

20.3. arranging for knowledge and technology exchange, providing tailor-made services.

X. INDIVIDUAL PROJECT MANAGEMENT

21. Each large investment project in the Valley shall have a project management team and (or) project administration to run the project.

22. For the purpose of Valley projects, joint activity and partnership agreements shall be made providing for specific functions of applicants and their partners (where applicants have partners) in terms of project activities, tasks and benefit from the outcome.

23. Individual Programme implementation projects shall be monitored by the public institutions the Central Project Management Agency and the Business Support Agency, the Support Foundation European Social Fund Agency, the Ministry of Education and Science and the Ministry of Economy in pursuance with the indicators specified in the Description.

24. Construction and renovation project applicants shall be legal entities managing the state land of the territory of the Valley under the right of use. However, applications can also be made by legal entities, who manage buildings to be reconstructed, under the right of trust or ownership.

25. The development of the infrastructure of the National Centre of Physics and Technology and procurement of the necessary equipment shall be coordinated by a project preparation and management team set up by the order of the Minister of Education and Science, including two representatives from the universities (Vilnius University and the Vilnius Gediminas Technical University), two from the Association the Institutes of Physical and Technological Sciences (subsequently renamed as state research institute Centre for Physical and Technological Sciences) and one from the Ministry of Education and Science. .

26. The applicant for the infrastructure project of the National Centre of Excellence for Physical and Technological Sciences shall be Vilnius University, and its partners shall be the Vilnius Gediminas Technical University and the Association of the Institutes of Physical and Technological Sciences which will serve as a basis for the future state research institute Centre for Physical and Technological Sciences.

26.1. Once the National Centre for Physical and Technological Sciences is built, some of the premises occupied by the Centre for Physical and Technological Sciences will be transferred to it to be run under the right of trust or use.

26.2. The applicant for the second STP building project shall be public enterprise Saulėtekio Slėnis.

XI. PROGRAMME SUPERVISION AND MONITORING GROUPS AND OPERATORS

27. The order of the Minister of Education and Science and the Minister of Economy shall set up a Valley council to coordinate the implementation of the Programme (Picture 5):

27.1. analyse the implementation of the Programme, prepare reports for the Ministry of Education and Science and the Ministry of Economy;

27.2. assess progress achieved during the implementation of the Programme;

27.3. in case of need, consider the necessity for modifications in the Programme, submit proposals to the Ministry of Education and Science and the Ministry of Economy.

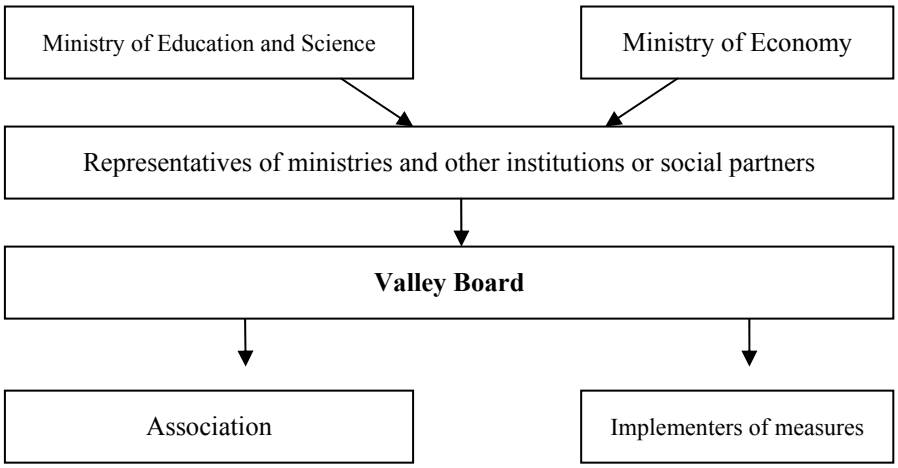

Table 5. **Programme implementation chart**

XII. PLAN FOR THE COMMUNICATION (PUBLICITY) OF THE PROGRAMME

28. Different level responsibility for the publicity regarding the implementation of the Programme and Valley activities shall lie with the Association of the Valley, the Ministry of Education and Science, the Ministry of Economy (national level of the presentation of Valley activities) and implementers of individual Programme implementation measures (projects) (communications to the public on Valley activities, a webpage, information publications,

press releases, video information, presentations at conferences, etc.). The projected main publicity measures shall involve the following:

28.1. preparation of publicity material;

28.2. information publication on the Internet;

28.3. TV communication and publicity;

28.4. radio communication and publicity;

28.5. press communication and publicity;

28.6. production and dissemination of publications;

28.7. conferences;

28.8. events.

XIII. PROGRAMME RISK MANAGEMENT PLAN

29. Implementers of Programme measures and the Association of the Valley shall make a detailed risk assessment of individual projects for the period of one year from the launch of the Programme.

Table 7. Evaluation of Programme implementation-related risks

No	Type of risk	Risk description	Risk reduction instruments
1.	Investment and its financing risk		
1.1.	Increase in investment value	In the process of project implementation, investment value may exceed the estimates.	Survey of potential suppliers and contractors; analysis of their bids.
1.2.	Overestimated financial benefit of the project	Financial benefit of the investment may turn out to be lower than planned in the project assumptions and deliverables	Analysis of similar experience projects, detailed economic-financial project justification
2.	Economic risk:		
2.1.	Inaccuracy of economic assumptions and outcomes	Inaccurate assumptions used for the evaluation of the benefit of the project, resulting in outcome distortion	Justification of the chosen method, evaluation of the quality of the justification of assumptions, preparation of the analysis of options for different economic assumptions.
3.	Technical and technological risk		
3.1.	Investment quality	Possible supply of low quality equipment	Choice of reliable suppliers, warranty requirements in supply

No	Type of risk	Risk description	Risk reduction instruments
			contracts, contract and equipment insurance.
3.2.	Delay	Planned project activities may be in delay for different reasons	Contractual sanctions, realistic and justified work plan (with reserve for unanticipated cases)
4.	Other risks: organizational	Change in the management, responsible for the implementation of the Programme, illness of a team member.	Task distribution across the project implementation team to ensure substitutability in case of need.

XIV. PLAN FOR THE USE OF PROGRAMME FUNDS

30. Implementers of individual programme implementation projects provide individual project requirements to the Programme coordinators.

Table 8. Plan for the use of Programme funds

Measures	Preliminary need for funds, LTL thousands				
	2009	2010	2011	2012	2013
1.1. Construction of the National Centre of Physical and Technological Sciences	49 000	90 000	27 000		
1.2. Procurement of open access science and technology equipment for the National Centre of Physical and Technological Sciences	15 300	20 400	59 500	6 300	
1.3. Construction of a superstructure on the second and third floors of the Vilnius University Laser Research Centre	3 000	1 000			
1.4. Equipment procurement for the Multifunctional Ultra-short Laser Complex Naglis with Open National and International Access	2 000	5 000	1 700		
1.5. Open access science and technological equipment procurement for Civil Engineering Centre of the Vilnius Gediminas Technical University	9 000	8 000	4 000		
1.6. Transfer of the Faculty of Chemistry of Vilnius University, the Faculty of Electronics, the Faculty of Mechanics and the Faculty of Transport Engineering of the Vilnius Gediminas Technical University		1 500	94 500	110 000	44 000
1.8. Coordination of the implementation of the Programme	759	900	731	610	
2.1. Phase 2 STP development	8 700	35 500	28 000	10 000	
2.2. Development of entrepreneurship and innovation driven services	1 000	1 500	1 694	806	