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**FINAL SUMMARY OF EVALUATION REPORT ON
EVALUATION SERVICES OF LITHUANIAN SCIENCE AND
BUSINESS COLLABORATION EFFECTIVENESS AND
COORDINATION OF FUNDING POSSIBILITIES**



20 December 2011

Drawn up by the Public Policy and Management Institute and the Association 'Knowledge Economy Forum' commissioned by Ministry of Economy of the Republic of Lithuania under Purchase contract No 8-176 of Evaluation Services of Lithuanian Science and Business Collaboration Effectiveness and Coordination of Funding Possibilities of 6 May 2011

'Integrity level of the national economy shows that we are on intermediate level in the European Union, and we need to collaborate more closely and be stronger involved in the global value-creating processes. (...) Smart economy must enable to reveal to the maximum extent the most important resource of Lithuania - creative, innovative, responsible and enterprising people.'

Lithuanian Progress Strategy – Lithuania 2030

INTRODUCTION

Mr. José Manuel Barroso, the President of the European Commission, noted in his presentation of February 2011¹ that despite long-standing investments in research the European Union (hereinafter – EU) is still 'doing better in translating Euro to the knowledge than vice versa' due to low availability of financial resources for start-up innovative companies, lack of legal and tax environment incentives, the regulation and procedures for commercialization of knowledge that do not satisfy modern-day needs, and weaknesses in interaction between science, education and business sectors. Therefore, the Innovation Union, one of the key incentives for Europe 2020 Strategy of the EU, calls on to mobilize resources and search new ways for promoting innovation and commercialization in all areas and especially in addressing the grand challenges of our time, such as climate change, vanishing energy sources, ageing society, and diseases. Definitely, research and innovation will remain among one of the key investment priorities of the EU Member States for a new period of implementation of the EU structural support in 2014-2020.

Until 2030 Lithuania intend to focus on developing smart economy which will be flexible, able to compete in the world, creating high value-added, and based on the knowledge, integrity, entrepreneurship and social responsibility². Innovative and knowledge-based business and creative society is the foundation of this economy. In 2010-2011 more than ever high priority was given to research, technological development and innovation - Lithuanian innovation strategy for the year 2010-2020 was approved, which released guidelines for a new innovation policy in Lithuania and put particular emphasis on improved implementation of the 'knowledge triangle' in practice; the Agency for Science, Innovation and Technology (lt. *Mokslo, technologijų ir inovacijų agentūra*; hereinafter - MITA) was established. Under responsibilities of the Ministry of Economy of the Republic of Lithuania (MoE) and Ministry of Education and Science of the Republic of Lithuania (MoES) a wide variety R&D and innovation toolkit has been implemented since 2008, for which up to LTL 2.8 bn of the EU Structural funds and the state budget funds is budgeted by 2015. Less than half of these funds, i.e. about LTL 1.1 bn, are allocated for measures of the MoE. The current period of preparation for programming the measures of the new period of 2014-2020 is very important to evaluate implementation of the R&D and innovation measures, in order to maximize the use of funds in the future.

Scope of Evaluation

The object of this evaluation is a system of the innovation and research and development support measures being in competence of the Ministry of Economy and financed by the EU Structural Funds and state budget funds, which is intended for promotion of public and private sectors and their collaboration in R&D and innovation, and efficiency of the creation and(or) development, and use of the necessary infrastructure, coordination with other funding sources, effectiveness, as well as an impact on implementation of the national innovation policy. Measures and programmes under evaluation: Idea LT, Intellect LT, Intellect LT+, Inocluster LT, Inocluster LT+, Inogeb LT-1, Inogeb LT-2, Inogeb LT-3, PRO-LT³, Innovation vouchers, High-Tech Development Programme (2007-2010), Industrial Biotechnology

¹ Presentation of J.M.Barroso, February 2011. Internet site: < http://ec.europa.eu/europe2020/pdf/innovation_en.pdf >

² Lithuanian Progress Strategy – Lithuania 2030 (project). Internet site: < <http://www.lietuva2030.lt> >

³ It has been agreed during the introductory period that measures Inogeb LT-3 and PRO-LT will not be evaluated in detail, because there are no projects under implementation at the beginning of the evaluation period.

Development Programme (2007-2010), EUREKA and EUROSTARS programmes, as well as Assistant-3, in case of which only one project has been evaluated. Evaluation period is 2008-2011.

In addition, the evaluation object includes an *institutional* system of R&D and innovation funding and promotion, first of all, the institutions involved in R&D business and innovation policy implementation, such as: Lithuanian Business Support Agency (LBSA), Lithuanian Innovation Centre (LIC), MITA. In order to present an overall picture of the institutional framework of the R&D and innovation policy implementation, and activities of other institutions (Research Council of Lithuania (RCL), Central Project Management Agency (CPMA), Research and Higher Education Monitoring and Analysis Centre (lt. *Mokslo ir studijų stebėsenos ir analizės centras* - MOSTA), European Social Fund Agency (ESFA), public organisations 'Invest Lithuania' and 'Enterprise Lithuania') was analysed insofar as it relates to promotion of collaboration in the R&D and innovation areas as well as to innovation policy implementation.

Evaluation Objectives

The evaluation objective of the Lithuanian scientific and business collaboration efficiency and coordination of funding possibilities is to examine and evaluate the impact of the EU Structural Funds and state budget funds allocated for promotion of collaboration of public and private sectors in R&D and innovation, and influence on the national innovation policy implementation, cost-efficiency of its application, effectiveness of the coordination with other funding sources, suitability, competence, performance and compliance with business needs of the institutional scheme for R&D and innovation funding and promotion by presenting recommendations for increasing the efficiency of this collaboration as well as for improvement of the scheme for R&D and innovation funding and promotion. In order to achieve the objective established, following main evaluation objectives have been laid down, which have raised about 20 evaluation questions:

1. To examine an extent to which the EU Structural Funds and state budget funds allocated for collaboration in R&D and innovation contribute to the implementation of objectives of the national innovation policy, efficiency of the use of these funds, as well as effectiveness, efficiency and consistency of the coordination with other funding sources;
2. To evaluate efficiency, continuity and viability (sustainability)⁴ of the R&D and innovation support infrastructure, efficiency of the investment into the infrastructure, the potential obstacles for attracting businesses to the Valleys and parks, to present recommendations for their optimal management, organization of the activities, ways of collaboration, roles in the Valleys and relations with other participants of the Valleys, to for new forms of attracting businesses;
3. To evaluate relevance, competence, performance and compliance with business needs of the existing institutional scheme for R&D and innovation funding and promotion, to present recommendations for improvement of the scheme. To present recommendations on possible position of the MITA in the EU structural support administration system, to determine possible links with other institutions that shape and implement the R&D and innovation policy;
4. To evaluate adequacy and relevance under different economic conditions (recession, boom) of the country of the measures for period 2007-2013 financed by the EU Structural Funds and state budget funds and intended to promote R&D and Innovation (hereinafter - Measures), their compliance with business needs, and, considering the conclusions, to present recommendations on possible new measures, and other, more effective funding mechanisms.

Evaluation was conducted by the Public Policy and Management Institute (PPMI) together with the Association 'Knowledge Economy Forum'. PPMI prepared a methodological part of the evaluation and responded to evaluation questions of objectives 1, 3 and 4. Meanwhile, the Association 'Knowledge Economy Forum' evaluated efficiency of the R&D and innovation support infrastructure (Evaluation objective 2).

⁴ With reference to the technical specification the innovation support infrastructure is considered as a set of institutions (MITA, science and/or technology parks (STP), innovation centres, technology transfer centres, etc.) providing services which promote innovative activities, commercialization of research results, technology transfer and etc.

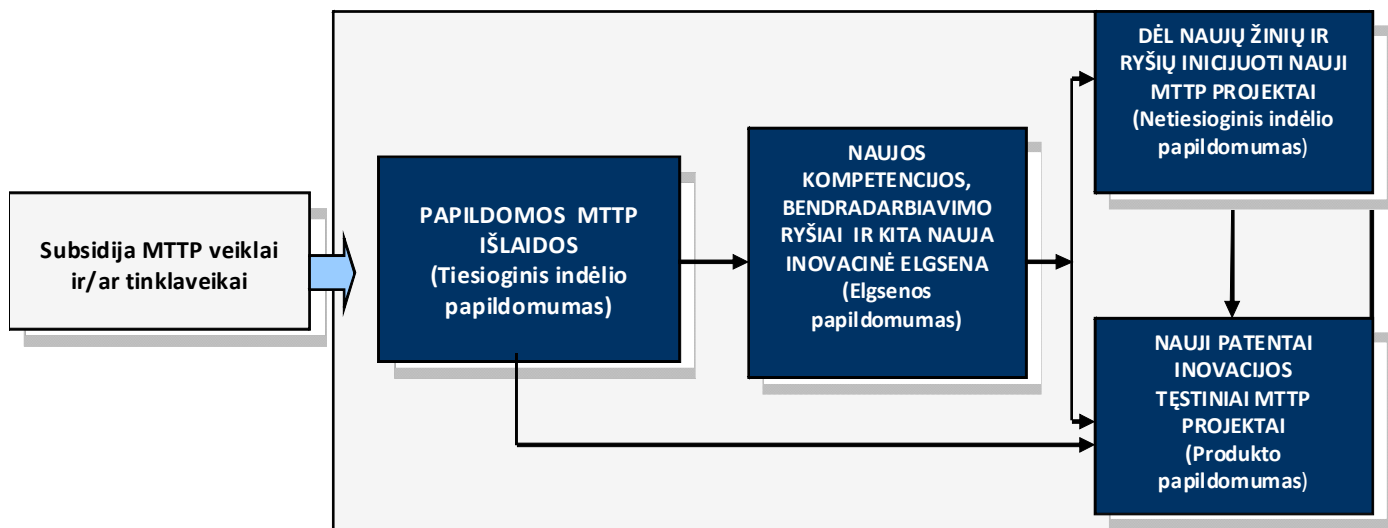
Evaluation Methodology

During the evaluation a technique of different methods or mixed valuation has been applied which comprises the following key qualitative and quantitative methods for data collection and analysis: surveys and analysis of their data (performed surveys of project promoters and innovative Lithuanian companies); in-depth interviews (25 interviews carried out with the Lithuanian and foreign organisations); case studies of the Finnish and Dutch experience; analysis of statistics, indicators and other supervisory information, as well as of the budget heading and financial data; and analysis of secondary sources (legislation and other documents); following methods of data analysis has been applied: logic model and reconstruction of the causal chain of intervention, social network analysis with UCI-Net program, comparative analysis, other methods of evaluation and analysis.

Combination of these methods resulted in higher reliability of the data achieved (triangulation principle implemented): beneficiaries' and interview respondents' subjective opinions revealed during the survey and interview have been compared with results of application of logic models, comparative analysis of foreign experience and other methods of data analysis.

In order to evaluate results of individual types of measures and the impact on collaboration in R&D and innovation, a logic model which is based on the principle of the input, output and behavioural additionality has been used (see Picture 1). The additionality principle implies that the state subsidy is reasonable if its granting makes a company to incur additional costs for R&D and/or influences a new collaborative behaviour which would not occurred at all or would occurred to a substantially lesser extent without the subsidy. Thus, the evaluation of programmes which fund R&D activities shall disclose whether subsidy schemes have influence on changes of new activities (costs for R&D activities, behaviour, collaborative relationships, etc.) and whether activities that would be occurred without the state intervention have not been funded (*deadweight effect*).

Picture 1. Logic model of innovation policy input, output and behavioural additionality



Source: according to (1) Davide Antonioli, Alberto Marzucchi (2010). The behavioral additionality dimension in innovation policies: a review; (2) Einar Lier Madsen, Tommy H. Clausen, Elisabet Ljunggren (2008). Input, output and behavioral additionality: concepts and relationships.

A logical base for the intervention of measures intended to promote R&D and innovation is ambiguous, it covers several aims. Firstly, it is an aim to reduce the price of the research conducted in companies and promote new private investment in R&D and new R&D projects (*input additionality*), and, respectively, to have influence on creation or improvement of new products and services (*output additionality*). The second, equally important aim is to change the normal behaviour of companies and increase significance of the innovation in their strategy, new long-term relationships with academic and business partners, networking and cluster development, in other words, to create behavioural additionality.

MAIN CONCLUSIONS OF EVALUATION

This section summarizes evaluation results of interventions in competence of the Ministry of Economy of the Republic of Lithuania financed by EU Structural Funds and state budget funds in period 2008-2011 and intended for promotion of collaboration of public and private sectors in R&D and innovation, as well as of the institutional scheme for R&D and innovation funding and promotion. The evaluation has been conducted according to the criteria of suitability, effectiveness, efficiency, compatibility, value-added (additionality). Conclusions have been formulated in response to the evaluation questions defined in technical requirements of the contract. They are structured by four evaluation objectives.

Evaluation objective 1

Conclusions of the first objective evaluation are summarised in response to the following questions:

How do the Measures contribute to implementation of the Lithuanian R&D and innovation policy, and how do their tasks comply with trends of the EU innovation policy change? What is the influence of the Measures and results of their implementation?

Objectives of the Lithuanian innovation policy comply with trends of the EU innovation policy change, but some objectives are less externalised in Lithuania or critical mass of resources is not allocated for their implementation.

Lithuanian Innovation Strategy (LIS) was approved when existing package of measures had been under implementation already establishes some changes that reflect priorities of the innovation policy in the European Union: more emphasis was put on internationalisation of the R&D and innovation activities, the concept of innovation (non-technological, social, public innovation and innovation oriented towards demand and consumers' needs) was broadened, and entrepreneurship was provided with the key priority. However, the R&D and innovation measures currently under implementation in Lithuania are still *closed* in general for companies, institutions of the research and higher education, researchers from other countries. It is necessary to promote more intensively integration of Lithuanian companies into international innovation networks, and to 'open' public programmes for foreign researchers and other professionals in order to attract them to work in Lithuania, to promote joint programmes of studies and research with institutions of other countries (provided that benefits will remain in Lithuania). LIS does not distinguish measures that stimulate demand for innovation (through public procurement, standards, tax relief for consumers and others), although the key factor limiting innovation is a market size of the small country. Currently, the policy measures under implementation also have relatively small contribution to the *promotion of entrepreneurship*, although the first initiatives have implemented already (technology incubators, business angels fund, as well as non-financial measures – e.g., status of the small partnership, etc.). Meanwhile, special attention is given to EU fast-growing young companies of the frontier technology areas⁵ (called yollies, gazelles).

A whole set of the Measures implemented under responsibilities of the MoE and MoES and each separate measure contribute directly to the EU and Lithuanian innovation policy tasks and objectives. Tasks of more than half of the analysed Measures for R&D and innovation promotion under responsibilities of the MoE and MoES identify the promotion of collaboration in R&D and innovation. However, by the actual activities funded, **the vast majority of the total Measures' funds (approximately about 60 percent, or about LTL 1.66 bn) is allocated for improvement of the public sector's knowledge base.** About 26 percent of measures' funds is allocated for creation of incentives for innovation in companies; the remaining funds (approximately, about 14 percent, or about LTL 396 m) is allocated directly for promotion of the scientific and business collaboration. Measures' funds under responsibilities of the Ministry of Economy of the Republic of Lithuania (about LTL 1.11 bn) are allocated to create incentives for innovation in companies (64.5 percent of all the Measures' funds), while the remaining 35.5 percent (about LTL 396 m) directly

⁵ Frontier technology areas are considered to be those areas where technologies are developed, and it is likely that these areas will be the basis for other technologies and develop rapidly, but, currently, the development is still gaining momentum. Such technologies, for example, are considered to be nanotechnologies, and biotechnologies.

support activities promoting the scientific and business collaboration. With reference to the experience of foreign countries and taking into account the fact that the public sector knowledge base (especially the 'hard' infrastructure) will be mostly created before 2015, during the new programming period the funding ratio should change in the opposite direction by increasing investment in the R&D and innovation activities. Significantly higher share of the funds should be allocated for joint R&D projects, commercialization of the research, international networking, and promotion of the demand for innovation.

Interventions of the Ministry of Economy of the Republic of Lithuania in promotion of R&D and innovation will have a substantial positive influence on implementation of the R&D and innovation policy. The biggest influence of the Measures in promoting the input and output additionality is possible in attraction of the new private investment in R&D and innovation projects, creation and improvement of the new products and services. Influence on the input additionality was reinforced by the implementation of the Measures during the economic recession – it is likely that due to the reduced financial capacity of the companies many projects would not be really implemented without the support. The conclusion is supported by a small crowding-out effect of the private investment in implemented projects – only 4% of the project promoters (in EUREKA and innovative vouchers – about 9%) indicated that even without the support they would have actually implemented projects to the same extent and without substantial delay.

Table 1. Achievement forecasts for objectives of the Measures (till 2015)

Measure	Allocation and absorption of funds	Quantitative results	Qualitative results	Summary: possibility for achieving the objectives
Idea LT	Good	Very good	Good	<i>Objectives are likely to be achieved</i>
Intellect LT	Very good	Very good	Very good	<i>Objectives will actually be achieved</i>
Intellect LT+	Good – satisfactory	Very good	Good	<i>Objectives are likely to be achieved</i>
High Technology Development Programme	Very good	n/a	Good	<i>Objectives are achieved</i>
Industrial Biotechnology Development Programme	Very good	n/a	Good	<i>Objectives are achieved</i>
Innovative vouchers	Very good	n/a	Good	<i>Objectives will actually be achieved</i>
EUREKA	Good ***	n/a	Good	<i>Objectives are likely to be achieved</i>
EUROSTARS	Very good	n/a	Insufficient data	<i>Insufficient data</i>
Inocluster LT	Satisfactory	n/a	Good **	<i>Satisfactory – good**</i>
Inocluster LT+	Satisfactory	n/a	Good **	<i>Satisfactory**</i>
Assistant-3 (project 1)	Very good	Satisfactory	Satisfactory	<i>Objectives are likely to be achieved</i>
Inogeb LT-1	Very good	Very good *	Good (2)	<i>Objectives will actually be achieved</i>
Inogeb LT-2	Very good	n/a	n/a	<i>Insufficient data</i>
PRO-LT****	Very good	n/a	n/a	<i>Insufficient data</i>

* Considering only achievement of those quantitative objectives which could be possible to extrapolate with reference to the available data.

** - The achievement of results being set for the Measure will largely depend on whether all the funds allocated for the Measure will be used.

*** - Evaluation was conducted according to the funding absorption of appropriate projects of the Measure 'Intellect LT'.

**** - Only allocation, but not absorption of the Measure's funds was evaluated.

With reference to the evaluation results, most of the Measures will achieve quantitative and qualitative objectives being set for them. Quantitative objectives of the Measures financed by the EU Structural Funds will be exceeded in many cases. Relatively cautious planning can be considered as a reason of greater achievements. During the evaluation doubts have been raised over achievement of qualitative objectives of measures Inocluster LT and Inocluster LT+. On the one hand, achievement of the measures' objectives will depend on whether all the budgeted funds will be absorbed. During the evaluation new calls for tender regarding submission of applications have been stopped, a number of the submitted applications was large, but decisions on allocation of the funds have not been

adopted. On the other hand, in the current period, achievement of the qualitative objectives related to promotion of scientific and business interactions in Inocluster LT, InoclusterLT+ and other measures promoting scientific and business interactions is reduced by systematic barriers of business collaboration with research and higher education institutions.

By summing up extrapolation of the achievement of quantitative objectives only in four measures (Idea LT, Intellect LT, Intellect LT+ and Inogeb LT-1), in projects of which results achieved have been during the evaluation, it is expected that by 2015 the following results can be achieved: 619 prototypes of new products, services or processes created; 27 patent applications submitted; 53 new technology companies established; about 1400-2150 companies in total will use innovation support services provided by the projects of the measures. New indicators of the input, output and behavioural additionality will be created as a result of these provided services. During the implementation of funded projects in above-mentioned four measures, about 4,000 temporary jobs will be created/saved by 2015, and about 700-1800 new long-term jobs for researchers and support staff can be created within three years after implementation of the project. However, the forecasts should be used with caution. On the one hand, it is clear that indicators of Action programmes have been formulated with too little ambition. On the other hand, extrapolation of the achieved indicators has been made on the basis of already implemented projects' data presented by the project promoters. Impact assessment should assess how much influence had state support on the achievement of these indicators. It is assumed that in the projects under implementation it will remain so far the same trends as those in already implemented projects, on data of which forecasts were based.

The majority of the state support in the Measures evaluated by the MoE by the middle of 2011 is intended for promotion of 'breakthrough' directions of the national economy. If current trends persist, it is likely that the Measures will have the greatest influence on development of the information and communications technology, biotechnology, future energy, as well as electrical and optical equipment sectors. With reference to the analysis of the distribution of funds, approximately even 76% of the funds⁶ allocated for projects implemented in period 2008 – 2011 have been used to support projects attributable to the 'breakthrough' directions. Breakthrough directions that have received the largest share of support can be accentuated as follows:

- information and communication technology (LTL 117.6 m or 23.8% of funds allocated);
- biotechnology (LTL 79.8 m or 16.2% of funds allocated);
- future energy (LTL 44.2 m or 8.9% of funds allocated);
- electrical and optical equipment (LTL 38.9 m or 7.9% of funds allocated).

The support allocated for other areas ranged from 4.3% (welfare and good health areas) and 0.8% (textile production) of the total funds.

All the measures evaluated will affect promotion of the collaboration in R&D and innovation, but the impact of the Measures is uneven, and a short - medium term impact is reduced by various systematic barriers of the scientific and business collaboration. Therefore, influence of the Measures on promotion of the scientific and business collaboration is evaluated as being average. According to the data of the project promoters' survey, interviews and case studies, collaboration of R&D and innovation is mostly promoted by Inocluster LT and Inocluster LT+ (the biggest influence in promoting the collaboration between the companies in the chain of value-added creation), the High Technology Development Programme (survey respondents have given 5.75 points out of possible 7 for the influence on promotion of the scientific and business collaboration), Inogeb LT-1 (5.67), EUREKA (5.36), EUROSTAR (5.5), Industrial Biotechnology Development Programme (5.33). Measure Intellect LT+ contributed to the promotion of the scientific and business collaboration at least. Project promoters have given only 3.75 points out of possible 7, which means that the measure very slightly promotes the scientific and business collaboration. It is important to note that not all measures analysed are directly intended to promote the scientific and business collaboration, so a substantial breakthrough in promoting new relationships of the scientific and business collaboration should not be expected from them. For example, measures Intellect LT, Intellect LT+ and Idea LT are intended firstly for promotion of the R&D and innovation activities in businesses. According to statistics, investment in the R&D and innovation activities by private companies in Lithuania is among the lowest ones in the EU. Therefore, the main objective of above-mentioned measures is and should remain promotion of R&D activities in companies, not necessarily in conjunction with the scientific and business collaboration.

⁶ By the end of May 2011, when data on support allocated for projects were presented by the RCL, MITA and LBSA to the PPMI.

Evaluation objective 2

Conclusions of the second objective evaluation are summarized in response to the following questions:

What is efficiency and effectiveness of the R&D and innovation support infrastructure? How to improve management of this infrastructure, how to increase relevance to business?

The joint evaluation of the R&D and innovation, use of infrastructure developed and expanded, and achievement of objectives of the R&D and innovation policy shows that the objectives will be achieved partially. Differences in the responses presented by the business and presented by experts show three problems that affect such evaluation: a) lack of communication about possibilities and usefulness of the innovation support infrastructure; b) lack of supply of services creating high value-added; c) quality of some services provided. Communication about services is too common; companies do not associate it with the value for their business.

In many cases experts have evaluated the supply of similar services as being average. This means that the existing level of above-mentioned services is proper and should be remained, with a focus on clearer and more customized value propositions for business. The lack of supply of services creating high value-added (marketing services, knowledge and technology transfer, technology and innovative audits, financing of innovative project activities) is caused by two reasons: a) this area needs customized solutions, highly skilled service providers, and work carried out for longer term in consulting specific businesses, i.e. maturity of service providers, and instruments of the state financial support; b) maturity of businesses, absorption capacity, and understanding of what such services can bring. In order to create this type of services and demand for their use, a long-term trust-based relationship between businesses and providers of innovation support services should appear, there should be a previous experience of more simple services provided; a competence of both providers and recipients of services should be gradually developed. According to the general opinion of experts and business, there is demand for innovation support services in the business sector. Experts pointed out that most lacking services are mentoring and tutoring services for 'young' businesses, complex mentorship customised according to specific business needs.

Quality of services remains a serious problem, especially in providing the following services: promoting networking, knowledge and technology transfer, technological and innovative audits, support for collaboration (business-research), promotion of the partnership and clusterisation. According to the experts, the innovation support services are of unsatisfactory quality, overlap each other, are excessive and inflexible, there is no focus on the targeted beneficiary, business continuity is lacking. The authors believe that the lack of quality of services is determined by two reasons: a) shortage in the competence and experience; b) a system for efficiency and effectiveness measurement (reporting is on quantity rather than quality or result).

The proposed methods of efficiency improvement of R&D, valleys, incubators and other institutions providing innovation support services:

- To establish a long-term programme for entities of the infrastructure developed and expanded by the R&D and innovation, where objectives and achievable tasks, estimated state investment, effectiveness measurement principles should be laid down;
- To improve qualification skills and competencies of employees of institutions providing innovation support services in the relevant areas (e.g., knowledge and technology transfer, technological and innovation audit);
- To customise services to individual business needs, rather than focus on separate and discrete services;
- Providers of innovation support services shall have formal rights to influence the policy and legal regulation of the areas for which they are responsible;
- R&D and valley activities shall be integrated with studies;
- The business that uses services of the R&D, valleys, incubators and other institutions providing innovation support services shall have clear possibilities to influence the management and operational directions of these institutions;
- To coordinate between each other activities of institutions providing innovation support services.

Although satisfactory conditions are created for business involvement in activities of science and/or technology parks and valleys, but there are obstacles, too: the majority of businesses lacks information about activities of the R&D and valleys and benefits provided for business; services provided by the R&D and valleys do not meet the needs of business; the R&D and valleys are not motivated to attract business sectors; the valleys are oriented only to the interests of science. Possible ways to improve processes of business involvement in R&D and valleys:

- To present more information about possibilities of business involvement, the activities conducted, results, business plans, 'success stories';
- To increase interest of the R&D and valleys in attracting business and in achieving results of joint R&D projects;
- To provide clear, competitive and targeted services that meet identified business needs;
- To create real possibilities for business to participate in activities of the R&D and valleys by including business in joint projects and project monitoring processes;
- Activities of the R&D and valleys should be focused on clear results by reporting for them to the society;
- To increase R&D funding through the business, rather than directly through the R&D and valleys;
- To allocate a large part of the budget of the research and higher institutions in the valleys intended for science funding for financing of the applied science by involving the business into projects.

At present, the role of science and/or technology parks in the valleys is not significant, because the valleys are still in the establishment phase. However, in the future parks could provide services that fill the valley infrastructure: to become an attractive location for business establishment; to initiate and promote the joint business-scientific projects; to promote development and exports of innovative products; to provide services of the incubator and accelerator; to become a basis and facilitator for valley clusterisation; to conduct initial tests, testing of innovative technologies and products developed by researches of the valleys, to make recommendations for improving and extending the installation in practice. Generally, it can be stated that the role of science and/or technology parks in the valleys is to represent business interests, to promote innovative activities and clusterisation, and to become a mediator between business and science. Science and/or technology parks in the valleys should be as: valley operators; providers of innovation support services; 'catalysts' of clusters; equal partners in the valleys, responsible for the occupation of innovative companies in the valleys, promotion of the science-business dialogue, provision of innovation support services; coordinator of joint projects in the valleys; representative of the business needs (translator) in the valleys and 'facilitator' of the science-business communication.

According to the authors, all the above-mentioned problems associated with the development of valleys and science and technology parks are for the following reasons: the definition of the valleys' purpose; the confusion between the concepts and attribution of new 'Lithuanian' senses to certain phenomena that have steadied over the world, the shortage in systematic manner, which occurs partly due to uneven possibilities of science and business in the formation of valleys' activities. In Lithuania perception of valleys as a construct and perception of their purpose (tasks, objectives, functions) has evolved and became research infrastructure development projects using the way of public procurements and with financing of structural funds. The initial idea that the valleys should be centres of the business and science collaboration has passed three levels of bureaucracy (university internal bureaucracy in shaping the vision of valleys, the Structural Funds administration bureaucracy in allocating the funding for valleys and approving projects, public procurement bureaucracy in the implementation of specific activities) and is distorted, amended with unnecessary procedures, administrative mechanisms, a fight for spheres of influence is at each level, so the initial purpose is 'forgot' in the end user (business) benefit phase. Neither structures belonging to the valleys and actively providing innovation support services (science and/or technology parks, incubators, innovation centres), nor units representing business interests (associations, clusters, group of strong companies) do not affect the decisions on the valleys, thus, their motivation to participate in valley activities is weak. Therefore, before improvement of the valley activities, during the integration of the organizations providing innovation support services to the common ecosystem of the valley, it is necessary to solve two key issues: to review and clearly identify the purpose of the valleys by eliminating general declarations typical to usual academic activities and by emphasising more clearly the dimension of applied science and usefulness to the business; to include business-related organisations and organisations already providing innovation support services in the management (rather than in the *ex-post* monitoring) of valleys.

Evaluation objective 3

Evaluation conclusions with regard to the 3rd objective shall be summarised by way of answering the following questions:

What is the suitability and efficiency of institutional framework of R&D and innovation policy implementation? How we could possibly enhance this framework?

The current institutional framework of R&D and innovation policy implementation consisting of LBSA, MITA (Agency for Science, Innovation and Technology) and (in part) CPMA, ESFA, RCL (Research Council of Lithuania), MOSTA and other institutions involved in policy implementation has several significant drawbacks. First of all, institutional funding scheme can be characterised by its extensively sporadic nature. This, in fact, is not optimal due to several reasons. First, economies of scale are not used to the full, which leads to the increase of the costs of funding administration. Second, limited expertise is not used optimally either. Even though the objectives and target groups of funding provided by LBSA, CPMA, RCL, MITA and ESFA are (though not always) different, the implementation of these functions still requires very similar expert skills. For instance, for the purposes of implementing most of the functions (i.e. evaluation of innovation projects by LBSA, evaluation of fundamental research projects by RCL, selection of the best applied R&D projects or deciding on particular international science projects which ought to receive financial support by MITA) scientists and experts capable of carrying out an evaluation of research quality are needed. Due to the size of Lithuanian academic society, such type of expertise is very limited and in this particular case they are even more scattered among different institutions. Besides, in all cases the training of institutional staff and strengthening of their administrative (procedural) knowledge is necessary, which also adds to the state expenditure for the strengthening of administrative capacities.

Second, even though the institutional framework of innovation policy implementation has been extensively developed, the implementing authorities are not adequately prepared to provide all services assigned to them in an efficient and appropriate manner nor carry out their functions as required. MITA is not prepared to ensure high quality performance of all the functions that have been newly assigned to it, e.g. provision of expertise and consultative services to companies in the sphere of technology transfer or innovation management as well as pursue monitoring and evaluation of innovation policy processes. Meanwhile, the latter function ought to be highlighted here as it acts a bottleneck within the cycle of innovation policy, that is, the indicators of both innovation activities and outcomes of innovation policy are not accumulated and analysed by one particular institution. In addition, the lack of expert/consultative institution is still an important problem in the sphere of innovation policy. Project promoters have been criticising the activities of LBSA in the field of R&D and innovation policy implementation because of excessively formalistic approach and lack of flexibility, repeated incapability to thoroughly explore the subject matter of innovation projects, as well as lack of expert knowledge.

These problems demonstrate the need to merge the organisations in charge of funding allocation: this would facilitate a more efficient use of limited expert skills, to centralise the accumulation of competence required for selection and evaluation of projects and provision of any other services in one particular institution and to decrease administrative costs of funding. With a view to the current institutional framework, dissatisfaction with LBSA activities on the side of project promoters as well as challenges faced by LBSA while trying to gain access to LMT and MITA expert database, the issue of MITA inclusion into the administration system of EU structural funds as a future key institution implementing innovation policy and expansion of its functions ought to be taken into consideration. At the present moment Lithuanian R&D and innovation policy is being largely implemented through EU structural support measures. In accordance with the legal enactments of the Republic of Lithuania, the right to administer support measures operating on the basis of EU structural funds may be given to implementing institutions or managers of global grant(s). The preparatory works for becoming both a global grant manager and the implementing institution is a considerably lengthy procedure which lasts from 9 until 36 months. Such an institution must have a duly approved statute, list of subunits responsible for the implementation of EU structural support administration functions assigned to them, approved regulations governing the activities of these subunits, descriptions of incumbencies and a detailed guidebook of internal procedure of EU structural support administration (draft listings of internal regulations). Any legal entity striving to become an EU support administrator must recruit a team of specialists with excellent knowledge of legal instruments governing EU structural support administration and experience in the field of EU project administration.

Nevertheless, desired increase in efficiency could only be achieved if the following major preconditions are met: a) high competence of MITA in the spheres of R&D and innovation and administration of EU structural support

instruments is achieved in the period 2012-2014; b) smooth and efficient change management process concerning the transfer of administration of EU instruments to MITA is ensured. In order to make use of MITA competence knowledge and external skills, it is suggested that in the future the Ministry of Economy (MoE) and MITA would use the funds for purchase of services related to 'technical assistance'. As demonstrated by the experience of the Ministry of Finance, such services create greater added value due to a number of reasons: less effort is needed in flexibly responding to constantly changing needs of analysis and evaluation; greater possibilities to recruit diverse experts with specific skills for provision of short-term assistance; increase in intensity between the 'promoter' and 'customer' facilitating accelerated mutual learning processes. For the purposes of reducing the risk of a number of mistakes and infringements in the field of EU support fund administration which might be made by MITA in the initial stage, the implementation of the following risk management measures is also suggested:

- First, from now on MITA staff should start taking part in the processes of project selection, evaluation and other procedures conducted by LBSA, CPMA or any other implementing institutions (in the form of one or several week long traineeships) so as to observe the implementation of relevant procedures in practice. Practical experience shows that in such cases theoretical training is not as effective as training in the actual workplace.
- Second, during the initial stage the staff of LBSA, CPMA and other implementing institutions could assist MITA in carrying out secondary screening procedures (for instance, check the filled in documents, project selection documentation, evaluation documentation and provide feedback). Another option: staff of LBSA, CPMA or other implementing institutions might be seconded to MITA for traineeship purposes and thus participate in the procedures of project documentation preparation, selection and evaluation by way of providing the required guidance or any other support (together with technical assistance experts).

One of the major preconditions of MITA efficiency and its role as a centre of institutional competencies is its capacity to attract and maintain competent staff. MITA possibilities to create competitive working conditions for its staff are also dependent on the legal status of the institution as a whole. Therefore, one ought to dwell on the suggestion to change MITA status from a budgetary institution into a public institution/company, which could possibly allow this organisation to create more attractive working conditions (including, inter alia, salary etc.) and to ensure more flexible recruitment of staff and experts.

However, despite the fact which of the two optional scenarios is chosen, the implementation of a number of changes meant to strengthen the strategic institutional competence which are not related to MITA role in the framework of administration of EU structural funds is also suggested. By 2013 MITA should become the key actor in the field of R&D (in business sector) and innovation monitoring and analysis providing assistance in policy making to MoE of the Republic of Lithuania - as institution responsible for the formation of innovation policy – and bringing together representatives of the state, science and business sectors and experts for discussions on the formation and implementation of R&D and innovation measures. To this end it is recommended that MITA would employ specialised staff carrying out the functions of innovation policy monitoring and analysis and establish a consultative institution – Innovation Platform whose agenda and materials for future discussions should be prepared by MITA staff entrusted with the task of carrying out the functions of Secretariat to Innovation Platform.

The model of MITA activities ought to ensure proper coordination of functions and exchange of information with other institutions implementing this particular type of policy so as to avoid the overlapping of functions, double financing and inefficient use of state expenditure. Then the autonomy of this institution should be gradually strengthened (by way of e.g. expert and staff recruitment) and its accountability for clearly defined results increased.

Evaluation objective 4

Evaluation conclusions with regard to the 4th objective shall be summarised by way of answering the following questions:

Are current measures still relevant given the changes in economic situation? Are they efficient? What factors lead to the decrease of effectiveness in cooperation between science and business? What measures are necessary to promote R&D and innovations?

The majority of currently applied R&D and innovation policy measures have been planned during the period of time from 2006 to 2007, which was characterised by the largest growth of Lithuanian economy in the last decade. **In accordance with all evaluation data, the conclusion is that the continuous *relevance* of measures assigned to the sphere of responsibility of the MoE of the Republic of Lithuania under evaluation should be regarded as high.** In the past few years the main indicators of R&D and innovations in Lithuanian economy have not improved. To the contrary, they have deteriorated due to economic crisis. Therefore, all the planned measures have not lost their relevance to the demands of target groups. This conclusion is also substantiated by information derived from survey and interviews. Even though the significance attributed to the implementation of objective targeting the promotion of science-business cooperation in public discussions and strategic documents does not fully correspond to the amount of funds directly allocated for this particular activity, the set of measures in principle matches current needs of Lithuanian innovation system and target groups. In order to establish closer inter-relations between innovation system actors, we have to reinforce the actors themselves in the first place, i.e. to create a robust and internationally competitive knowledge base as well as a competitive and technologically renewed business. If there is no demand for joint activities or the quality of services supplied by science to business is inappropriate, any efforts to forcibly amalgamate these actors will be absolutely ineffective. This statement is justified by data on current barriers in science-business cooperation obtained from survey and interviews stating that one of the most important barriers is the fact that none of both parties sees any clear benefit from mutual cooperation; on the other hand, business sector is still not satisfied with the quality of research conducted by public sector.

The *efficiency* of currently implemented measures assigned to the sphere of responsibility of the MoE of the Republic of Lithuania is evaluated as average. Their effectiveness is mostly reduced by various administrative drawbacks and systemic flaws in the field of science-business cooperation. The allocation and take-up of most of the measures is implemented smoothly, with the exception of such measures as Intellect LT+, Inocluster LT and Inocluster LT+ where the take-up of allocated funds was considerably lower at the moment of evaluation. One of the reasons behind low take-up of funding has been the simultaneous organisation of calls for proposals under different measures, which, in the opinion of project promoters and experts, has led to competing measures. Economic hard times make it difficult for companies to participate in several projects at the same time. Therefore, many have postponed their plans to take part in the implementation of measures Inocluster LT and Inocluster LT+. On the other hand, according to recent data on proposals submitted for evaluation, there should be no more difficulties in relation to the take-up of funding.

Even though the interviewed project promoters evaluated all measures under evaluation by giving them a higher than average rate (total average exceeds 5.09 points out of maximum – 7 points), all project promoters dealing with the measures still encounter greater or smaller administrative drawbacks in their project implementation. The majority of complaints conveyed through survey and interviews relate to formalistic approach towards consultation of applicants and promoters, excessive bureaucracy and public procurement in particular which lessens the possibilities to obtain the required research equipment. The reason why the measure Intellect LT+ was given the lowest rate (4.44 out of 7) most likely relates to the fact that in the context of this measure public procurement to acquire an up-to-date research equipment plays a crucial role, and it is in fact public procurement which led to most of the problems and resentment on the side of project promoters. Among the administrative factors lessening possible benefit of the projects (as listed by project promoters) the following ought to be mentioned:

- a) Implementing institution competence flaws and formalistic approach (LBSA, RCL, MITA) and changes in the implementing institution;
- b) Problems regarding project budgeting and activity planning, delay in evaluation, intensity of funding/ maximum amount of allocated funds available;
- c) Drawbacks and complexity of public procurement procedures which has a negative impact on the project efficiency as in most of the cases the acquisition of exceptional and most up-to-date (not the cheapest) research equipment is sought;
- d) Bureaucracy in project administration; complex procedures for submitting proposals and project administration and costs related thereto;
- e) Problems in choosing partners;

- f) Delays in transfer of support funds and other deficiencies. In the listings of funding conditions for measures implemented during 2007-2011 period a number of restrictions has been noticed; these have also led to the reduction of project effectiveness and efficiency. For instance, Idea LT Project promoters could not obtain support for testing activities, whereas the promoters of Inogeb LT-1 measure have been made subject to restrictions with regard to their partners and activities pursued.

The results of evaluation have revealed that, given the current stage of innovation system development, financial measures aimed at promoting co-operation between companies and science and higher education institutions contribute considerably to the lessening of one of the most important co-operation barriers by way of putting in place financial stimuli for co-operation and disseminating information about the benefit and possibilities of co-operation. Project promoters have stated that one of the main reasons behind poor relations between business and science sectors is the lack of free funds for the purchase of external R&D services. According to survey results, both business and science have insufficient information about each other's needs and possibilities, and quite often likely benefits of co-operation are hardly understood, in some cases it is even alleged that business is not interested in any co-operation at all. Thanks to financial measures business and science are given the possibility to gain experience in the field of co-operation and to explore the possibilities of added value derived from partnership in practice – all that at lower costs. For instance, the beneficial effects of networking in cases of business and science networks under analysis have manifested themselves in the following ways:

- Facilitated the possibility to exert influence on higher education processes and curricula;
- Enabled the installation of public facilities and other infrastructure which would have cost too much for networking small and medium enterprises acting in the fields of leading technologies should they have decided to acquire them themselves;
- Assisted in interconnecting the added value chain (ranging from the conduct of research to manufacturers and suppliers), which enables companies to offer a wide range of products and facilitates effective competition between them on an international scale. Significant support for this process has been the funding of network facilitator activities. According to network participants, at the present moment the same extent of joint networking activities could not be maintained without specific activities supporting the network.

Extent of co-operation is still considerably low; however, results of evaluation demonstrate that the implementation of projects promotes continuous partnerships. So it is likely that the measures under implementation would promote long-term relationships as well. The majority (ca. 50.5 per cent) of project promoters implementing projects together with partners have stated that even after the implementation of these projects they will continue to co-operate in the future. One third (ca. 36 per cent) of them have emphasized that co-operation has been followed-up in other projects as well. These data allow presuming that in many cases the cooperation which has been already established would be pursued even after the completion of implementation of projects based on measures under evaluation.

For the present moment the advantages of measures in promoting science-business co-operation are lessened not because of internal flaws of the measures as such but due to systemic barriers obstructing cooperation with science and higher education institutions which are not covered by these measures. Business companies with experience in cooperation with Lithuanian science and higher education institutions who took part in the survey have pointed out only average or even low satisfaction with the contributions to project results made by their partners - science and higher education institutions. The companies were not content with the competence of researchers or expertise of a particular science or higher education institution, they found it difficult to collaborate with such institutions and make their needs clear to them. As many as one third of surveyed companies which used an innovation cheque and reported having implemented their project with partners finally questioned any likely benefits of such cooperation and even doubted whether they should pursue this cooperation. Among the specified reasons the following could be mentioned: inadequately high costs of services, difficulties in explaining particular needs, insufficient list of science and higher education institutions to cooperate with (which led to failure in choosing the right partner) etc. To sum up, the following barriers to cooperation have been highlighted during the evaluation procedure:

- a) excessively academic approach of science and higher education institutions to target problems and limited possibilities to commercialise their output;
- b) deficiencies in respect of competence and material base; insufficient quality of science output; lack of experience in the application of innovations;
- c) disinterest of science and higher education institutions in low-volume works; heavy workload of scientists;

- d) Cumbersome bureaucracy in signing and amending agreements with such institutions; in this context the affiliation of research institutes to universities attracted a number of negative comments as this, as stated, impeded direct communication between business companies and scientists.
- e) Lack of mechanisms enabling streamlined settlement of accounts with scientists for works performed;
- f) Absence of legal framework for commercialisation of technologies developed by public sector (for instance, legal procedures for transferring copyright ownership of science products have not been put in place); evaluation also revealed that researchers have poor knowledge of and sometimes misinterpret the current legal framework);
- g) Other legal obstacles (e.g. transfer of state property, public procurement; science and higher education institutions are prevented from taking part in projects of public-private partnership and contributing thereto).

Currently the additionality between measures that are being applied is considerably high – the measures do not overlap but rather complement each other within the national innovation scheme (at macro level) as well as within the innovation development and commercialisation cycle (micro level). However, if even higher efficiency is sought the common set of these measures is not fully sufficient as it lacks systematicity. First, the implementation of measures for R&D and promotion of innovations in the period of 2008-2011 has *created competition* among measures in which the complex horizontal measures requiring longer preparations (such as Inocluster LT) lost the lead: here the project promoters completed the necessary preparations for participating in their implementation at the latest stage. With a view to the fact that in recent years the majority of innovative countries (the Netherlands and Finland were considered in particular) associate support for R&D and innovations with the development of innovation clusters in the selected priority fields, for the forthcoming period of 2014-2020 it is recommended to provide support for innovation clusters in ‚breakthrough‘ spheres by way of envisaging relevant measures for the development of clusters and their companies in selected fields with priority attributed to cluster companies which are particularly oriented to international markets.

Second, high demand for *technological innovation support services* expressed during the survey of innovative companies has not been secured thus far, current measures are insufficient with poor critical mass (projects relating to innovation services are being implemented sporadically, they are also characterised by the lack of continuity and inappropriate quality of services provided). There are not enough high-quality services of commercialisation, testing, certification or consulting of technologies in the market; insufficient amount of competent specialists capable of consulting companies.

Furthermore, critical mass of direct support for *start-up innovative companies* is insufficient not only in terms of consultations but also concerning easily accessible support for starting up a business or initial capital. Only companies that are already involved in R&D activities and have a long-term experience in this field are best positioned to make use of the current measures; however, there are only a few of such companies in Lithuania. Even though they take-up the lion’s share of R&D and innovation support, their critical mass is not sufficient to achieve the desired ‚breakthrough‘ in innovation sphere. Therefore, one of the most important objectives of Lithuanian innovation policy should be the promotion of *start-ups* and rapidly growing innovative companies, especially in technological ‚breakthrough‘ fields.

Moreover, referring to the implementation of complex ‘science-business’ cooperation projects in the *valleys*, it should be noted here that the proportion between ‘hard’ infrastructure and general R&D activities (the so-called ‚soft‘ projects) is not equal. Support for *general science-business R&D projects* would be particularly crucial in later stages when the required infrastructure is already in place and tensions accompanying its installation administration works in science and higher education institutions have finally subsided.

Finally, the *balance between measures creating supply and demand for innovations* is insufficient. Lithuania is a small and quite conservative country. In fact, one aspect of the reason why innovations are not developed is the absence of demand for such innovations in the local market. The evaluators are of the opinion that Lithuania does not have enough specific measures particularly aimed at the promotion of innovation demand in the fields of technological ‘breakthrough’. The State is the major purchaser in the country; therefore, innovative and pre-commercial public procurement is one of the most important measures which could enable further development of innovation demand. Eventually, the orientation only towards grant measures promoting the innovation demand could encourage the up-rise of ‘grant culture’ where for some companies the state support could turn from the possibility of implementing their own priority projects into the source of income and subsistence. It is recommended that during the period of 2014-2020 grant measures be harmonised with financial engineering measures and instruments belonging to the

innovation demand category (tax exemptions for innovation users, introduction of innovative and pre-commercial public procurement, and favourable procedures of legal regulation and standardisation of innovations).

RECOMMENDATIONS

During the period of 2012-2015 the priority should be given to the strengthening of MITA administrative capacities and preparing high quality contents of R&D and innovation policy for the forthcoming period of 2014-2020. During the period of 2014-2020 the priority should be given to the promotion of innovation clusters, new innovative companies and harmonisation of innovation supply instruments with measures on innovation demand and financial engineering. The most significant evaluation recommendations are summarised below; they have been subdivided into nine separate groups.

- 1. During the forthcoming 2014-2020 period all or majority of financial measures on R&D in business and innovations should be concentrated in MITA, clearly defining MITA responsibility and functions in the EU structural support administration system for 2014-2020.** Any reform of institutional framework would be meaningless unless MITA administrative capacities and competencies in the field of administration of EU SF (structural fund) measures are reinforced. The implementation of the following measures is recommended:
 - 1) Development of technical assistance project with MITA performing EU SF administration functions.
 - 2) Changing the MITA's legal status from a budgetary authority into a public company in order to create competitive working conditions.
 - 3) Ensuring proper preparation of MITA specialists for EU SF administration activities by means of training at a workplace and exchange programmes (together with specialists of LBSA, CPMA and/or other implementing institutions).

- 2. Function of providing support for policy making and strategic competencies in the innovation policy cycle should be reinforced with the help of the following measures:**
 - 1) MITA should be assigned additional functions of innovation policy monitoring and analysis; 2-4 employees should be recruited to fulfil the following functions: drawing up of annual agenda of researches and evaluations in the field of innovation policy (together with MoE and MoES); preparation and monitoring of indicators pertaining to innovation framework and innovation policy as well as results of different programmes and measures; drawing up of research and policy briefs and annual review 'Innovations in Lithuania'; conducting evaluations on innovation policy, programmes and measures, ordering of such evaluations, preparation of technical tasks, coordination of on-going evaluations; dissemination of monitoring and analysis findings; function of Secretariat to the Innovation Platform (survey on discussion needs, organisation of discussions, preparation of discussion materials).
 - 2) A specific expert/consultative institution – Innovation Platform – should be established under MITA or MoE whereby the participation of experts, institutions formulating and implementing innovation policy and other stakeholders would be ensured.

- 3. Considerable proportion of support scheduled for the promotion of R&D and innovations during the period of 2014-2020 should be allocated for the development of innovative clusters in priority ('breakthrough') spheres:**
 - 1) Support for *main* breakthrough fields contributing to the *solution of social-economic problems of particular relevance to Lithuania* should be coordinated with measures on the promotion of innovation supply (see Item 6 on page 16). Such priority spheres and clusters operating therein should be selected by 2015 by means of applying foresight methodologies aimed at formulation of consensus. Specific foresight methods and organisers of such processes should be selected by way of international competition.
 - 2) Development of a measure providing small-scale support for getting a cluster ready for joint activities thus supporting the drawing up of a cluster programme and R&D strategy for the period of 2015-2020. This measure should be implemented in the first place, ensuring that other cluster activities are not funded until the preparatory stage is completed.
 - 3) Development of a measure supporting the so-called 'soft' cluster organisation activities by providing support to cluster facilitator-coordinator. Joint activities may include the following: specialised training courses, seminars or conferences; activities facilitating the networking effect; integration into international clusters/networks; preparation of higher education curricula; activities of technology 'brokers' etc.

- 4) Development of a measure supporting R&D projects wherein science and business institutions operating within a cluster cooperate with each other on the grounds of relevant research programmes as well as the acquisition of R&D equipment. To ensure that science and higher education institutions as well as business enterprises are given the possibility to take part in joint R&D projects during the forthcoming period. The funding of joint R&D projects should constitute a considerable share of support allocated for the promotion of R&D and innovations (at least 50 per cent of funds allocated for innovative cluster development).
- 4. During the forthcoming time period a considerable share of support should be allocated for the promotion of new and start-up innovative companies and funding of their activities during the first year of operation by means of:**
- 1) Establishing a fund of initial and/or venture capital intended *only* for innovative start-ups or young companies (with up to 3 years of experience in business) dealing with high and ,new' technologies in ,breakthrough' fields.
 - 2) Facilitating distribution of small-scale 'initial capital' (up to LTL 50,000) cheques - enabling to use funding to cover the costs of starting/consulting a company and providing innovation support services - among science and technology parks and incubators. ,Initial capital' cheques should *only* be allocated to innovative companies and natural persons in the process of establishment within science and/or technology parks and incubators.
 - 3) Developing a streamlined administration measure meant only for young innovative small and medium enterprises (with up to 3 years of business experience) which would be implemented on the basis of ,basket'/'cheque' and facilitate the use of standardised research, experimental and technological development and innovation services from the creation of particular conception to the development of a prototype and its marketing. This measure would be implemented by way of applying the lump sum method used for administration of low price projects (up to euros 50,000 or LTL 172,600). In this case the project promoter shall submit (along with the proposal) a cost estimate which shall be approved during the project selection stage. During the implementation stage the project promoter shall only account for indicators of achievements but not for administration of funding.
- 5. In 2014-2020 considerable share of support should be allocated to the provision of technological innovation services, in particular- experimental and technological development of innovation products and services after the completion of R&D phase, i.e. activities concerning testing, commercialisation thereof and the like:**
- 1) Development of a streamlined administration measure, which would be implemented on the basis of 'basket'/'cheque' (see above) based on which companies operating for more than 3 years could obtain support (of up to LTL 172,600 provided that in the forthcoming time period another maximum funding amount for low price projects is not foreseen) to make use of standardised innovation services. While using the service 'basket' the companies should be allowed to choose among innovation service providers from both public and private sectors.
 - 2) Promoting and funding the establishment of technology transfer units within science and higher education institutions. Development of a measure to support the training of technology transfer specialists, their recruitment in technology transfer centres of science and higher education institutions as well as their in-service training.
- 6. For the purposes of developing new markets for innovations, the balance between innovation supply and demand should be ensured during the forthcoming time period by implementing measures that contribute to the development of demand for innovations in priority 'breakthrough' spheres. These would comprise:**
- 1) Promotion (in selected fields) of the development of new markets for innovations by means of legal conditions favourable to the introduction and spread of innovations and standardisation and regulation mechanisms. Such activities could include the following: conditions of infrastructure for the use of electromobility, legal regulation of broad application of alternative energy sources.
 - 2) Application of tax exemptions and/or financial support in respect of subjects introducing specific technologies in the selected priority fields (target groups include: companies, state institutions, private users). Examples of such application could be: introduction of alternative/renewable energy sources, introduction of energy-efficient 'green' vehicles or production methods etc.
 - 3) Preparation and adoption of the concept of innovative and pre-commercial public procurement. Introduction of innovative and pre-commercial public procurement extensively in the procurement

practices of state institutions (in particular ministries in charge of specific sectors), especially when purchasing services of research and experimental development promoting the integration of innovative goods and services into the market. The services purchased should be interconnected with the solution of social-economic problems, which are important for the society in general or its constituent groups in particular.

In order to reinforce the efficiency of measures promoting R&D and innovations it is necessary to streamline project administration regulations of the forthcoming measures applied with regard to R&D and innovation projects, to reduce their administration costs borne by both administering institution and project promoters and to adopt a different approach to the consulting of applicants and project promoters with the help of the following measures:

- 1) Promotion of a broader take-up of global grant measures, apply universal rules for groups of several measures provided for in a single agreement on global grant(s).
- 2) In order to reduce the workload of applicants – preparation of *larger scale projects* and increase of the flow of high-quality innovation projects, the project selection on the basis of separate stages has to be ensured. The first stage would involve the evaluation of project ideas that have been put forward. The applicants ought to submit brief but specific project ideas (up to 5 pages) for evaluation by the experts who then would comment on the suitability of projects and possible areas of improvement. Only those project ideas with a particular score of evaluation points would pass to the second stage where a full proposal shall be drawn up.
- 3) Introduction of electronic measures for submittal of proposals and project administration. Proposals and other documents (e.g. reports) would be posted online under an electronic signature.
- 4) Engagement in broad introduction of low volume and extensive interventions which are characterised by streamlined administration methods. The administration of *low price projects* (of up to euros 50,000) could be streamlined by way of fixing the entire amount of state support allocated for the implementation of such project as a lump sum. In this case the project promoter shall submit (along with the proposal) a cost estimate which shall be approved during the project selection stage. During the implementation stage the project promoter shall only account for indicators of achievements but not for administration of funding. In this case the costs of goods/products purchased must be standardised, with clearly defined object and results.
- 5) Differentiation of support allocation between different target groups (for instance, young companies and companies with more than 3 years of operation) ensuring that they would not compete between themselves.
- 6) Promotion of prompt and high-quality response to target inquiries by applicants or project promoters; introduction of service quality assessment indicators within the scheme of MITA and/or LBSA activity results. These indicators should also cover the satisfaction of customers with services provided and promptness of response to inquiries (in days).
- 7) While drawing up the listings of funding conditions for projects on measure implementation, potential applicants (particularly providers of innovation support services) should be consulted on such issues as funded activities and suitability of applicants or partners.

8. For the purposes of strengthening the efficiency of science and business cooperation it is necessary to eliminate systemic barriers to co-operation by way of implementing the following summarised recommendations which could entail a more thorough investigation:

- 1) Development of an instrument of financial and any other incentives encouraging science and higher education institutions to apply the methodical guidelines on the protection of intellectual property rights in science and higher education institutions which have been put forward by MoES.
- 2) Promotion and funding the establishment of technology transfer units within science and higher education institutions.
- 3) Discussing and introducing the principles of partnership between public and private sectors and enabling science and higher education institutions to make their own financial contributions to joint R&D projects involving business partners.
- 4) Encouraging changes in the management of science and higher education institutions ensuring increased promptness and flexibility in decision-making procedures (with regard to such issues as participation in projects, conclusion of contracts with business enterprises and other fields relevant to science-business cooperation) and higher prioritization of orders submitted by the business sector.

- 5) Reinforcement of the evaluation of science products by science and higher education institutions and ensuring high standards in order to further improve the quality of researches conducted by the public sector.

9. Strengthening of the efficiency of R&D and innovation support infrastructure and reinforce its relevance to business demands:

- 1) Innovation support services should be targeted at more explicit and more individualised value propositions for business sector;
- 2) In order to avoid multiple interpretations of the same concepts, an indicative document with relevant list of recommended innovation support services (including examples and listings) should be drafted.
- 3) Prepare a long-term programme for subjects of R&D and innovation infrastructure under development and expansion which would specify specific objectives and tasks to be achieved as well as estimations on state investments and principles for efficiency assessment.
- 4) Strengthen qualification-related skills and competences in relevant fields (in particular: transfer of knowledge and technologies, technological and innovative audits) of the staff of institutions providing innovation support services
- 5) Ensure, through MITA functions, mutual coordination activities of institutions providing innovation support services.
- 6) Review and update the conception of valleys by introducing relevant provisions on the role of institutions providing innovation support services within the entire scheme.
- 7) Include organisations associated with business structures and organisations already providing innovation support services in the management of valleys (rather than *ex post* monitoring).