



Kuriame
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EKONOMIKOS
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VISIONARY
ANALYTICS

EVALUATION OF MEASURES FOSTERING BUSINESS RDI UNDER THE 2014-2020 OPERATIONAL PROGRAMME



Summary of the
Final Report

Vilnius

2019-08-12

Evaluation objectives and questions

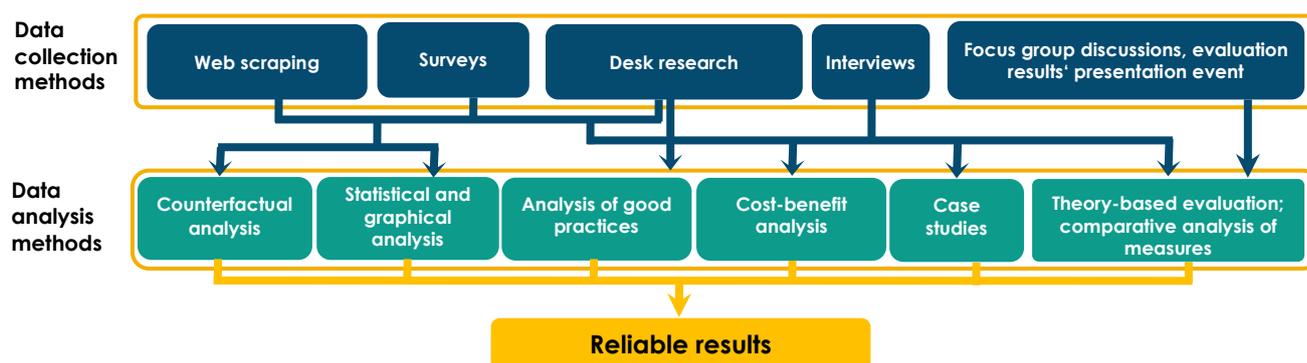
The evaluation was implemented under the contract "Regarding the evaluation of measures fostering business R&D under the 2014-2020 Operational Programme" (contract no. 8-194) between the Ministry of Economy and Innovation of the Republic of Lithuania and Visionary Analytics.

The goal of the evaluation is to assess the impact of current measures of the Operational Programme (OP) Priority Axis 1 implemented by the Ministry of Economy and Innovation in order to better prepare for the upcoming funding period of 2021-2027. The objectives of the evaluation are:



- To assess the contribution of the OP Priority Axis 1 Specific Objective 1.2.1 to the smart specialisation and Europe 2020 strategies.
- To assess the impact of measures of OP Specific Objective 1.2.1 on the changes identified in the OP.
- To provide insights and recommendations on how to improve the use of the reserve of funds for this period and on the impact of investments on the achievement of the specific objectives of the OP.
- To provide insight and recommendations for the preparation of the upcoming funding period of 2021-2027.

Methodology



| Data collection methods |
|---|
| Web scraping – automatic extraction of large amounts of data from web pages. Data about companies that applied for funding was collected (such as NACE code, age, amount of employees, turnover, status, and city). |
| Four surveys were conducted with entities that submitted applications for funding. In total, 1 103 survey invitations were sent, 293 responses were received (response rate – 27%). |
| The desk research included the following source groups: (1) previously conducted evaluations and studies in Lithuania and Europe; (2) scientific literature; (3) EU and Lithuanian legislation, other documents regulating the implementation of measures. |
| The following interviews were carried out: (1) exploratory and in-depth interviews; (2) interviews with authorities administering the measures; (3) interviews with experts. |
| A focus group discussion with various stakeholders and an evaluation results' presentation event were organised. |
| Statistical and administrative data was collected from two main sources: (1) EU structural investment management information system (SFMIS) and (2) the Statistics Lithuania and other official sources. |

| Data analysis methods |
|---|
| Counterfactual analysis was performed on the 1 st call of the measure "Intelektas. Bendri-mokslo-verslo projektai". Counterfactual analysis was used to assess the net effect of the measure on companies' investment in R&D in 2018, planned investments in R&D in 2019, the number of R&D employees (2019 Q2), total number of employees, turnover, average wage, export volume. |
| Theory-based evaluation allowed to reconstruct the theory of change and consistently test its hypotheses. |
| Statistical and graphical analysis allowed to compare different measures and the participants of these measures as well as present the results in an attractive manner. |
| 13 successful good practices , suitable to meet the specific needs of Lithuanian target groups, are integrated into the report. |
| The cost-benefit analysis was carried out at two levels: (1) public funding of the measure is considered as costs, and the results of the measure performance indicators are considered as benefits; (2) the time costs of project managers, implementing authorities and other institutions participating in the measure are considered as costs (the results of this analysis are integrated into four case studies: "Ikiprekybiniai pirkimai LT", "Intelektas. Bendri mokslo-verslo projektai" (1 st and 4 th Calls) and "InoConnect"). |
| Comparative analysis allowed to compare different measures by various criteria (complementarity of the measures, results and impact, costs and benefits, etc.) |

Limitations

- Too short period for the impact to occur.
- It was not possible to assess the net effect of 13 out of 15 measures.
- Projects were not completed in the majority of measures (e.g. "Inostartas", "Intelektas LT-2", "Smart FDI", "Inoklaster LT"). Therefore, counterfactual analysis is only applied to "Intelektas. Bendri mokslo-verslo projektai".
- The small analysis sample reduces the reliability of the net impact assessment results.
- Some indicators are not available (e.g. 2018 turnover will be available only at the end of 2019).
- Limited confidence in survey data, as respondents tend to overestimate the impact of projects.

RESOURCE SUFFICIENCY OF THE MEASURES



Measures relevance and contribution to the Europe 2020 strategy

- OP Specific Objective 1.2.1 contributes directly to the Europe 2020 priority “Smart growth” and its national target to invest 1.9% of GDP in R&D by 2020. Indirectly (in the long term) the measures under OP Priority Axis 1 also contribute to another two Europe 2020 priorities. Firstly, some of the measures (e.g. measures that contribute to attracting foreign investment) contribute to the employment objective. Secondly, most of the measures enhance companies’ investment in the development of new, more competitive products and services. In this way, they improve the competitiveness of SMEs and contribute to the “Sustainable growth” priority and its Flagship Initiative “An industrial policy for the globalisation era”.
- In order to achieve the objectives of Europe 2020 strategy and the Operational Programme, “Intelektas. Bendri mokslo-verslo projektai”, “Inočekiai” and “Ikiprekybiniai pirkimai LT” are the most appropriate and relevant measures. Despite specific problems, all of these measures are in high demand and received positive feedback. These measures should increase business research, development and innovation (RDI) investments in the short term. However, in order to ensure long-term sustainability of investments, the set of measures should be extended and less fragmented.
- The long term sustainability of measures promoting FDI in RDI is limited and not sufficient to achieve good results (e.g. investment is restrained by a lack of skilled labour). “Smart FDI” creates the highest added value, while the added value of “SmartParkas LT” is very limited. The measure “SmartInvest LT” includes the direct functions of the public institution “Invest Lithuania”, therefore budget financing should be considered.
- Measures supporting clusters and networks will have a limited impact due to their specific features. The measure promoting clusterisation activities “InoKlaster LT” is only partially appropriate because it lacks continuity and focuses on strong, established clusters that are not very common in Lithuania. There is a demand for the well-appreciated measure “InoConnect”, but in order to achieve better networking results, the types of events eligible for funding should be expanded (see recommendations in the section “Results and impact of measures”).



Contribution to the smart specialisation priorities

- In all six smart specialisation priority areas the largest amount of funding is provided under the measure “Intelektas. Bendri mokslo-verslo projektai”. The investment in this measure (€96.3m) is higher than the amount of funds allocated for all remaining RDI measures administered by the Ministry of Economy and Innovation (€52m).
- Funds allocated across the smart specialisation priorities are unevenly distributed, with €36.2m allocated to Health Technologies and Biotechnology priority area and €6.2m allocated to Inclusive and Creative Society priority area.
- It is difficult to assess the impact of measures on the results of smart specialisation priority areas, as it is not possible to isolate it from other factors. Moreover, the values of most performance indicators are not final.



Sufficiency of funding to reach the targets. What are the needs that are currently not met?

Although the amount and intensity of funding for the measures is in most cases sufficient or even higher than the demand, the following needs are currently not met:

- In the future, one of the main challenges will be to increase the number of new and high value manufacturing companies and their RDI investments. The attractiveness of the start-up supporting measure “Inostartas” was very limited due to financing form and the specificity of the target group. In order to shift the Lithuanian economy to high value-added products and services, more attention should be dedicated to mentoring programs and early-stage start-up acceleration and incubation activities. Broader application of financial or hybrid instruments is also relevant, as subsidy-based financing for start-ups has some drawbacks (for example, young companies no longer feel the need to develop a product attractive to buyers, non-viable ideas receive funding, there is a lack of idea development and mentoring). Increased use of financial instruments would help reduce dependence on EU funds. This would ensure the sustainability of funding through returned and reinvested funds, allow to allocate subsidies only to the riskiest projects, and reduce administrative burdens.
- Facilitation of innovation demand should be more systematic than just one pre-commercial procurement measure.
- Several systemic challenges remain. One of them is the lack of high-quality RDI project ideas. Successful implementation of the measure “Inogeb LT” is important for facilitating project flow. Innovation support services are currently not fulfilling their potential. There is a lack of a coherent approach to the development of business absorptive capacity as well as a lack of clear, unified and qualified framework for innovation support. Current projects under “Inogeb LT” are poorly interconnected, fragmented, and business innovation facilitation services account for only a small fraction of all support services. Therefore, the success of the measures will depend on further development of the innovation policy system (particularly the “soft” innovation support ecosystem) together with the ongoing Innovation Reform, R&D regulation, interpretation, etc.

Recommendations:

- To formulate a clear and unified innovation support system which would allow to consistently improve business absorption capacities across Lithuania.
- To focus not only on formal assistance in filling project applications but also on the development of business RDI ideas. It is important to guide companies to business angel networks accelerators or to invite experts with innovation and technology experience from abroad. It should be considered to transfer start-up incubation, acceleration and mentoring activities to science and technology parks, acceleration or venture capital funds. Clusters could also contribute to start-up incubation activities (e.g. by providing access to shared infrastructure).

- To replace cluster maturity initiatives by international training programs at least partially. Other EU Member States have developed a number of well-functioning training programs for cluster coordinators, which would be useful for clusters operating in Lithuania. Cluster maturity initiatives could be implemented in other ways, for example, by enabling private investors or consultants to carry out these activities.

Suitability of result indicators

The set of indicators for the Specific Objective 1.2.1 is appropriate, sufficient and informative. Result indicators are mostly suitable to assess the progress of measures and the achievement of targets set for the Specific Objective. However, some areas that are problematic for Lithuania are measured by OP indicators only at the level of companies receiving funding rather than all Lithuanian companies (indicators measuring the number of R&D employees in companies, patenting).

EFFICIENCY OF THE MEASURES

Size of measures, number of activities, form of financing

Subsidies

While managing high-value subsidies is relatively more efficient than low-value subsidies (where project costs are fixed), they do not necessarily produce relatively more products and results than low-value subsidies. Thus, low value subsidies are sufficiently efficient and should not be abandoned.

Managing of the "Ikiprekybiniai pirkimai LT" is not exceptionally expensive compared to other high-value subsidy measures. On the other and, not all costs were included. The biggest issue is that its implementation process is excessively long (around 7 months) between submission of the application to MITA and the start of the project. This is because different applications are submitted three times, to three different authorities. It is proposed to improve the implementation process of this measure.

Financial instruments

Venture capital instruments are attractive because of the reversibility of funds and the fact that, alongside financing, companies are provided with mentoring services which also make a significant impact on the competitiveness of the company. However, they are not suitable for all companies. Venture capital measures are the most suitable for startups, which are in need of mentoring services. Financial instruments may also be considered for projects of mature innovators, in particular for purchase of equipment.

Soft loans and refundable subsidies are not considered as attractive alternatives. In the case of soft loans, it is doubtful that banks would be willing to finance high-risk R&D projects. Refundable subsidies face the same problem and they are less attractive due to high administrative burdens. Combination of loans and subsidies should be considered as the hybrid measures will be allowed in the 2021-2027 period.

Types of measures under Priority Axis 1 and their efficiency

| | |  | Measures | EU funds allocated | Amount of funding allowed | How much does it cost to administer 1 euro of funding for the implementing institution? | How much does it cost to implement the project for the project managers? |
|-----------------------|--|---|---|--------------------|---|---|--|
| SUBSIDIES | Low-value subsidies based on fixed costs | | Inostartas Inopatentas Inovaciniai čekiai Inočekiai InoConnect | €15.02m | €5.6 – 76.25k | €0.1 | €897.98 per application (out of which € 67.88 are paid to consultants) |
| | Medium-value subsidies | | Inoklaster LT | €23.71m | €100 – 200k | n.a. | n.a. |
| | High-value subsidies | | Intelektas. Bendri mokslo-verslo projektai Smartinvest LT+ Smart FDI Smartparkas LT Intelektas LT-2 Ikiprekybiniai pirkimai LT | €218.18m | €500k– 10m | €0.008– 0.018 | €10,005.42 – 12,584.61 per application (out of which €7,018.18 – 7,819.55 are paid to consultants) |
| FINANCIAL INSTRUMENTS | High-value financial instruments | | Rizikos kapitalo fondų priemonės (Ankstyvosios stadijos ir plėtros fondas II, Ko-investicinis fondas II, Ko-investicinis fondas MTEPI) | €24.56m | €0.25 – 2m + non-financial benefit (mentoring services) | €0.01 | n.a. |

Source: calculated by Visionary Analytics (2019).

Notes: Green indicates the most efficient measures, yellow – moderately efficient, red – least efficient, grey – insufficient data to evaluate measure efficiency. Bold – measures for which cost analysis has been carried out.

Opportunities to improve the implementation process

- There is a **lack of synergies** between measures. There is a need of composite measures that integrate different RDI activities and consultations, mentoring. Inexperienced innovators need constant mentoring on how to develop their idea, what measures can be used at what stage, etc. Transformation of companies also requires attention. Currently, this is not being done consistently.

Recommendation: implement measures step-by-step. Successful implementation of one phase would result in a simplified application for the next phase. Re-evaluation of the potential of the idea and its relevance to RDI would not be required. In this way, the company would be assisted until the commercialisation of the final product.

- Information about measures can be found on agency websites and esinvesticijos.lt as well as during seminars, trainings, Q&As and consultations. However, company representatives (especially first-time applicants) point to a **lack of clarity**, indicate that all the relevant information is not put in one place, there are not enough successful project examples, opportunities to consult specialists or attend seminars/trainings during the application period.

Recommendation: there is a need for a business-friendly and attractive presentation form of innovation policy measures, arranged in accordance to the maturity and stage of development of the business. To solve this issue, "Create Lithuania" is initiating the creation of the "Inofinansavimas" platform.

- **Reduced administrative burden.** Project application requirements are complex, and the project implementation conditions are considered rigid by some applicants, which results in high costs for companies due to hiring consultants.

Recommendation: project ideas as well as their relevance and potential (e.g. in the measures "Intelektas. Bendri mokslo-verslo projektai", "Ikiprekybiniai pirkimai LT", start-up measures) should not only be submitted in writing, but presented orally to mentor groups (see illustration).

- The application phase to include the project to the List of State Projects under the measure "Ikiprekybiniai pirkimai LT" is considered excessive and unclear due to the flaws of the institutional criteria and internal procedures.

Recommendation: to abandon the application phase to include projects to the List of State Projects, changing the method of project selection from State project planning to continuous project selection. It would be appropriate to designate persons responsible for dealing with legal obstacles for contracting authorities and tenderers.

- In the case of the measure "Smart FDI", foreign investors communicate with "Invest Lithuania" in English, therefore they are later surprised when they are required to **submit Lithuanian documents** and sign Lithuanian contracts.

Recommendation: allow foreign investors to sign bilingual contracts and provide documentation in English (without requiring additional translations).

Challenges of science-business cooperation during project implementation

Although only a small proportion (21%) of the survey respondents identified failures in collaboration as an important factor adversely affecting the projects, there are three main systemic challenges to collaboration:

- Lack of motivation to work with businesses, that is, to deliver business-relevant results, not only publications.
- Lack of convenient and one-stop information on services provided by research and education institutions.
- Lack of an efficient technology transfer system. Long decision-making time in research and higher education institutions.



Illustration: Oral presentation of ideas

The aim of the Horizon 2020 SME Instrument (EIC Accelerator) is to support high-risk SMEs with high potential to develop new innovative products and services that can contribute to the economic growth. The Europe-wide program offers financial assistance (up to €2.5m), mentoring and business acceleration services. In 2018, the project selection procedure has been updated and consists of two phases:

- Written offer (administrative part, offer description (up to 30 pages) and company description).
- Interview in Brussels: invitation is sent one week prior to the interview, which can be attended by one to three company representatives (usually the CEO or another high-profile person in the company). A written pitch must be presented during the interview, describing the company's purpose and mission, the consumer problem that their product or service would solve, the benefits the consumer would derive from the product, market and risk analysis, business model description, marketing strategy, financial projection, and team presentation. The interview takes 30 minutes and is evaluated by a jury of professional investors and entrepreneurs after consulting with a panel of experts.

Such a selection procedure aims to increase the engagement of company executives and reduce the significance of consultants in the application process.

RESULTS AND IMPACT OF THE MEASURES

According to the European Innovation Scoreboard (2018), from 2010 until 2017 Lithuania has improved its innovation system performance by about 20%, but still ranks 20th in the EU.



Business R&D expenditure per capita is well below the EU average. In 2017, this indicator amounted to €47.1, compared to the European average of €409. The national target (€60.7 per capita) is unlikely to be met by 2023. EU investment alone is not enough to make a breakthrough in this area.



The value of the collaboration indicator was significantly exceeded. In 2016, the share of innovative enterprises that cooperate with partners of all innovative enterprises was 17.9% while the EU average was 12.8%

To date, no statistically significant evidence of impact has been found. Although evidence of impact is still lacking due to the limited progress of Specific Objective 1.2.1 measures. The available data suggests the following changes:

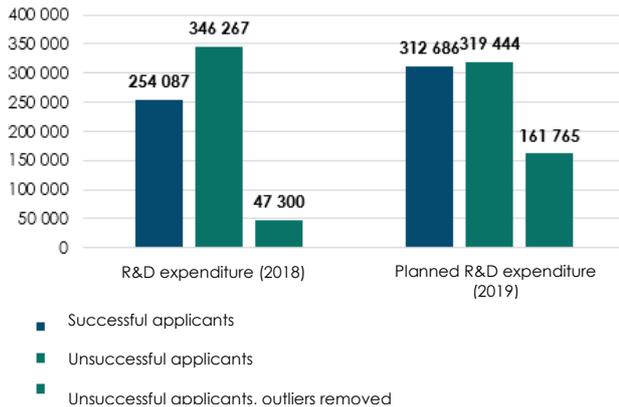
Promotion of business RDI expenditure

€199m allocated

Intelektas. Bendri mokslo-verslo projektai; Intelektas LT-2; Inočekiai LT; Inovaciniai čekiai; Inostartas; Technoinvestas

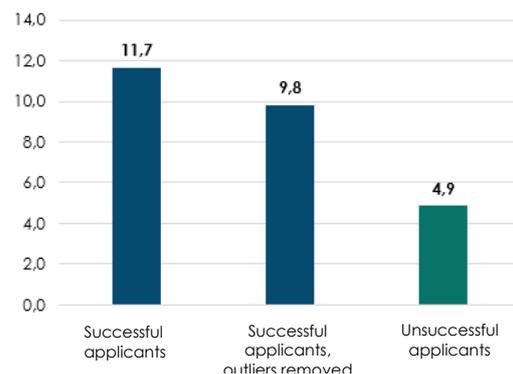
- There is a short-term effect on science-business cooperation, but there is no reliable evidence about the net effect of measures on sustainable (continuous) cooperation. However, there are assumptions for such effects to occur in the future.
- According to the survey, the most appropriate incentives for science-business cooperation are outsourcing RDI and co-financing joint RDI projects.
- Based on the results of the counterfactual impact evaluation, the measure "Intelektas. Bendri mokslo-verslo projektai" had no statistically significant effect on business R&D expenditure. However, there are assumptions for such effect (the average number of R&D employees in the EU-funded enterprises was 4.9 higher than in the non-funded ones). No statistically significant effect was found on other business competitiveness indicators.

Average R&D expenditure (€) of "Intelektas. Bendri mokslo-verslo projektai" 1st call beneficiaries and applicants



Source: survey conducted by Visionary Analytics. Notes: N (successful applicants) 17 (2018), 15 (2019); N (unsuccessful applicants) – 21, including 1 outlier (2018), 18, including 1 outlier (2019).

Average number of R&D employees "Intelektas. Bendri mokslo-verslo projektai" 1st call beneficiaries and applicants (2018.03)



Source: survey conducted by Visionary Analytics. Notes: N (successful applicants) – 26, including 1 outlier; N (unsuccessful applicants) – 32.

Promotion of foreign direct investment in RDI

€62m allocated

SmartInvest LT, SmartInvest LT+, Smart FDI, SmartParkas LT

- The impact of the FDI in RDI promotion measure during the evaluation period was limited. There is no strong evidence of the added value of "SmartInvest LT". The "Invest Lithuania" has achieved excellent results in the recent years. In 2018, 45 FDI projects were attracted, of which 13 included R&D activities. 9 projects will carry out R&D activities in addition to their main activities, while for the remaining 4 projects R&D activities will be the most important. On the other hand, the above-mentioned results are likely to be achieved without the implementation of ESIF measures.
- It is too early to decide whether the measures "Smart FDI" and "SmartInvest LT" had an impact on FDI in RDI, as by date only 10 companies received funding and only one project is finished. It is likely that the effect will be limited due to flawed implementation of the measure.
- The "Smartparkas LT" measure has not yet yielded the expected results: no RDI-oriented companies have been attracted by industry parks and FEZs yet. However, no projects have been completed yet (SFMIS data 28.02.2019). It is planned to attract 6 RDI-oriented companies in the currently implemented projects.

Promotion of clusterisation and networks

€25m allocated

Inoklaster LT, InoConnect LT

- The likelihood of a significant boost to international partnerships is not high, as the overall "weight" of internationalisation measures is low. The measure promoting networks "InoConnect" contributes to new international partnerships and participation in international initiatives by allowing more or faster participation in Enterprise Europe Network activities (70% of respondents agree with these statements).

Recommendation: the project requirements should be limited to the number of events, group of countries and cost rates, thus not requiring precise events and dates to be specified in applications.

- There is no evidence of the impact on clusterisation measures as no project under this measure has been completed during the evaluation period.

Recommendations:

- Strengthen export-oriented mature RDI clusters by funding the development of joint RDI strategies and products, increasing access to foreign markets, engaging in international clusters and value chains (prioritizing BSR clusters, EU-supported clusters and strategic value chains, other international partnerships). It is recommended to implement long-term projects (at least 5), which would be carried out stage-by-stage with performance indicators for each stage (proposed to be financed by ESIF subsidies).
- Clusterisation measures need to be consolidated, merging the activities 1.1 and 1.3 of the Specific Objective 1.2.1
- Collaborative RDI activities in clusters can be promoted by awarding extra points to clusters or their members in RDI measures.

Inogeb LT

According to limited data, the added value of "Inogeb LT" is currently moderate.

- There is little difference in the likelihood of receiving funding between consulted and non-consulted companies (60% vs. 49%).
- 81% of companies applying for funding under Priority Axis 1 measures did not benefit from MITA assistance.
- The impact of the consultation has hardly reached regional actors (the measure was most actively used by companies registered in Vilnius and Kaunas – 51% and 28% respectively).
- The results of previous evaluations show that the consultations do not have a statistically significant effect on the turnover and profits of the consulted companies.
- 12 clusters participated in activities promoting cluster maturity ("InoLink"), but there is insufficient evidence that innovation support services directly contributed to the achievements of these clusters.

Promotion of innovation demand

Ikiprekybiniai pirkimai LT

The pre-commercial procurement measure will have a high added value. It contributes to promoting positive change in the functioning of public sector organisations and stimulates the demand for innovative products.

- A significant proportion of surveyed organisations implementing projects under this measure (56%) would not have conducted the pre-commercial procurement on their own account.
- More than half of the surveyed organisations (57%) that did not obtain a permit to conduct pre-commercial procurement are planning to reapply within three years.
- The measure will allow the creation or renewal of 15 product, services or processes prototypes. 7 innovative products are planned to be introduced to the market (SFMS data 28.2.2019).
- Surveys and interviews show that the measure has led to positive changes in the behaviour of organisations. This is particularly important given the lack of innovation culture in the public sector.

BUSINESS RDI NEEDS IN 2021–2027

The target for business R&D expenditure growth will not be achieved – the ratio between business R&D expenditure and GDP (0.27%) remains five times below EU average. The share of high-tech value in the economy has increased by only 0.5% in seven years. These challenges are further enhanced by negative demographic trends and a lack of skilled labour. Such incremental change is not enough to ensure rapid structural change in the economy, therefore the so-called leapfrogging is essential.



Increasing the internationalisation of innovative companies

Firstly, the biggest problem during the project selection procedure is the **lack of high-quality ideas**. Therefore, in the new period, the focus should be on attracting new innovative companies and active development of ideas through mentors, business angels and a strong innovation support network. In the long-term, homogenous youth entrepreneurship and creativity education is relevant ("soft" training, talent competitions focused on non-urban municipalities, awards and prizes for young entrepreneurs, integration of entrepreneurial skills into general and higher education).

Recommendations: reassess the principles of business agency services, moving from administrative tasks towards high added value business development at all maturity and growth phases, following examples from Ireland, Finland, and Estonia. In addition to the reassessment of the agencies' functions within the framework of the Innovation Reform, the following aspects are also relevant:

- Increase the interconnection of measures (e.g. assisting companies at different stages of RDI activities – from idea creation to commercialisation of the final product), merge and scale up measures, implement development programs. Business development programs should include different types of activities (business plan development, consulting, training, search for funding at all stages, subsidies).
- Development of initial ideas and long-term business development planning would allow to select companies with the highest potential, to help them develop their ideas and plans, and to attract outside investors.

Secondly, **most businesses in Lithuania are not knowledge-intensive** and the transformation into a knowledge-based and high-value-added economy is too slow. In this context, measures promoting RDI activities of innovative companies are needed, focusing on exporting companies and promoting the supply of higher added value products and services.

Recommendations: ensure funding for the following activities:

- development of new products at various stages of RDI, including early pilot production and market launch
- creation, protection and licensing of intellectual property
- development of business RDI infrastructure, in particular for prototyping, testing, demonstration, pilot production and market launch

Thirdly, priority must be given to developing high-potential born global start-up ecosystems, attracting start-ups from around the world, developing their ideas and putting them on the market. Lithuania has successfully invested ESIF funds into the creation of venture capital market and start-up ecosystem. According to Startup Lithuania, 64 new start-ups were established in 2017 and as many as 280 in 2018. However, there is still a lack of investment in internationally

competitive high-tech start-ups. Subsidy measures without mentoring programs (such as "Inostartas") do not adequately address the needs of start-ups.

Recommendations: creation of a competitive start-up system requires the following:

- Ensuring the availability of financial resources (seed capital, business acceleration and expansion) for the development of innovative ideas at all stages of the start-up's development. The availability of financial resources and mentoring are particularly important during the idea development phase.
- Ensuring a well-thought-out design of calls for venture capital funding so that start-ups can apply at all stages of development.

Fourthly, attracting innovative companies investing in RDI from abroad is one of the priorities of the Innovation Reform. It is suggested to target not only new investors but also those already operating in Lithuania in order to attract higher-added value parts of global value chains of international companies. Given that ESIF funding will not be possible for large companies in the new period, it is proposed to do so through the national funding.

Recommendation: encourage high added value FDI by ensuring the following:

- active FDI promotion activities (especially in regional areas)
- aftercare for existing investors
- investments in industrial parks and FEZs, creating conditions for funding build to suit infrastructure projects (this could be implemented under Policy Objective 5 through integrated territorial development programs initiated by municipalities and with their involvement in project development)

Strengthening the involvement of SMEs in global value chains is essential for the innovation leap. This would provide access to markets, knowledge and technology, create incentives for upgrading, upskilling, creating higher added value products and jobs.

Recommendations: provide incentives (especially for mature innovators and start-ups) to participate in the international initiatives and programs managed directly by the EU. This may include the following:

- Financial incentives for companies, research-business consortia, public bodies that have received funding from EU direct programmes (e.g. co-financing part of the cost of the project).
- Assistance to companies in identifying and preparing international applications and forming consortia, including publicity, lobbying and financial incentives.
- Financial incentives (continuous call) for participation in international meetings with potential partners, including "soft" consultations, business missions, study visits, presentation of opportunities (the example of "InoConnect LT" could be used)
- Allocate national funding or give priority for the projects that have received high quality evaluation but were not funded in calls for programs managed directly by the EC.
- Promote the attraction of international business accelerators to Lithuania (e.g. European innovation and technology institute KIC, European innovation network). This could be done by searching for such opportunities, informing potentially interested organisations, and co-funding the activities of such accelerators.
- Integrate internationalisation into other measures by promoting partnerships with international partners in business R&D and clusterisation measures (e.g. by giving additional quality points).



Science-business-state interaction and innovation management

The low level of collaboration and commercialisation of scientific knowledge is a result of systemic supply-demand imbalances and motivation problems. Firstly, public research organisations lack capacity to commercialise scientific knowledge, their research results is far from the market. On the other hand, the demand for research services from business is limited to solving minor problems, testing product features and / or safety. The lack of revenue from business and other customers in public research organisations has created significant challenges for research organisations to maintain equipment, qualified staff and quality of research. These challenges will remain unless the incentives for more attractive researchers' career, collaboration with business, and commercialisation of scientific results are created.

Recommendations: create incentives to commercialise R&D results in public research institutions through researchers' funding and career development criteria; homogeneous innovation management and brokerage structure; investment funds for research organisations funded by both business and state; etc.

Promote joint science-business projects and other interactions by continuing to fund the measures "Intelektas LT-2", "Inočekiai". The measure "Inočekiai" could be improved by broadening a list of potential applicants and partners (e.g. by allowing public sector, social business to participate).

Secondly, **business lack information on R&D services provided by research organisations.** There is a lack of the efficient technology transfer system, there are bureaucratic obstacles in research organisations. In order to achieve sustainable impact, a homogeneous innovation management system is needed instead of fragmented project based efforts (see the previous section for specific recommendations on innovation support services).

Recommendations: in order to establish an effective innovation management system, the state must do the following:

- ensure synergies between thematically related public infrastructures so that they would enable businesses to develop ideas up to commercialisation; ensure the professional management of the existing infrastructure, including availability of information of the available equipment and services in research organisations and clusters, developing a proactive approach to working with business, and providing professional technology transfer services
- formulate a clear and homogenous system for innovation services for business, which would allow to consistently develop the absorption capacities of enterprises across Lithuania
- combine innovation management system activities with the business R&D ideas development needs; provide not only technological but also start-up mentoring, brainstorming, commercialisation, acceleration services (e.g. such services could be provided by the technology parks or business angel networks)
- ensure the strengthening of innovation management capacities in SMEs and research organisations



Innovation demand for future markets

Innovation demand instruments combine public, business and scientific efforts to promote public-private partnerships in addressing socio-economic challenges and strengthening SME innovation capacity through public procurement in smart specialisation. The evaluation shows a lack of innovative ideas in the public sector, thus the public sector potential to foster demand for innovation and act as a catalyst for innovation is not being used to full extent.

Recommendations: promote innovation in the public sector by financing the following measures:

- Pre-commercial procurements.
- Science-business-state interactions in implementing smart specialisation priorities and addressing Lithuania's socio-economic challenges (e.g. targeted R&D or technology programmes, expanding the current Lithuania Research Council on-demand research funding by increasing their funding and allowing not only research organisations but also business participants).
- "Consumer" innovation capacity building efforts. These may include feasibility studies, training, pilot projects, publicity, and hackathons with prize incentives.
- Purchases of innovative products to cover some or all of the costs of the innovative procurements. Such measure would be simpler than pre-commercial procurement, would require less resources and thus would enable smaller organisations to participate.

Establish innovation development and implementation as a horizontal priority in implementing national strategies. This may include the following:

- oblige public authorities to devote at least 5% of total procurements to R&D and/ or innovative procurements
- develop innovation at regional level, e.g. by implementing integrated territorial development programmes, encouraging municipalities to become more involved in the promotion of innovative FDI, implementation of advanced technologies, innovative procurement
- ensure and increase the public funding for innovations in business and science-business-state interactions in creating and developing innovations



Reducing the dependence from EU structural funds

Innovation in Lithuania is currently mainly driven by the EU funds. However, EU funding for Lithuania will decrease in the near future and is likely not to be allocated at all in the longer term. Because of these reasons, it is very important to reduce the dependence from EU structural funds.

Recommendation: increase the share of funding for Innovation through financial instruments as part of the Innovation Fund implementation. This would significantly reduce the dependence on the EU structural funds. The administrative burden of financial instruments is lower, in addition, the returns from financial instrument investments can be reinvested. Financial instruments are best suited to finance start-up, mature innovators (especially in the Capital region) investments in R&D infrastructure, experimental development or less risky R&D projects with high commercialisation potential. It is also proposed to consider a hybrid instruments (combining grants and financial instruments for one or related projects) in the new period.

KEY MESSAGES FOR THE NEW 2021-2027 PERIOD

According to the revised methodology for allocating EU funds to Member States, **Cohesion Policy funds for Lithuania should decrease by almost a quarter.** Cohesion Policy regulations propose to increase the national contribution to the implementation of the projects and to shorten the deadlines for the use of funds. There are two preliminary scenarios for the allocation of financial resources to Lithuania:

- In the first case, Lithuania, as a single NUTS-2 region, would be classified as a transitional region. According to the rules on concentration of EU funds provided in the draft regulations, the EU funding will decrease, but due to the increase of the national contribution share, a similar amount of funding will be available for the same priorities as for the implementation of 2014-2020 Operational Programme.
- In the case of Lithuania as two separate regions, programming of EU funds in Lithuania would not increase, but this scenario will likely entail lower national contributions to measures programmed for the Central and Western Lithuania region. In this case, the EU co-financing rate would be 70% in the Central and Western Lithuania region and 40% in the Capital region. However, losses in the Capital region, which also faces socio-economic disparities across municipalities, should be taken into account. There is a risk that companies in the Capital region will not be able to absorb all the funds allocated to the region due to a set of requirements (state aid regulations, increased private contribution requirement).

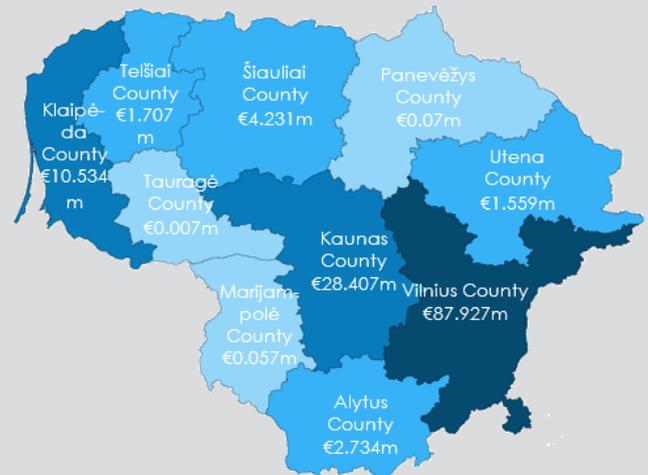
Different regions of Lithuania need different measures - while Vilnius is successful in attracting investment and talent, the rest of Lithuania needs to address employment and job shortages. This is relevant for the implementation of business R&D measures dominated by applicants from large cities (especially Vilnius). If the scenario for two regions was selected, the funding intensity in the Capital region would be reduced up to 40%. This is likely to have a negative impact on the attractiveness of the measures, especially those involving public actors (public research and education institution, public bodies). Part of the funding for the implementation of some of the measures should be supplemented from the national budget. Another option would be to consider funding some measure from national budget, taking into account the administrative burden of the measures implemented under ESIF and other factors discussed in this report.

EC proposals for ERDF interventions to promote business R&D

- **increase the number of innovative firms** in the smart specialisation sectors with the highest potential, and taking into account regional specialisations
- **support collaborative research between universities and businesses**, thereby enabling technology transfer and commercialisation of research outcomes
- **Ensure synergies with other priorities of the "Smarter Europe" policy objective**

The regional innovation paradox

The majority (64%) of business R&D funding in 2015-2018 was allocated to Vilnius region. Another significant part was allocated to the regions of Kaunas (21%) and Klaipėda (8%) (see the map below). Regions with the lowest innovation capacity also have the lowest absorption capacity to use the ESIF investments in innovation. Meanwhile, the most innovative regions are sucking in both human capital and business and public investment.



Source: author own calculation based on the SFMIS data (2018 12).
 Note: projects that are attributed to the whole of Lithuania and not to a specific county are not included in the calculations (measures "Inogeb LT" and "Smartinvest LT").

Recommendation: less innovative regions need different measures or a separate calls for funding so they would not compete with the innovative regions. Strengthening business absorptive capacities in regions is essential for regions to benefit from the opportunities offered by EFSI (see other recommendations).