



Research
Council of
Lithuania

AN OVERVIEW OF THE RESEARCH AND HIGHER EDUCATION SYSTEM IN LITHUANIA

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Introduction

An overview of the Lithuanian research and Higher Education (HE) system is prepared as a supporting document for a Lithuanian Comparative Expert Assessment of research and development activities (CEA) to be executed in 2023. The CEA is set to evaluate the status and competitiveness of Lithuanian research on both the national and international level. Additionally, development prospects for Lithuanian universities, or their parts, and research institutes will be evaluated. The CEA will be a process of international peer review that is based on panels for the research fields. Using panels rather than individual peers creates a possibility for discussion and debate within the peer group.



This overview is set to provide quantitative and qualitative information about Lithuania's research and HE system. It consists of four parts: the first chapter introduces the institutional framework of research and HE system of Lithuania; the second chapter provides an overview of the past decade of Lithuanian research and HE system development that includes legal information and statistical data; the third chapter provides information on R&D activity funding and the last chapter presents the principles of organisation of R&D activities.

It is expected that the information and data provided in this overview will present a comprehensive picture of the current status of Lithuanian research and HE system.

Lithuania: general information and main indicators

Republic of Lithuania

| | |
|---|--|
|  | Vilnius capital city |
|  | 2.8 million population at the beginning of 2022 |
|  | 25205 of persons emigrated during 2021 |
|  | 44858 of persons immigrated during 2021 |
|  | 6700.5 EUR GDP per capita at current prices 2022 third quarter |
|  | 1780.5 EUR average gross monthly salary, 2022 third quarter |
|  | 7.1% unemployment rate, 2021 |

| | |
|---|--|
|  | 1.12% R&D expenditure compared to GDP, 2021 |
|  | 57.5% of population with tertiary education of 25-34 years-old, 2021 |
|  | 11017 researchers employed in R&D in FTE, 2021 |
|  | 44.1% share of female researchers, based on FTE, 2020 |
|  | Moderate Innovator according to the data of the European Innovation Scoreboard, 2022 |
|  | 39th at Global Innovation Index Rankings of 132 economies, 2022 |
|  | 29th at World Competitiveness Rankings of 63 economies, 2022 |

Sources:

Statistic on population with tertiary education & share of female researchers are from Eurostat: <https://ec.europa.eu/eurostat/>

Lithuania positions at international rankings are from:

European Innovation Scoreboard 2022: <https://ec.europa.eu/research-and-innovation/en/statistics/performance-indicators/european-innovation-scoreboard/eis>

Global Innovation Index 2022 Rankings: <https://www.globalinnovationindex.org/Home>

IMD World Competitiveness Rankings: <https://www.imd.org/centers/world-competitiveness-center/publications/>

All of the other statistical indicators are from Statistics Lithuania: <https://osp.stat.gov.lt/>

Terms & Abbreviations

CA WoS – the Clarivate Analytics Web of Science
CEA – the Comparative Expert Assessment of R&D activities
ECTS – European Credit Transfer System
EU – European Union
ESIF – European Structural and Investment funds
FTE – Full-Time Equivalents of a researcher's working days
GBARD – Government budget allocations for R&D
GDP – Gross Domestic Product
GERD – gross domestic expenditure on R&D
HE – Higher Education
HEI – Higher Education Institution
LVPA – Lithuanian Business Support Agency
MITA – Science, Innovation and Technology Agency
MoEI – Ministry of Economy and Innovation
MoESS – Ministry of Education, Science and Sport
NTMA – Natural Sciences, Technological Sciences, Medical and Health Sciences and Agricultural Sciences (classification of research areas acting since 2018)
OECD – the Organisation for Economic Co-operation and Development
PABT – Physical, Agricultural, Biomedical and Technological Sciences (classification valid until 2018)
RCL – Research Council of Lithuania (lt. Lietuvos mokslo taryba)
RDI – Research, Development, and Innovation
RI – Research Infrastructure
R&D – Research and Development
R&HE – Research and Higher Education
RTO – Research and Technology Organisations
SKVC – Centre for Quality Assessment in Higher Education
SSH – Social Sciences and Humanities
STRATA – Government Strategic Analysis Centre (previously Research and Higher Education Monitoring and Analysis Centre – MOSTA)
UoA – Unit of Assessment

Universities:
ASU – Aleksandras Stulginskis University
EHU – European Humanities University
ISM – University of Management and Economics

KU – Klaipėda University
LEU – Lithuanian University of Educational Sciences
LKA – Military Academy of Lithuania
LMTA – Lithuanian Academy of Music and Theatre
LSU – Lithuanian Sports University
KTU – Kaunas University of Technology
LSMU – Lithuanian University of Health Sciences
MRU – Mykolas Romeris University
ŠU – Šiauliai University
Vilnius Tech – Vilnius Gediminas Technical University
VMU – Vytautas Magnus University
VU – Vilnius University

Research Institutes:

FTMC – Centre for Physical Sciences and Technology
NRC – Nature Research Centre
IMC – Centre for Innovative Medicine
LAMMC – Lithuanian Research Centre for Agriculture and Forestry
LEI – Lithuanian Energy Institute
LCSS – Lithuanian Centre for Social Sciences
LCRI – Lithuanian Culture Research Institute
LLTI – Institute of Lithuanian Literature and Folklore
LII – Lithuanian Institute of History

Business sector¹ – economic entities of all forms of ownership whose main activity is the production of goods or the provision of services in the market by selling them to the public at an economically reasonable price. The sector also includes privately owned non-profit institutions mainly serving those economic entities.

Full-time equivalent² – is a term used in an official statistics programme; it is calculated by converting the number of employees engaging in R&D part-time into that of employees engaging in R&D full-time. A full-time employee devotes more than 90 per cent, a part-time employee – less than 90 per cent (but no less than 10 per cent) of the total working time to research activity.

¹ The definition is based on the statistical survey methodology for research and experimental (social, cultural) development approved by Order No DJ-32 of the Director General of the Lithuanian Department of Statistics of 22 January 2014. Available in Lithuanian:

https://osp.stat.gov.lt/documents/10180/495238/MTEP_metodikos_priedas_20140122.pdf

² Statistics Lithuania. (2022). Research and development activities: meta-information. Available in English: <https://osp.stat.gov.lt/documents/10180/5118910/Moksliniaityrimai+ir+eksperimentin%C4%97+pl%C4%97tra+%5BEN%5D+41.html>

Government sector³ – is a term used in an official statistics programme, which refers to state research institutes, financed from the budget and controlled by state or municipal institutions, together with other institutions including museums, hospitals, state research establishments, meteorological and ornithological stations, statistical services, standardisation and metrology services, geological services and other public and non-profit institutions whose main activity is the provision of non-market services and/or the redistribution of national income and assets.

Higher education sector⁴ – is a term used in an official statistics programme, which refers to universities together with colleges (both state and non-state) and other bodies directly managed, administered, or associated by them.

Institutional (basic) funding⁵ – funding from the state budget allocated to research and higher education institutions. For state institutions it is allocated for these purposes: (i) development of R&D and art activities; (ii) payment of tuition fees for state-funded study places and study scholarships; (iii) administration and economy; (iv) maintenance of complex infrastructure objects and for other purposes. Non-state research and higher education institutions may get institutional funding only for R&D and art activities. In the national context it is common to call institutional funding as ‘basic funding’.

Researcher⁶ – a person having higher education, who develops knowledge, conceptualises or creates new products, processes, methods and systems or directs projects of research and experimental (social, cultural) development.

Research worker – a research staff member of a higher education and research institution, holding one of the positions: chief researcher; senior researcher; researcher; junior researcher; a research fellow (postdoctoral fellowship holder).

Scientist⁷ – a researcher who has a scientific degree.

³ The definition is based on the statistical survey methodology for research and experimental (social, cultural) development approved by Order No DJ-32 of the Director General of the Lithuanian Department of Statistics of 22 January 2014. Available in Lithuanian: https://osp.stat.gov.lt/documents/10180/495238/MTEP_metodikos_priedas_20140122.pdf

⁴ The definition is based on the statistical survey methodology for research and experimental (social, cultural) development approved by Order No DJ-32 of the Director General of the Lithuanian Department of Statistics of 22 January 2014. Available in Lithuanian:

https://osp.stat.gov.lt/documents/10180/495238/MTEP_metodikos_priedas_20140122.pdf

⁵ Article 75 in the *Law on Higher Education and Research of the Republic of Lithuania*. 2009, No. XI-242.

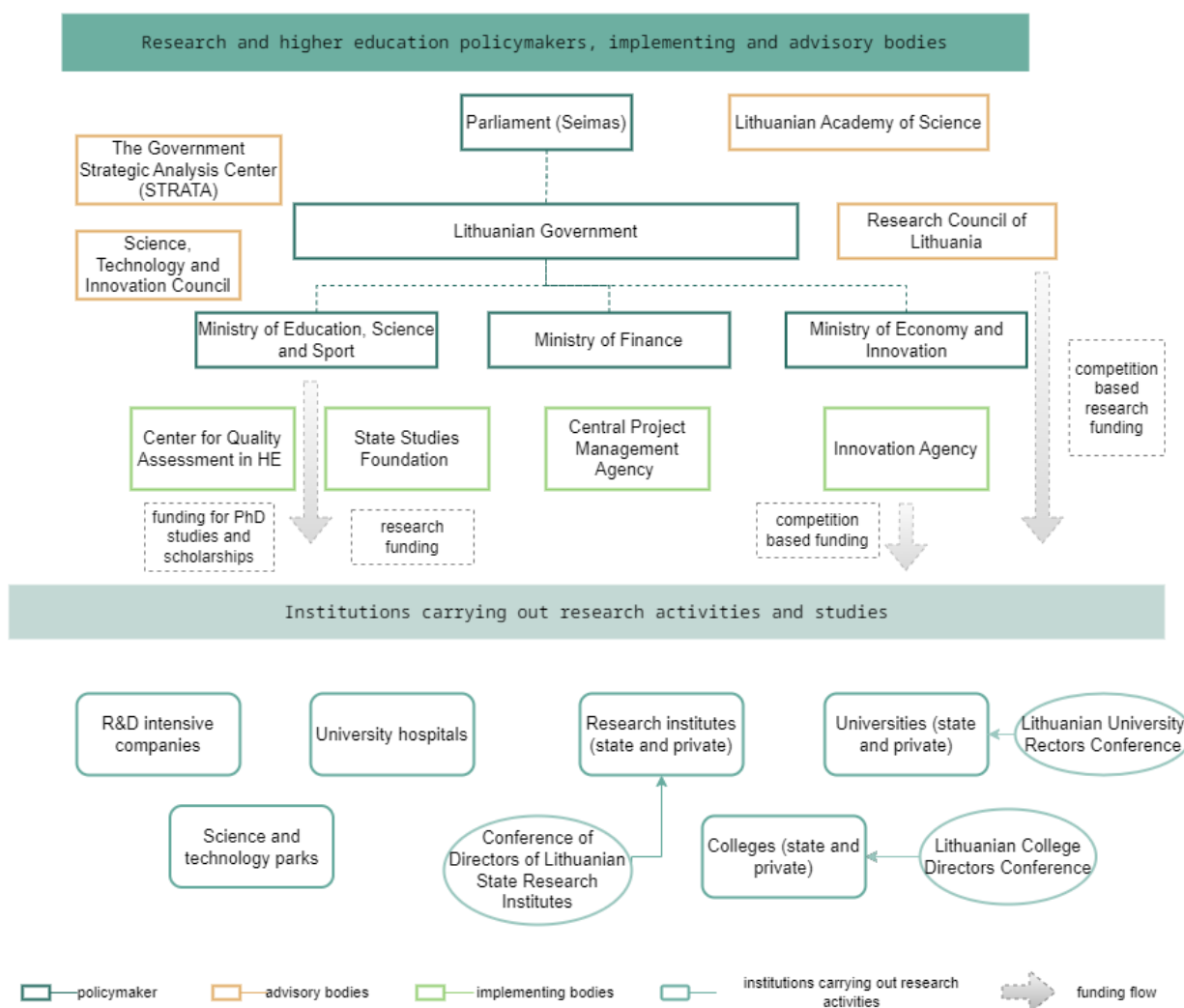
⁶ The Law on Higher Education and Research of the Republic of Lithuania. 2009, No. XI-242. Available in Lithuanian at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.343430/asr>

⁷ The Law on Higher Education and Research of the Republic of Lithuania. 2009, No. XI-242. Available in Lithuanian at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.343430/asr>

1. The institutional framework of the research and higher education system

This section provides an overview of the institutional framework of the research and higher education (R&HE) system in Lithuania. The main institutions operating in the system of higher education and research in Lithuania can be categorised into two groups (see Figure 1): a) institutions shaping and implementing research and higher education policy (research and higher education policymakers with implementing and advisory bodies); b) institutions carrying out R&D activities (mainly universities, research institutes and to some extent – colleges) and (or) studies.

Figure 1. Research and higher education system in Lithuania



1.1. Research and higher education policymakers, implementing and advisory bodies

The Law on Higher Education and Research of the Republic of Lithuania⁸ establishes the state regulation of higher education and research in these areas: the state’s regulation of higher education and research, the principles of quality assurance, funding of higher education and research and principles of

⁸ The Law on Higher Education and Research of the Republic of Lithuania. 2009, No. XI-242. Available in Lithuanian at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.343430/asr>

management of the assets of state higher education institutions. According to this law, Lithuanian research and higher education policy is formed by the Parliament of the Republic of Lithuania (the Seimas), the Government of Republic of Lithuania (the Government), and the Ministry of Education, Science and Sport (MoESS) and several other ministries who also contribute to setting research and study agendas. The Seimas adopts the main laws and legal acts regulating the system of education and research while the Government represents the executive power in Lithuania. Therefore, the MoESS or the Government adopts other legal acts applicable at the national level that cover allocation of funds, and the normative costs of study programmes etc.

The state research and higher education policy is implemented by several institutions, which have different functions, and which are accountable to the Seimas, to the Government, to the MoESS or to other ministries related to the innovation, research, and studies policies. The main functions of such institutions are as follows: advising on the research, studies and innovation policy, providing evidence for research and higher education policy, quality assurance and assessment, allocation of funding including the administration of national and / or international funding programmes.

- *The Research Council of Lithuania (RCL)* is an advisory body to the Seimas and the Government of the Republic of Lithuania on research, study and experimental development policy issues. The RCL also implements the competitive funding of research, administers Lithuanian science development programmes, evaluates research performance, and represents Lithuanian science internationally. The Law on Higher Education and Research of Lithuania lays down activities and lays down the foundation for the structure of the Council, while regulations approved by the Government define its objectives, tasks, principles of formation and work.
- *The Lithuanian Academy of Sciences* is an independent expert institution of the Seimas, the Government and its subordinate institutions, and their advisor on research and higher education, culture, social development, economy, nature protection, health care, technology and other issues.
- *The Government Strategic Analysis Centre (STRATA)* is an analytical and expert body under the Lithuanian Government Office that provides the Government and ministries with independent, research-based information necessary to make evidence-based public policy decisions. The institution is responsible for: monitoring, analysis and evaluation of the national R&D and study system; providing strategic insights and recommendations on the system's improvements; forecasting the need for HE qualifications; etc. Until 2019, the Government Strategic Analysis Centre was operating under the name of the Research and Higher Education Monitoring and Analysis Centre (MOSTA), as it was established by the MoESS.
- *The Innovation Agency* – officially started its activities in April 2022 after implementation of Lithuania's Innovation Reform which aimed to consolidate all state functions related to innovation and business promotion into a single agency, which were carried out by several bodies, with an expectation to create a coherent, systematic and clear business support system. The Innovation Agency was established by the Ministry of Economy and Innovation (MoEI) on the basis of the Agency 'Versli Lietuva' and the Lithuanian Business Support Agency (LVPA) and by consolidating the functions of innovative activities performed by the Science, Innovation and Technology Agency (MITA). The objective of the Innovation Agency is to act in the public interest by promoting sustainable economic development based on scientific knowledge, advanced technologies and innovation, and increase the country's international competitiveness.
- *The Council for Science, Technology and Innovation* is the Government's advisory body on matters of state research, technology and innovation policy formulation and strategic management. The Council is responsible for the coordination and preparation of the recommendations on the improvement and implementation of the research, technology and innovation strategic development.
- *The Centre for Quality Assessment in Higher Education (SKVC)* is an independent institution established by MoESS. SKVC evaluates the quality of higher education (by institutions and by

programmes); provides credential evaluation (of foreign HE qualifications and qualifications giving access to HE); and provides information on HE systems and qualifications' recognition.

- *Central Project Management Agency* is an organisation whose main remit is to see that public investments are beneficial to Lithuania and managed responsibly. The Agency administers large-scale programmes: investments of European Union funds in 2014–2020, European economic area and Norwegian financial mechanisms for 2014-2021, to name just a few.
- *The European Social Fund Agency* is an organisation that administers and implements human resources development and other EU-funded projects and programmes. The founder of the Agency is the state, which is represented and the functions of the Agency's participants are implemented by the Ministry of Social Security and Labour and the MoESS.
- *The State Studies Foundation* administers state loans and state-sponsored loans for students, as well as other financial support for students (e.g. study scholarships), in accordance with the procedure established by the Government, and performs other functions provided for in the Law on Vocational Education of the Republic of Lithuania.
- *The Lithuanian University Rectors' Conference* is an association of university rectors. LURK coordinates relations between rectors (directors) of higher education institutions and their relations with state government, management and municipal institutions.
- *The Conference of Directors of Lithuanian State Research Institutes* coordinates inter-institute relations, as well as relations with state and municipal institutions and is an expert in research and experimental development policy issues.

1.2. Institutions carrying out research activities

There are three types of institutions operating in the research and HE system (see Figure 2):

- **Universities** – provide university-level study programmes (Bachelor's, Master's, Doctoral degrees), conduct research, experimental (social, cultural) development and (or) develop high-level professional art;
- **Colleges** – carry out college studies, not higher than professional bachelor degree level, and conduct applied research and (or) professional art;
- **Research institutes** are legal entities whose main activities include conducting R&D. In Lithuania the right to organise doctoral studies is granted to universities or universities together with research institutes.

HE institutions (universities and colleges) and research institutes can be state or non-state. A state institution of higher education is a public legal entity functioning as a public establishment, possessing autonomy guaranteed by the Constitution of the Republic of Lithuania, and is based on the principle of self-governance and academic freedom. A non-state higher education institution is a public legal entity functioning as a public establishment or a private legal entity. A state research institute is a public legal entity operating as a budgetary or public institution. A non-governmental research institute can be a public legal entity operating as a public institution or a private legal entity.

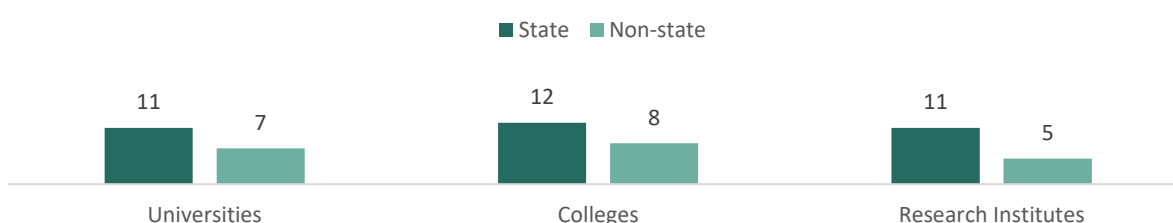
State budget funding is mostly allocated to state research and higher education institutions. Non-state institutions may apply for R&D funding from state budget allocations if their R&D activities have been assessed. For more information see section 3.2.

State research institutes, unlike other institutions, are obliged to prepare long-term institutional R&D programmes. These institutes implement them for a maximum of five years (see Appendix, Table 7). Long-term institutional R&D programmes may be initiated by the institutes themselves or by the MoESS. In practice, the majority of the programmes are initiated by research institutes. They are prepared

according to the areas of research activities of the institutes and established in their statutes. It is a duty for the RCL to evaluate these long-term R&D programmes. Funding for long-term institutional R&D programmes is not a separate funding instrument. Not less than fifty percent of the state budget allocations for R&D activities to state research institutes should be dedicated to the implementation of these programmes; additional funding from other public or private legal entities is possible⁹. The financial planning of these programmes is usually limited to the provision of relative measure for FTE researchers.

Additionally, there are four state research institutes (Lithuanian Institute of History, Institute of the Lithuanian Language, Lithuanian Culture Research Institute, Institute of Lithuanian Literature and Folklore) whose purpose is to gather, systematise, preserve, communicate the intangible and document the heritage of Lithuanian studies to the public, to conduct fundamental research of the heritage of the Lithuanian language, ethnology, writings, culture and history that have the status of special national importance. This status shall be implemented by the Government through approving their statutes and adopting other legal acts.

Figure 2. Number of institutions carrying out research activities and studies in 2022



Data source: ŠVIS, 2022

Over the past ten years the number of both higher education institutions and research institutes slightly declined (see Table 1). In 2017 HE reform was started. Its main goals were to optimise the HE institutions' network, to change the existing funding distribution for studies and research and to strengthen the quality of studies and research. The timeline and outcome of university network optimisation process developed as follows:

- A decision to reorganise Vytautas Magnus University (VMU), Aleksandras Stulginskis University (ASU) and the Lithuanian University of Educational Sciences (LEU) by merging them with VMU adopted by the Seimas in 2018 was implemented on 1 January 2019, on time and to its full extent;
- A decision to reorganise the Mykolas Romeris University (MRU) by merging it with Vilnius Gediminas Technical University (Vilnius Tech) was initiated but was not implemented. In early 2020, the Government amended the network plan, refusing the idea of merging MRU and Vilnius Tech;
- A decision to reorganise Šiauliai University (ŠU) merging it with Vilnius University (VU) was implemented. In 2020, a decision was made by a resolution of the Seimas to reorganise ŠU by merging it with VU from 1 January 2021.

Table 1. Number of institutions carrying out research activities and studies over the years

| Year | State and non-state universities | States and non-state colleges | State and non-state research institutes |
|------|----------------------------------|-------------------------------|---|
| 2012 | 23 (14 state, 9 non-state) | 24 (13 state, 11 non-state) | 22 (15 state, 7 non-state) |
| 2013 | 23 (14 state, 9 non-state) | 24 (13 state, 11 non-state) | 24 (15 state, 9 non-state) |
| 2014 | 23 (14 state, 9 non-state) | 24 (13 state, 11 non-state) | 22 (15 state, 7 non-state) |

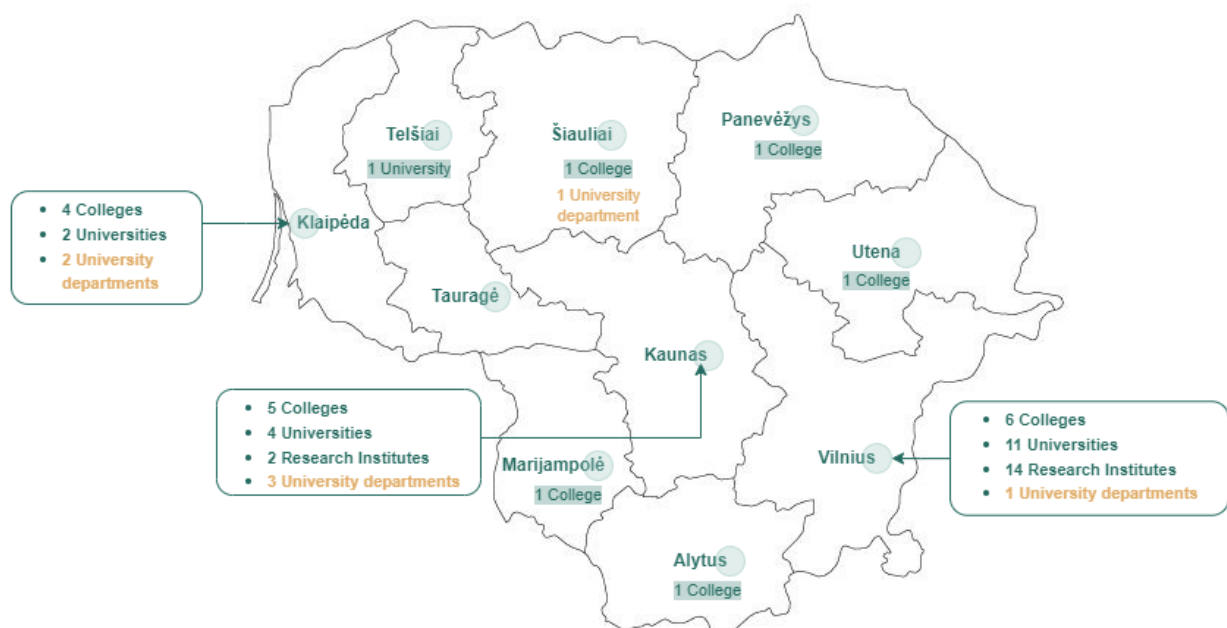
⁹ Order of the Minister of Education, Science and Sport. 2020, No. V-1510. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/6619c740080b11ebbedbd456d2fb030d>

| | | | |
|-------------|----------------------------|-----------------------------|----------------------------|
| 2015 | 22 (14 state, 8 non-state) | 23 (13 state, 10 non-state) | 24 (15 state, 9 non-state) |
| 2016 | 22 (14 state, 8 non-state) | 23 (13 state, 10 non-state) | 24 (15 state, 9 non-state) |
| 2017 | 22 (14 state, 8 non-state) | 22 (12 state, 10 non-state) | 23 (14 state, 9 non-state) |
| 2018 | 21 (14 state, 7 non-state) | 22 (12 state, 10 non-state) | 20 (13 state, 7 non-state) |
| 2019 | 19 (12 state, 7 non-state) | 22 (12 state, 10 non-state) | 19 (13 state, 6 non-state) |
| 2020 | 19 (12 state, 7 non-state) | 21 (12 state, 9 non-state) | 19 (13 state, 6 non-state) |
| 2021 | 18 (11 state, 7 non-state) | 20 (12 state, 8 non-state) | 16 (11 state, 5 non-state) |
| 2022 | 18 (11 state, 7 non-state) | 20 (12 state, 8 non-state) | 16 (11 state, 5 non-state) |

Data source: ŠVIS, 2022

The concentration of HE institutions is in three main cities: Vilnius, Kaunas and Klaipėda. There are few university departments established in other cities other than at its main location, e.g.: Vilnius University Šiauliai Academy is located in Šiauliai. Research institutes are mainly located in the capital of the country (Figure 3).

Figure 3. Lithuania higher education and research institutions distribution by territory



Data source: AIKOS, 2022-10-01

2. Changes in the Lithuanian research and higher education system over the last ten years

Over the past decade the R&HE system went through changes and political decisions that led to a transformation in the institutional structure of R&HE - improvements in researchers' working conditions (assessment, financing and other decisions on the legal regulation of working conditions) and more active participation of Lithuania in the international research area. In this chapter the most impactful changes of regulation and policy decisions are presented in addition to key performance indicators. Dynamics over the past decade are also discussed.

2.1. Changes in the research and HE system over the past decade

2.1.1. Development of national strategic documents and their relation to R&D

- **In 2012 Lithuania's progress strategy 'Lithuania 2030' was approved and some tasks related to R&D were partly integrated**

Lithuania's progress strategy, 'Lithuania 2030', was the first attempt when a long-term vision and strategy for the state's progress was formed. The strategy was oriented into three visions and two of them were partly related to R&D. Some of the key tasks in the vision of the 'Smart Society' were focused on: creation of an attractive, internationally competitive, interdisciplinary environment for science and research; attraction of talent and foreign experts; strong and an open-to-business national Research Infrastructure (RI). Some of the key tasks in the vision of the 'Smart Economy' were focused on the progress of research and other industries through integration of national research organisations, business etc. to global and Nordic–Baltic systems; development of market-relevant innovations; development of internationally competitive creative and cultural industries.

- **The need to invest in R&D and the HE sector is foreseen in the National Progress and Development Programmes**

Considering the objectives set out in the strategy 'Lithuania 2030', the National Progress Programmes (NPPs) were prepared. Two NPPs were prepared for the periods 2014-2020 and 2021-2030. The purpose of these NPPs is to purposefully contribute to the implementation of the 'Lithuania 2030' strategy and provide guidance for ESIF support and the national budget. The latest NPP 2021 – 2030 is focused on the creativity of the society and nurturing of talents by strengthening the R&D and HE system, in addition to economic progress by promoting research and business sector cooperation and R&D-based innovations. Orientation to internationalisation of R&D is also foreseen. The main national strategic goals and priorities related to the R&D and HE sectors are presented in the Appendix, Table 8. NPPs have to be implemented by the development programmes, as the financial projections are included. These financial projections include both ESIF and The Recovery and Resilience Facility¹⁰ (for the period 2021-2030), in addition to state budget funds.

- **Large investments in the national RDI system through the smart specialisation strategy started in 2012**

Along with the development of Lithuania's Progress Strategy and other national strategic documents, in 2012 Lithuania started to identify its R&D and innovation priorities areas (smart specialisation priorities). Smart specialisation is a strategy of state support for R&D and innovation and was an ex-ante condition to receive ESIF support for R&D and innovation measures during 2014-2020. Lithuania, like other countries of the European Union, determined its R&D and innovation priorities while developing this strategy, taking into account existing or potential competitive advantage. The Lithuanian Government approved the Smart Specialisation Programme in April 2014. Renewal processes for Lithuania's Smart Specialisation Programme are underway for a new ESIF 2021-2027 period. The process is coordinated by the MoEI and the MoESS.

2.1.2. Changes in R&HE legislation and policy

- **In 2016 the Law on Higher Education and Research was revised with more focus on institutional funding from the state budget**

The main changes in the research area were approved in the Law on HE and Research: 1) The provision enabling the state to conclude contracts (up to three years) for strategic priority activities and results was established with state HE institutions (upon effective execution of a contract, the institution would get

¹⁰ Lithuania's recovery and resilience plan is available in English: https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/lithuanias-recovery-and-resilience-plan_en

additional funding); 2) Lithuanian institutes conducting research in Lithuanian studies have been given exclusive status – they can be reorganised only with the approval of the Seimas; 3) Non-state research and HE institutions may receive basic funding for R&D (until then – basic R&D funding was allocated only for state institutions); 4) State budget funding for state research and HE institutions for R&D and R&D-related administration and the economy is allocated according to the results of the evaluation of R&D activities.

- **2015 marks the beginning of the comparative expert assessment of R&D activities in Lithuania**

Taking into account foreign practice, the expert assessment of R&D activities in HE and research institutions has been piloted in Lithuania by six expert groups consisting of forty-six experts from foreign institutions in 2015. The experts assessed the R&D outputs and self-analysis questionnaires submitted by the HEIs and research institutes and met with the administration, researchers, and doctoral students of departments. In 2018 the first CEA, having impact on institutional (basic) R&D funding, was carried out. The CEA was organised by STRATA (at that time – MOSTA). The CEA results, together with the annual assessment of R&D outputs, organised by the RCL, were used to allocate the institutional (basic) funding for R&D from the state budget for 2019. In 2021, the RCL was assigned to organise the CEA for 2023.

- **In 2017 a new state R&D funding and evaluation scheme for the R&HE institutions was approved**

R&D funding: 60% of funds for R&D is allocated according to qualitative parameters of the CEA; 40% of funds according to quantitative indicators. The annual assessment of R&D activities by universities and research institutes; funding for the economy and administration of higher education and research institutions will depend on R&D and art activities and studies. For more information about R&D funding see section 3.

- **In the past decade the classification of research fields was revised twice**

In 2012, the new classification of research fields were determined by the Minister of Education and Science (now Minister of Education, Science and Sport). In 2018, the classification of research fields was renewed by the Government¹¹. The decision was made to bring the national classification of research fields closer to the one proposed by the Organisation for Economic Co-operation and Development (OECD), Fields of Research and Development (FORD). For more information see section 4.1 and Appendix, Table 10.

- **Research workers from state R&HE institutions are faced with frequent revisions of qualification requirements**

In 2018, the description of minimum qualification requirements for the positions of research workers in state R&HE institutions was revised¹². The minimum qualification requirements were updated for individuals seeking positions for research staff in state HEIs and research institutes. In 2021 these requirements were revised once more¹³. These minimum qualification requirements in the institutions must be applied no later than 2025. In the transitional period, institutions must follow the minimum qualification requirements approved by the chairman of the RCL in 2018. In 2022, the Seimas adopted the amendment of the Law of Higher Education and Research, where a new concept of researchers' careers was adopted. From July 2023, there will be four levels of researchers' career stages introduced in the R&HE system: first stage researcher; recognised researcher; established researcher; leading researcher. This change is adopted regarding the European Framework for Research Careers (2011). The RCL will be responsible for determining the required competencies for researchers at each level. For more information see section 4.2.

¹¹ Resolution of the Government of the Republic of Lithuania. 2018, No. 1317. Available in Lithuanian at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/a010ca61043a11e98a758703636ea610>

¹² Research Council of Lithuania Chairman Order of June 28th 2018, No V-340 <https://www.e-tar.lt/portal/lt/legalAct/8a9615307dbe11e8ae2bfd1913d66d57>

¹³ Research Council of Lithuania Chairman Order of January 29th 2019, No V-61 <https://www.e-tar.lt/portal/lt/legalAct/e3bac890645c11eb9dc7b575f08e8bea>

2.1.3. Changes in the institutional R&HE landscape

- **As part of Lithuanian higher education¹⁴ reform, HEIs were reformed**

With a continuously decreasing number of new students entering HE institutions and the need to strengthen existing universities and their study programmes, HE reform was initiated in 2017. Reform was focused on the optimisation of the HE institution network, the quality of studies and research, internationalisation, reform of the HE funding system and the quality assurance system. As one of the outcomes of the reform, the merger of some universities was accomplished: ASU and LEU were merged with VMU; ŠU merged with VU; although plans to merge MRU and Vilnius Tech were not implemented.

- **In the last few years some of research institutes merged and some changed legal status**

In 2020 three social science institutes were merged into the Lithuanian Centre for Social Sciences (LCSS). The Government approved the proposal of the MoESS to merge the Lithuanian Centre for Social Research, the Lithuanian Institute of Law and the Lithuanian Institute of Agrarian Economics into an entity. It was decided that the LCSS will take over the rights and duties of the institutes from January 1, 2021. In 2021 the Government approved the proposal of the MoESS to transform four other research institutes – LEI, FTMC, LAMMC and the Centre for Innovative Medicine (IMC) – from budgetary to public institutions. The change in legal status is expected to allow for more effective fundamental and applied scientific research, important for the state, society and business, and the use of their results in industry.

- **RCL opened a liaison office for better Lithuanian R&D integration and cooperation on the EU level**

The Lithuanian Research, Development and Innovation Liaison Office (LINO) in Brussels was set up in 2017. Based on the best practice of other countries, LINO was established as part of the RCL. The main objectives of the LINO are to improve the visibility of Lithuania's research and innovation potential in the EU, to help Lithuanian researchers develop international cooperation and to disseminate information about EU research and innovation policies and programmes.

- **The first RTO as an association was formed in 2019**

In 2019 three of Lithuania's research institutes formed the Research and Technology Organisation (RTO). The RTO was set up consisting of the Centre for Physical Sciences and Technology (FTMC), the Lithuanian Energy Institute (LEI), the Lithuanian Research Centre for Agriculture and Forestry (LAMMC) and the Science and Technology Park of the Institute of Physics.

- **Efforts to consolidate a fragmented system of innovation agencies have materialised in 2021**

Consolidation of the numerous agencies which were offering various innovation-related support functions has been on the political agenda for some time. Finally, in 2021 a decision was made to consolidate all state functions related to innovation and business promotion into a single agency. This decision was made based on the recommendations of the European Commission and the OECD, therefore three institutions (Agency 'Versli Lietuva', the LVPA and innovative activities performed by the MITA) were reorganised into single innovation agency.

2.1.4. Changes in Research Infrastructure

- **Strategic approach to research infrastructures**

In 2012, the Lithuanian roadmap for research infrastructures (Roadmap) was established. The Roadmap is a strategic document based on the analysis of the Lithuanian and the European research infrastructure system, taking into account the factual and potential links and synergies between national and international Research Infrastructures (RIs). This also duly takes into account the priorities of Lithuanian and European research activities. The Roadmap is a dynamic document, updated with regard to changes related to the need for infrastructures and their development. According to the established procedure,

¹⁴ Higher Education Reform available at (in Lithuanian language):
<https://lrv.lt/uploads/main/documents/files/%C5%A0vietimo%20reforma.pdf>

the RCL reviews and updates the Roadmap no less frequently than once every five years. In 2015 the Lithuanian Roadmap for RIs was updated. The Roadmap includes new RIs of national interest proposed by higher education and research institutions. The evaluation of projects has taken into account whether they provide resources for high-level research and whether Lithuania has prospects of integration into international consortia. For more information see section 4.4.

2.1.5. Other changes

- **In 2018 scholarships for third cycle students were increased**

In July 2018, doctoral scholarships were increased on the recommendation of the MoESS. By the end of 2018, first year doctoral students received scholarships of 395 EUR per month, second to fourth year students 456 EUR per month; from January 1st, 2019, first year doctoral students’ scholarship increased to the amount of 722 EUR per month, and 836 EUR/month for second to fourth year doctoral students.

- **Efforts were made to increase teaching and research staff members’ salaries**

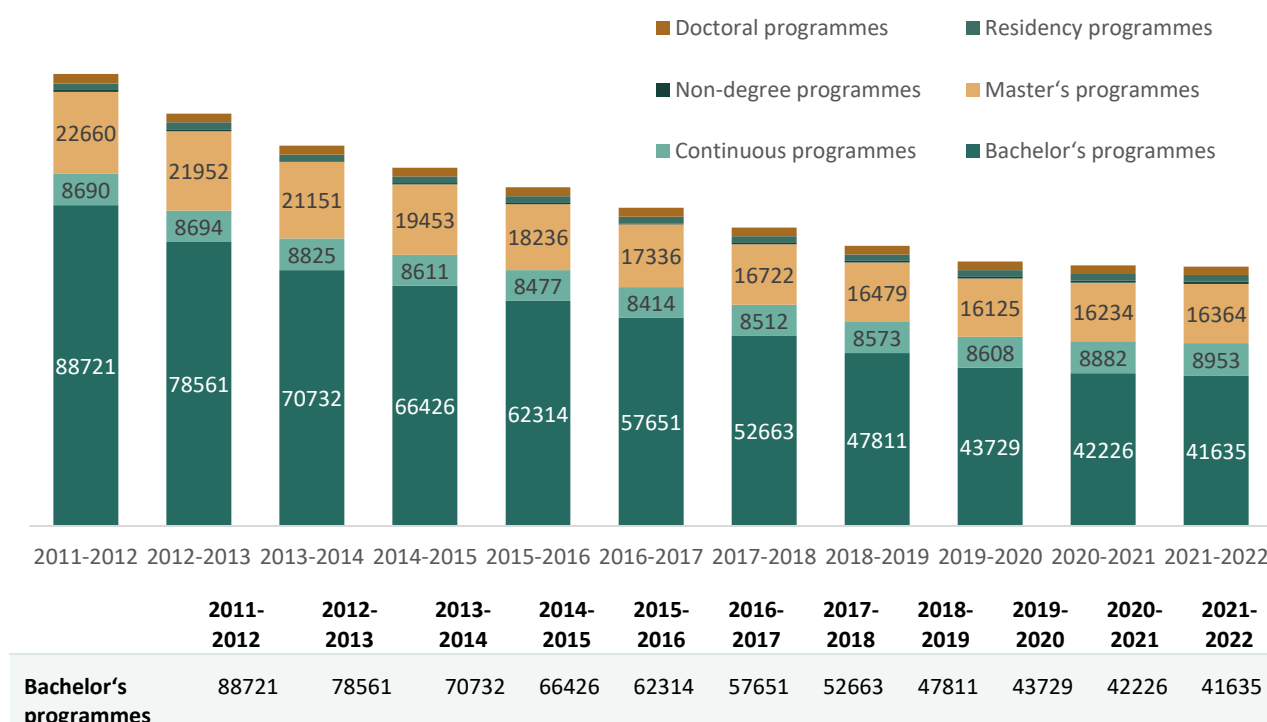
In 2019, the revised collective agreement of the Lithuanian education and science branch was signed providing for an increase in the wage for teaching staff so that it accounted for 150% of the country’s average wage by 2025. In 2021, salaries of junior researchers (one of the research workers’ positions) have been increased to encourage graduates to choose the career path of a scientist. From January 1, junior researchers’ salaries rose on average by 35%.

2.2. Key performance indicators

2.2.1. Students in HE

Over the past ten years overall student and graduates’ numbers have dropped significantly (see Figure 4 and Figure 5). The most significant drop in student numbers is observed in bachelor’s and master’s programmes and this trend can be attributed to Lithuania’s demographic change, emigration and other country specific factors. However, the numbers of foreign students graduating at Lithuanian universities has steadily increased over the last decade (see Figure 6).

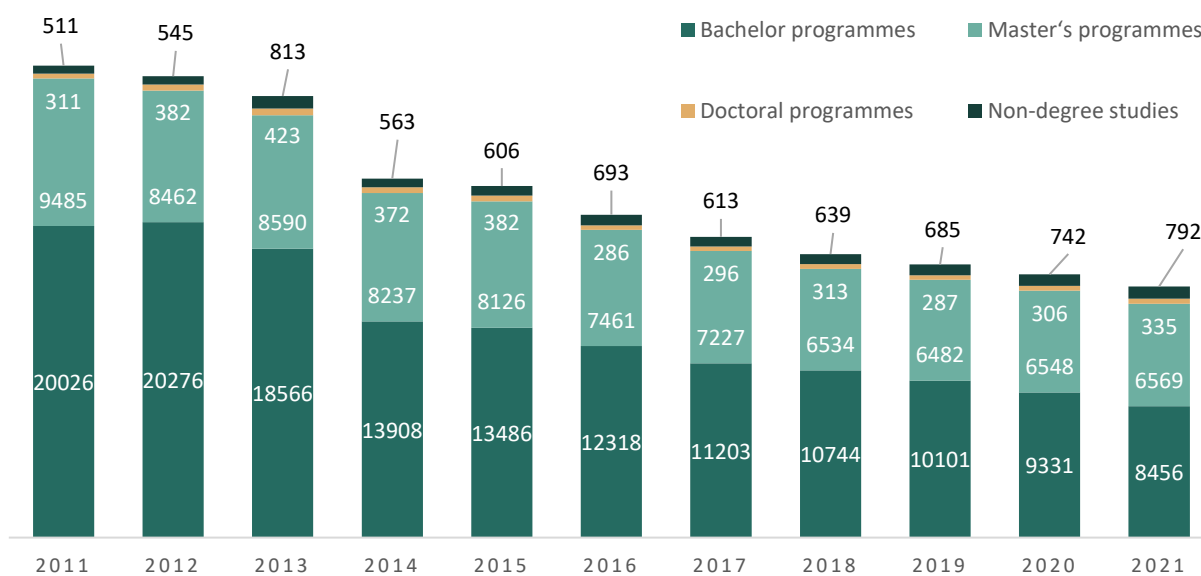
Figure 4. Number of students studying at universities, persons



| | | | | | | | | | | | |
|------------------------------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| Continuous programmes | 8690 | 8694 | 8825 | 8611 | 8477 | 8414 | 8512 | 8573 | 8608 | 8882 | 8953 |
| Master's programmes | 22660 | 21952 | 21151 | 19453 | 18236 | 17336 | 16722 | 16479 | 16125 | 16234 | 16364 |
| Non-degree programmes | 552 | 544 | 153 | 346 | 339 | 317 | 372 | 429 | 470 | 493 | 596 |
| Residency programmes | 1791 | 1886 | 1876 | 1863 | 1884 | 1837 | 1842 | 1818 | 1858 | 1888 | 1905 |
| Doctoral programmes | 2632 | 2458 | 2425 | 2367 | 2444 | 2426 | 2419 | 2388 | 2365 | 2335 | 2245 |
| Total | 125046 | 113780 | 104923 | 98872 | 93524 | 87797 | 82345 | 77321 | 73011 | 71895 | 71566 |

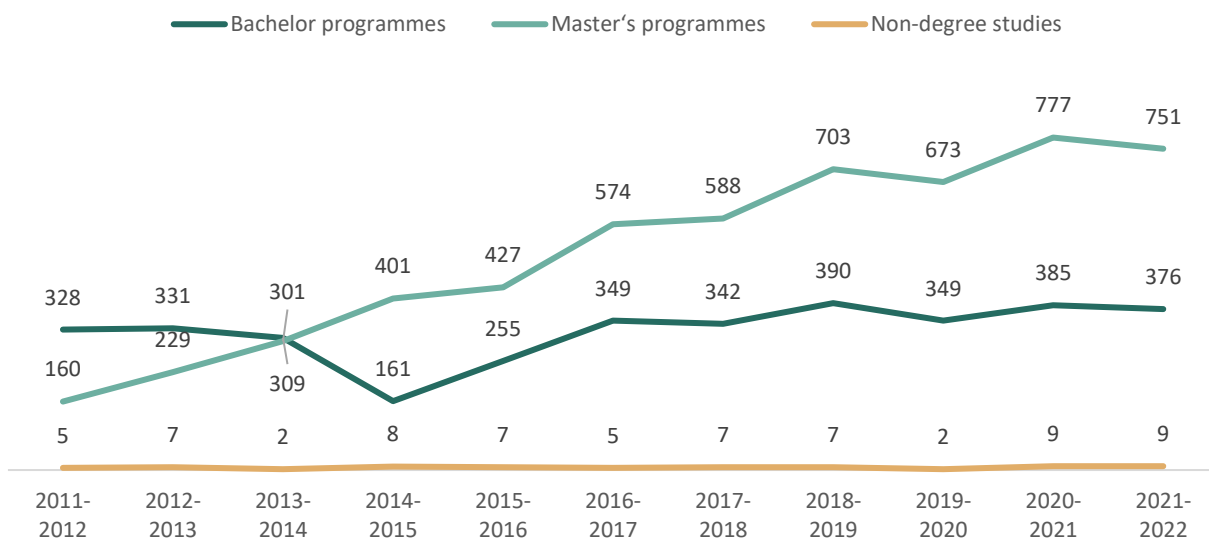
Data source: Statistics Lithuania, 2022

Figure 5. Number of university graduates per year, persons



Data source: Statistics Lithuania, 2022

Figure 6. Number of foreign graduates at universities, persons

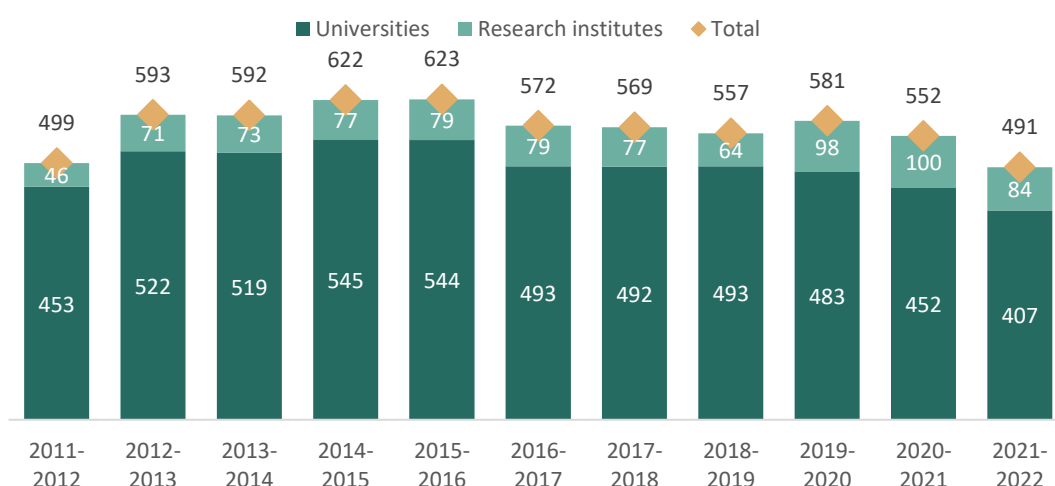


Data source: ŠVIS, 2022

2.2.2. PhD students

Compared to 2011, the number of PhD students in the year 2021 has doubled in research institutes, while in universities the number of PhD students marginally decreased (see Figure 7 and Figure 8). Foreign PhD student numbers are also increasing gradually (see Figure 10). Although the number of PhD students over the years hasn't decreased considerably, there are indications that a researcher's career in Lithuania is not sufficiently attractive. In recent years the Government of Lithuania made an effort to make researchers' career path attractive and implemented various initiatives for that reason, e.g.: doctoral scholarships were increased by 83% in 2019; junior researchers' salaries were increased on average by 35% in 2021¹⁵; the wages of academic and research personnel are continuously being increased¹⁶.

Figure 7. Number of doctoral students admitted to universities and research institutes, persons

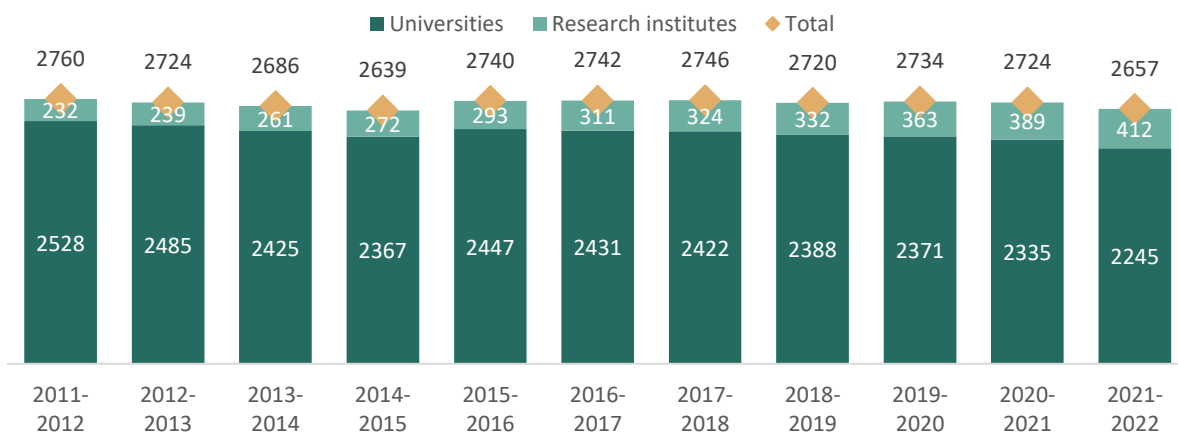


¹⁵ Junior researcher salaries were revised and increased on average by 35% from January 1st 2021. Until 2021, the official salary of junior researcher was 952-1202 EUR gross, 643-789 net, which was less than a second-fourth year doctoral student scholarship (from 2019 year revision).

¹⁶ These wage developments have been influenced by adopted policy decisions and changes to the tax system enforced on 1 January 2019.

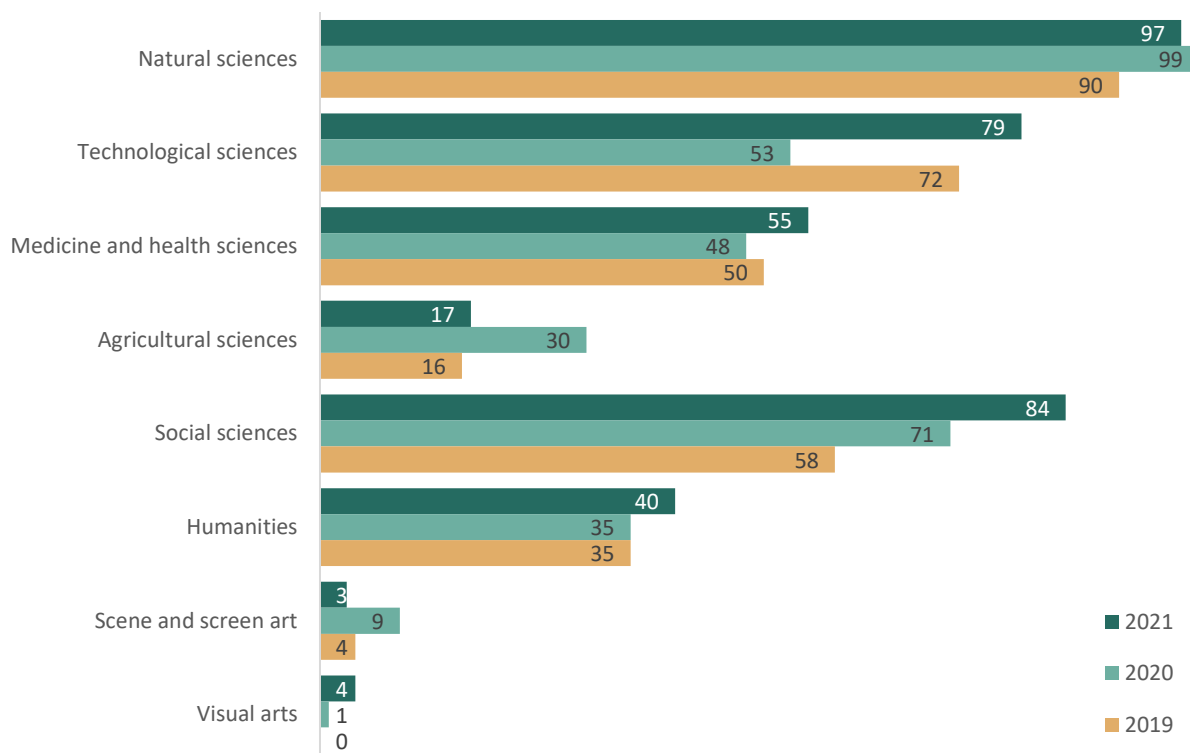
Data source: ŠVIS, 2022

Figure 8. Number of doctoral students studying at universities and research institutes, persons



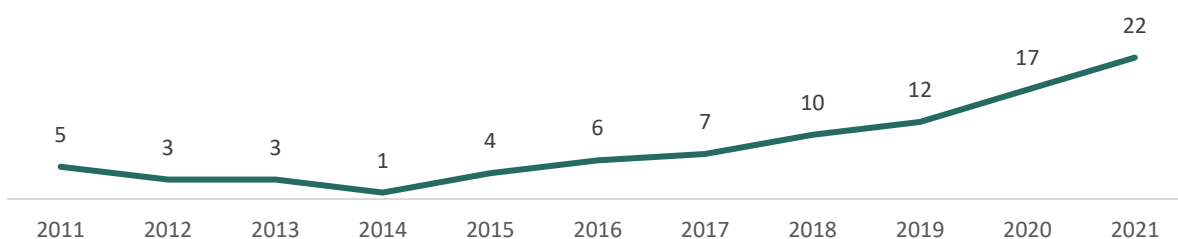
Data source: ŠVIS, 2022

Figure 9. Number of doctoral degrees awarded by areas of science, persons



Data source: Statistics Lithuania, 2022

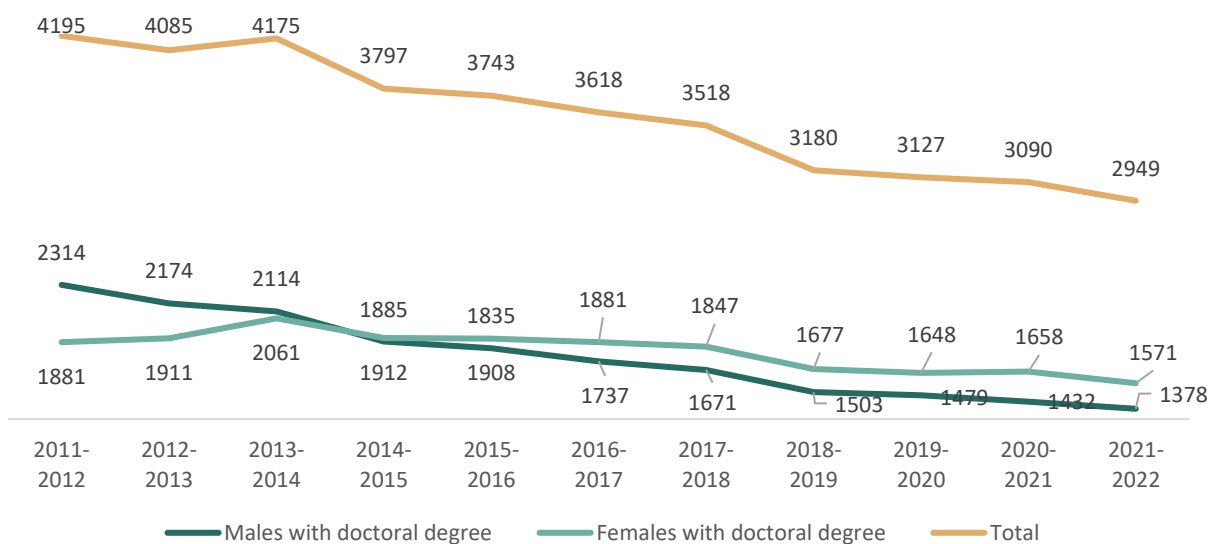
Figure 10. Number of doctoral degrees awarded to foreign PhD students, persons



2.2.3. Research and academic personnel

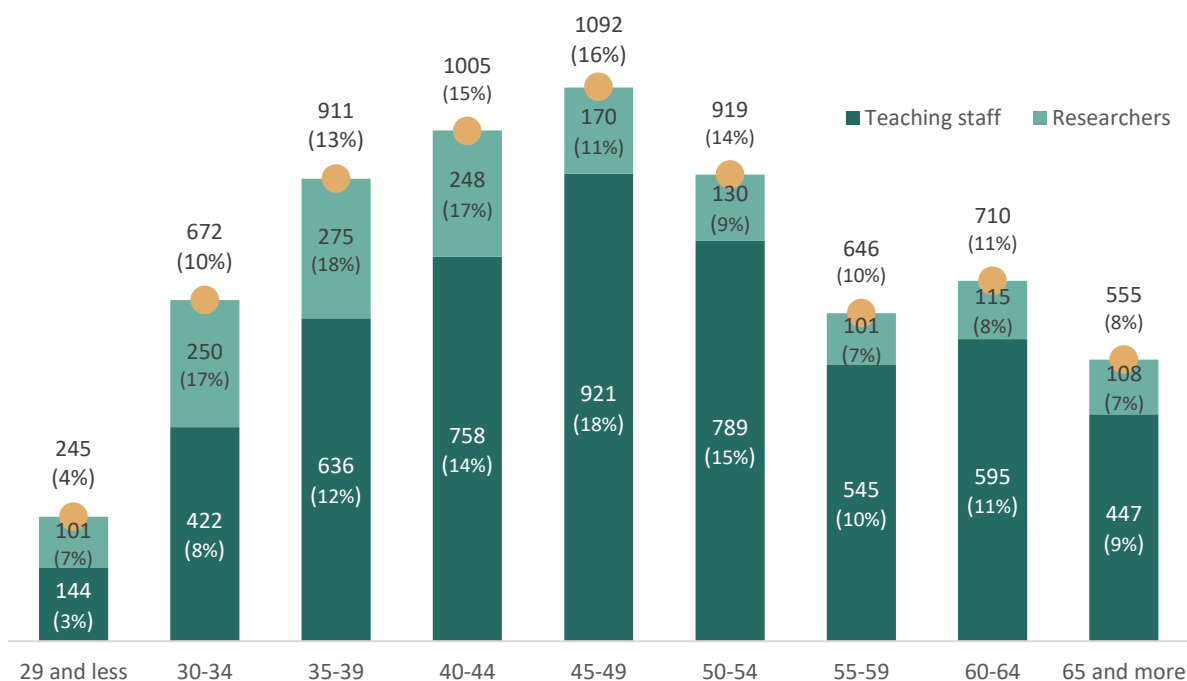
The majority of the academic personnel working in Lithuania's HEIs and research institutes hold Lithuanian citizenship and belong to the 40-54 year age group and work in the natural and social sciences field (see Figure 12, Figure 13, Table 2).

Figure 11. Number of university teaching staff with doctoral degree by sex, persons



Data source: Statistics Lithuania, 2022

Figure 12. Universities academic personnel by age group on 2022-10-01, persons in FTE



Data source: ŠVIS, 2022

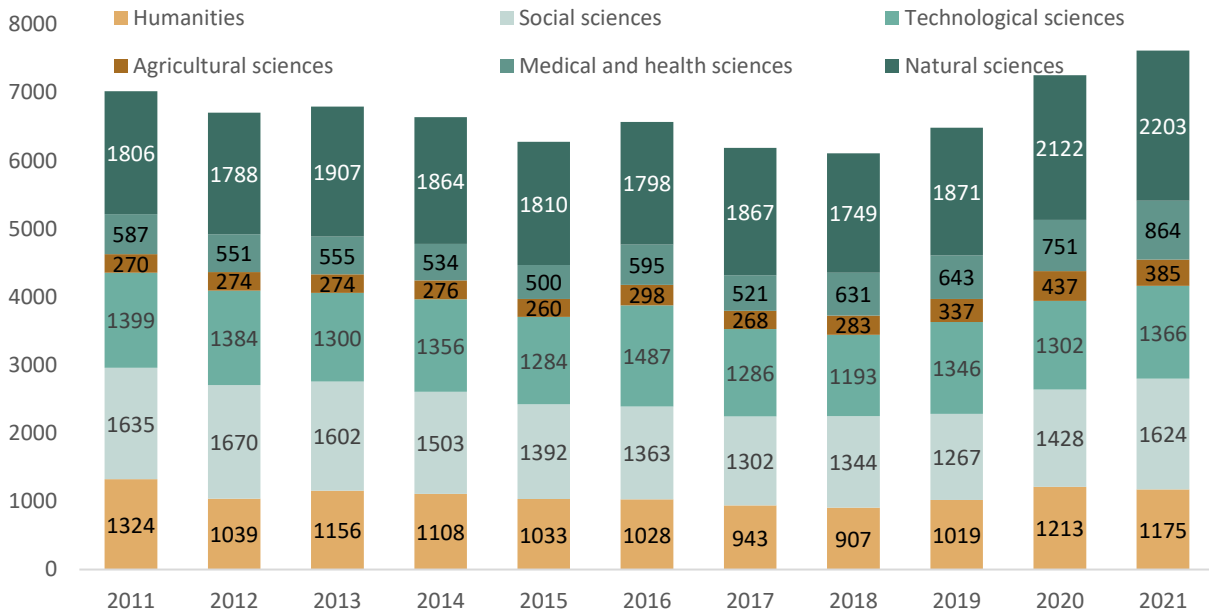
Table 2. Academic personnel by citizenship, persons

| Persons 1st Oct | | | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------|--------|----------------|------|------|------|------|------|------|------|
| Research institutes | LT | Research staff | 1293 | 1385 | 1408 | 1414 | 1431 | 1447 | 1401 |
| | Non LT | Research staff | 7 | 12 | 17 | 20 | 39 | 44 | 50 |

| Universities | LT | Teaching staff | 8604 | 8379 | 8150 | 7957 | 8344 | 8399 | 8212 |
|--------------|--------|----------------|------|------|------|------|------|------|------|
| | | Research staff | 1960 | 1940 | 2117 | 2289 | 2683 | 2838 | 2799 |
| | Non LT | Teaching staff | 249 | 245 | 244 | 206 | 246 | 242 | 219 |
| | | Research staff | 49 | 54 | 74 | 116 | 136 | 138 | 111 |

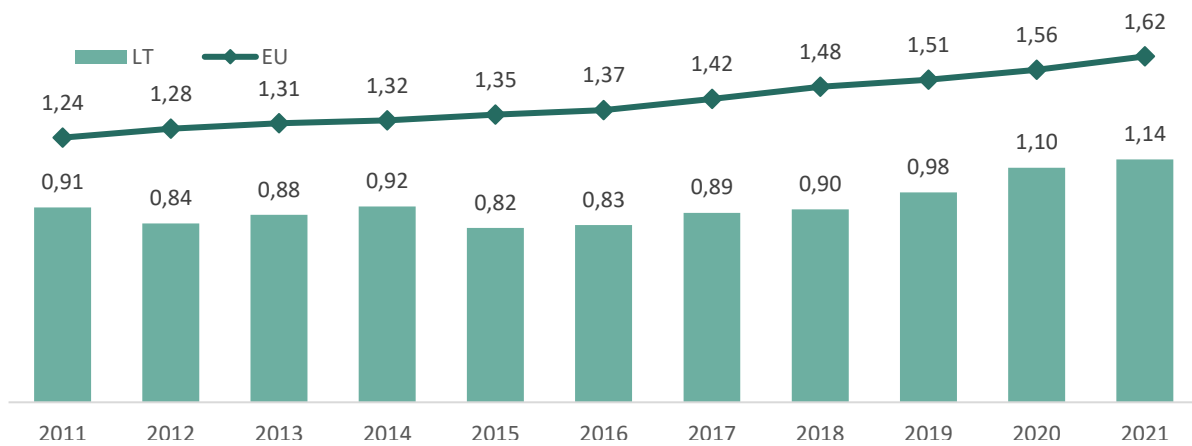
Data source: ŠVIS, 2022

Figure 13. Number of researchers in R&D in the higher education and government sectors by field of science, in FTE



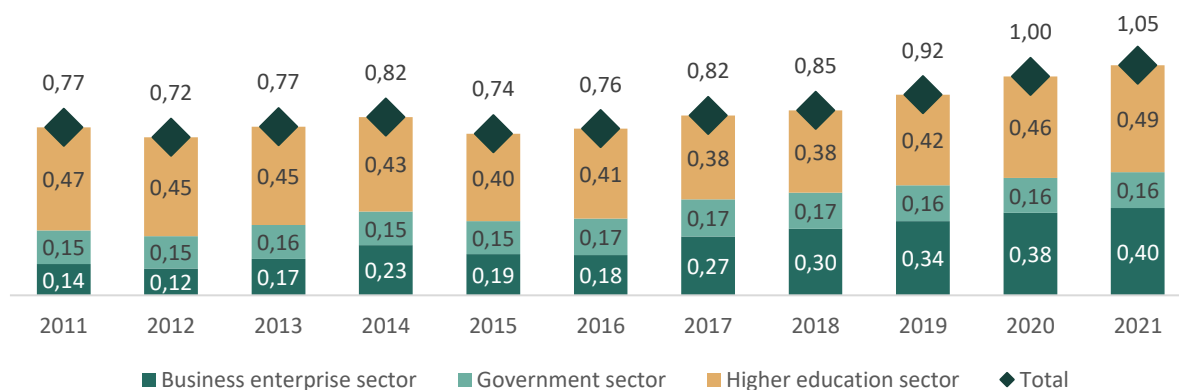
Data source: Statistics Lithuania, 2022

Figure 14. Share (percentage) of R&D personnel in total active population



Data source: Eurostat, 2022

Figure 15. R&D personnel by sector, % of population in the labour force in FTE

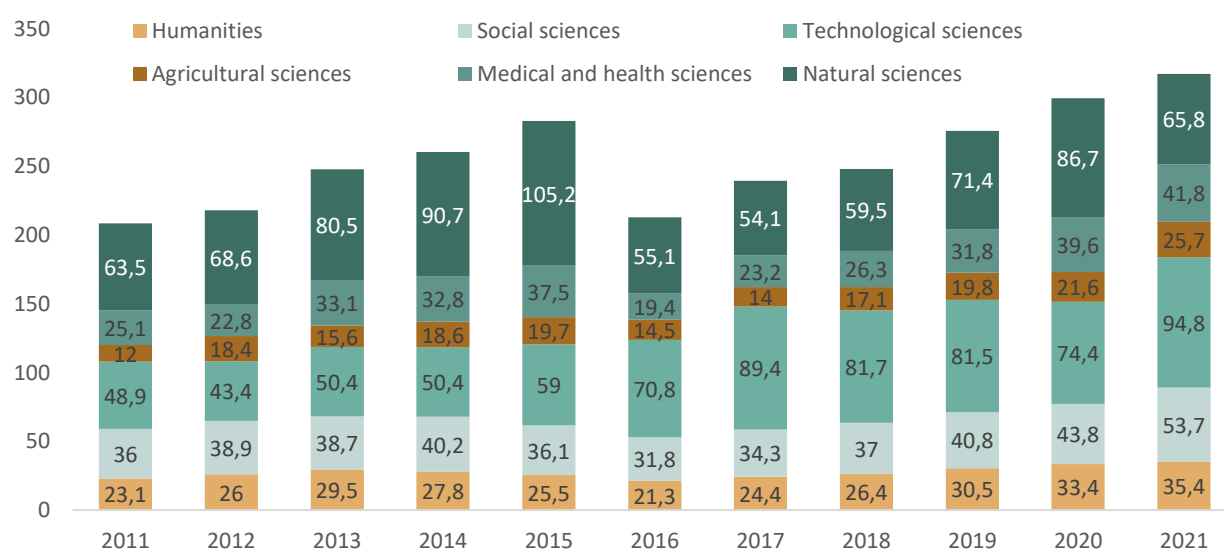


Data source: Eurostat, 2022

2.2.4. R&D expenditure

Direct appropriations of the state budget for R&D activities have been increasing in recent years (see Table 3) although public funding for R&D remains low in comparison with the EU (see **Error! Reference source not found.**, Figure 17).

Figure 16. R&D expenditure in the higher education and government sectors by the area of science, EUR million



Data Source: Statistics Lithuania, 2022

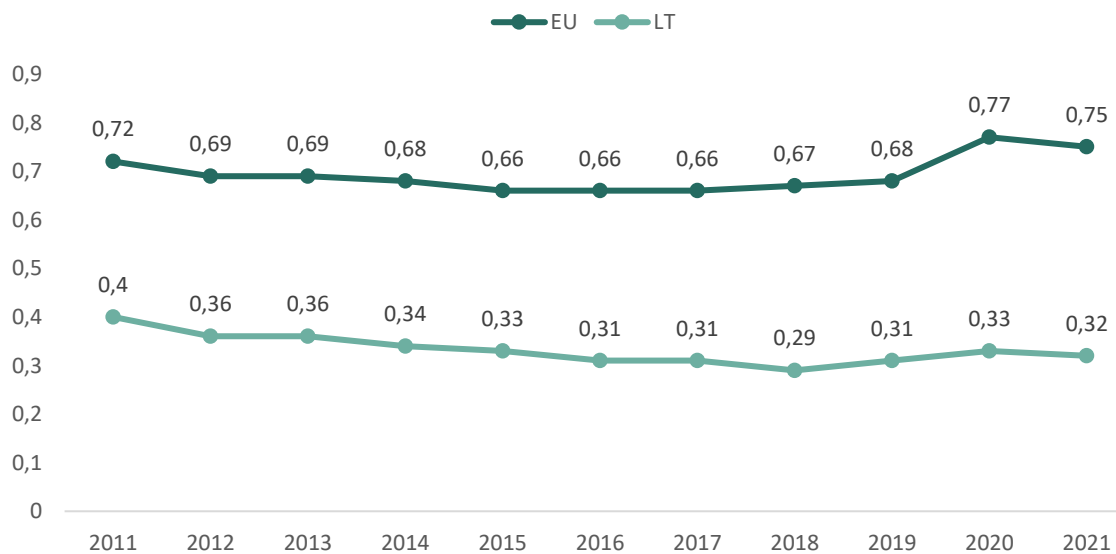
Table 3. Institutional (basic) funding for state universities and research institutes, EUR thousands

| Year and institution type | Total funding for: | Scholarships | Study Costs | Research and art activities: | | Economy and administration | |
|---------------------------|---------------------|--------------|-------------|---|--|----------------------------|--------|
| | | | | Research and art activities according to the assessment results | Research and art activities according to the FTE | | |
| 2013 | Universities | 160 480 | 14 863 | 102 627 | 11 925 | 13 300 | 17 765 |
| | Research institutes | 17 122 | 733 | 1 038 | 5 594 | 5 955 | 3 802 |
| 2014 | Universities | 159 177 | 13 109 | 100 747 | 12 242 | 12 612 | 20 467 |

| | | | | | | | |
|-------------|----------------------------|---------|--------|---------|--------|--------|--------|
| | Research institutes | 18 651 | 770 | 1 366 | 5 865 | 6 264 | 4 386 |
| 2015 | Universities | 161 077 | 12 580 | 97 832 | 14 909 | 13 070 | 22 686 |
| | Research institutes | 20 677 | 920 | 1 734 | 7 122 | 6 491 | 4 409 |
| 2016 | Universities | 168 087 | 14 457 | 96 760 | 19 240 | 13 131 | 24 499 |
| | Research institutes | 22 057 | 1 404 | 2 149 | 7 366 | 6 522 | 4 616 |
| 2017 | Universities | 166 789 | 14 221 | 95 588 | 16 908 | 16 184 | 23 888 |
| | Research institutes | 21 957 | 1 523 | 2 366 | 6 466 | 6 952 | 4 650 |
| 2018 | Universities | 179 308 | 14 514 | 95 280 | 20 536 | 16 184 | 29 670 |
| | Research institutes | 24 236 | 1 586 | 2 476 | 7 472 | 6 952 | 5 048 |
| 2019 | Universities | 194 965 | 14 736 | 104 907 | 19 486 | 23 358 | 29 643 |
| | Research institutes | 29 173 | 2 937 | 2 821 | 6 137 | 11 538 | 5 062 |
| 2020 | Universities | 216 047 | 14 638 | 115 612 | 22 459 | 26 891 | 29 534 |
| | Research institutes | 33 220 | 3 005 | 3 230 | 7 030 | 13 284 | 5 276 |
| 2021 | Universities | 238 977 | 15 219 | 121 099 | 23 443 | 28 234 | 29 343 |
| | Research institutes | 38 043 | 3 411 | 3 497 | 7 383 | 13 946 | 5 467 |
| 2022 | Universities | 292 787 | 15 734 | 136 622 | 7 804 | 53 192 | 32 597 |
| | Research institutes | 47 033 | 3 895 | 3 917 | 3 043 | 21 765 | 6 132 |

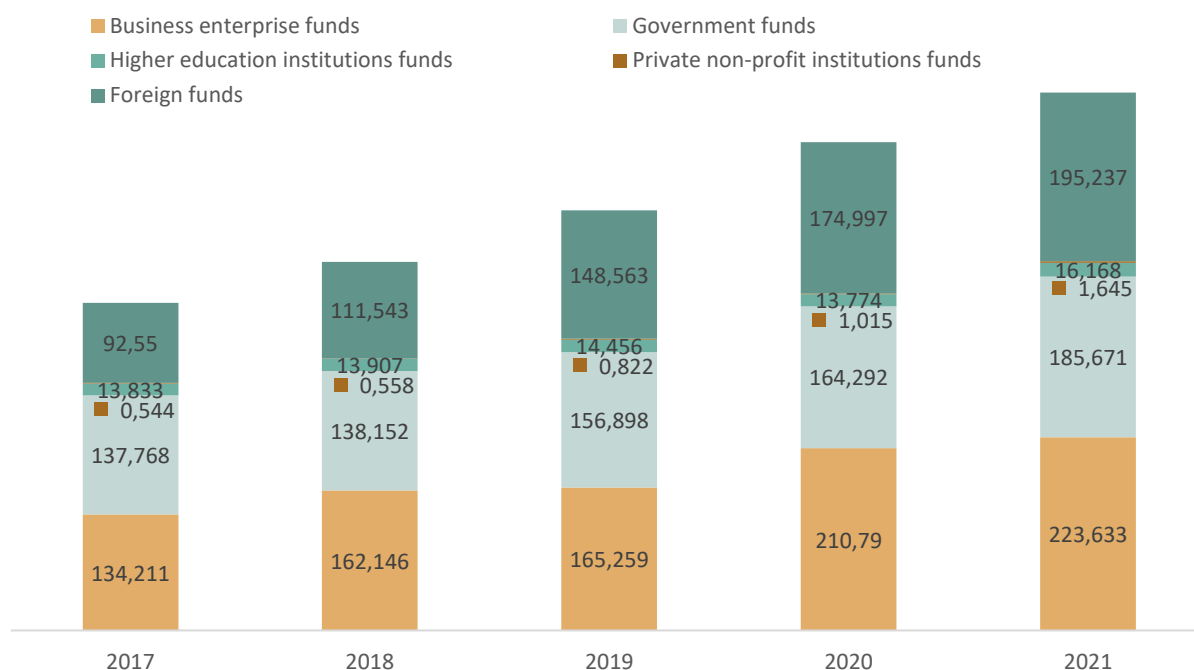
Data Source: MoESS, 2022

Figure 17. Total Government budget allocations for R&D (GBARD) as % of GDP



Data source: Eurostat, 2022

Figure 18. R&D expenditure by funding sources, EUR million



Data source: Statistics Lithuania, 2022

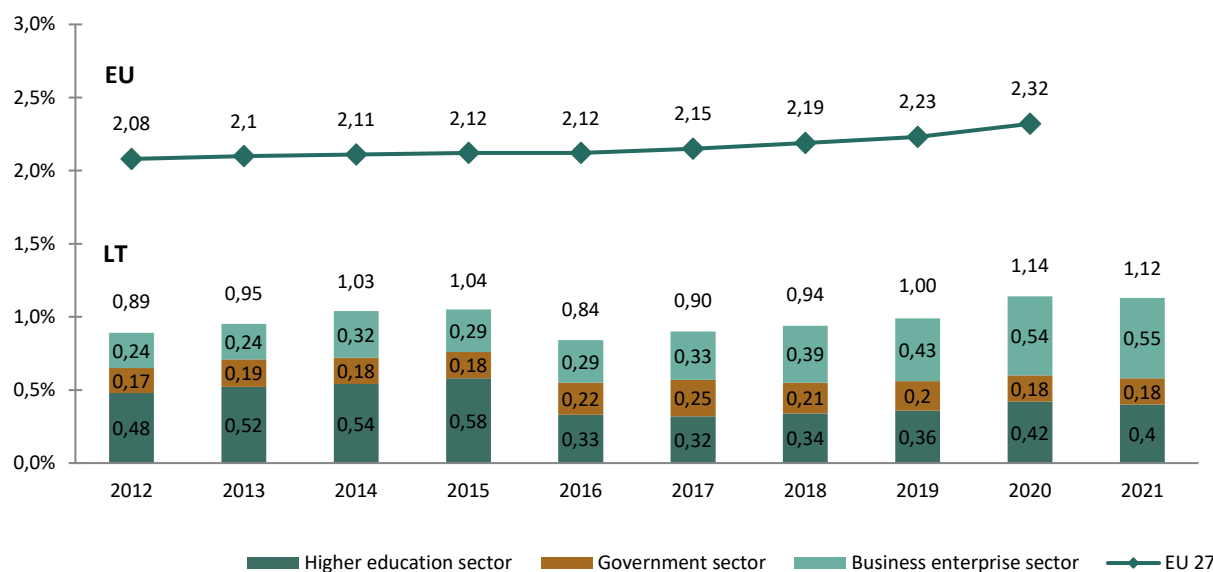
3. Funding of R&D

In this chapter, the funding scope in Lithuania and the EU according to funding sources are presented. We discuss the Lithuanian R&D funding system, presenting models of institutional (basic) and competitive funding from the state budget, other sources of R&D funding, and the relationship between R&D assessments and institutional funding.

3.1. R&D funding in Lithuania and the European Union

Lithuania's R&D intensity, i.e., gross domestic expenditure on R&D (GERD) as a percentage of the gross domestic product (GDP) in 2020 was 1.14% (EUR 564,9 million) and was the highest value since 2011 (see Figure 19); it is just half of the EU average. The R&D intensity of the business enterprise sector was also one of the highest during the period of ten years and reached 0.55% in 2020, which in comparison to the EU average is almost three times lower.

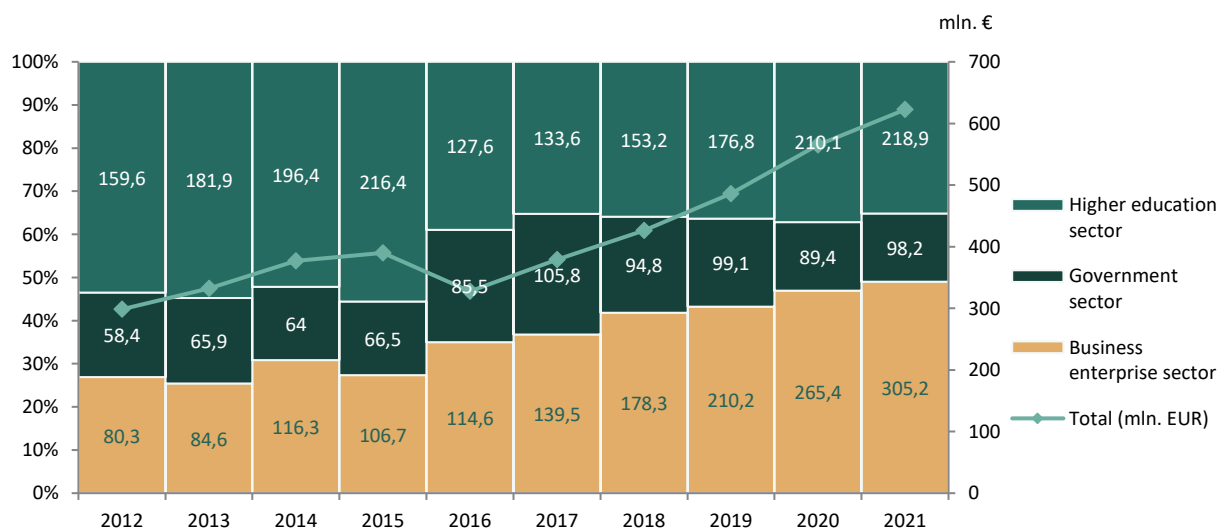
Figure 19. R&D intensity by sector of performance (R&D expenditure as % of GDP)



Data source: Eurostat, Statistics Lithuania, 2022

In the 'Europe 2020' strategy, the national target for R&D intensity in 2020 was to reach 1.9% (1% coming from the public sector and 0.9% from the business enterprise sector), whereas in the EU – 3%, of which neither has been achieved. In the most relevant 2020–2030 National Progress Plan (NPP), the first of the ten strategic goals stipulate the transition to sustainable economic development based on scientific knowledge, advanced technologies, innovation and increasing the country's international competitiveness. In the NPP it is aimed that the country's R&D intensity will reach 2.2% by 2030.

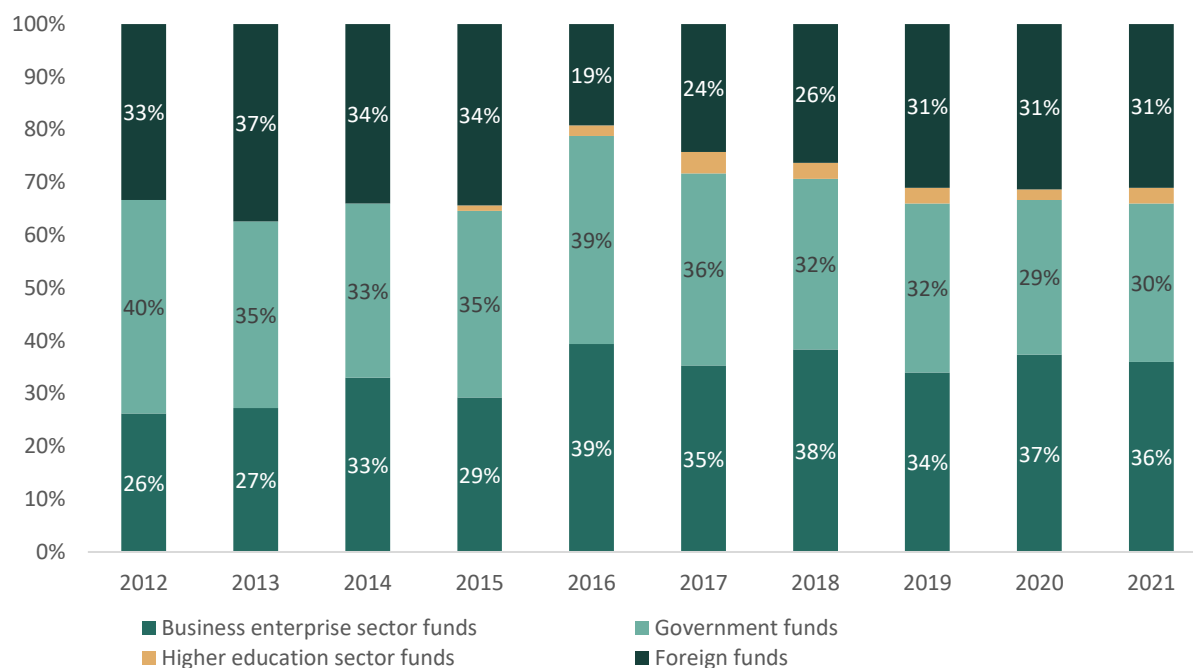
Figure 20. R&D expenditure by sector of performance



Data source: Statistics Lithuania, 2022

For the last five years, the major share of R&D expenditure was spent in the business enterprise sector, accounting for 49% of total R&D funds disbursed in 2021, followed by the HE sector (35%) and the government sector (16%). Until 2015, the higher education sector was the main sector in which the greatest share of R&D expenditure was spent (see Figure 20). R&D funding is dependent on the EU structural and investment funds (ESIF) and especially public funding for R&D (e.g., in 2019, 40% of the state budget expenditure for R&D came from the ESIF). Fluctuations in R&D expenditure in Lithuania, especially in the higher education sector, have been significantly influenced by the cycles of the ESIF.

Figure 21. R&D expenditure by source of funds



Data source: Statistics Lithuania, 2022

R&D expenditure by the source of funds (see Figure 21) shows that more than one third (35.9%) of the total expenditure within the Lithuania in 2021 was funded by business enterprises (EU average 57.9% in 2020), while almost one third (31.4%) was funded from foreign funds (EU average 9.6% in 2020), and other almost one third was funded by the Government (EU average 30.3% in 2020). Funding from the higher education sector both in Lithuania and as an EU average is relatively small – 2.6% in Lithuania in 2021 and 1.2% EU average in 2020.

Foreign funds are a significant source for R&D funding in Lithuania (and it is one of considerable differences in comparison to the EU average). EU funds compose a major part of the total foreign funds. Approximately two thirds of foreign funds consist of ESIF funds, which are mainly distributed by the Government. The share of the EU funds in the form of the research and innovation programme, Horizon 2020, is low. Unfortunately, according to December 2021 data, Lithuania ranks penultimate in terms of received funding for one participant from the EU Horizon 2020 programme among EU countries.

3.2. R&D funding for universities and research institutes: institutional and competitive funding

Funds for research and higher education institutions consist of¹⁷:

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • basic funding allocated from the state budget, • funds from the state budget allocated for studies, • funds of state investment programmes and state investment projects, | <ul style="list-style-type: none"> • income received as payment for studies, additionally, income from R&D and art activities, economic activities and services provided, • funds received from competitive programme- based funding for R&D, | <ul style="list-style-type: none"> • state funds, • funds allocated by international and foreign foundations and organisations, • funds received as financial support, • other legally received funds. |
|---|---|--|

State research and higher education institutions are provided with institutional (basic) funding for the development of R&D activities, studies, administration, etc. (see Table 3), while non-state research and

¹⁷ Article 74 in the Law on Higher Education and Research of the Republic of Lithuania. 2009, No. XI-242.

higher institutions receive institutional funding only for R&D and art activities¹⁸. Funds for R&D activities are allocated to higher education and research institutions (state and non-state)¹⁹:

| | | | | |
|--|--|---|---|---|
| <ul style="list-style-type: none"> • from the basic state funding for R&D and art activities, | <ul style="list-style-type: none"> • according to national science and technology programmes, | <ul style="list-style-type: none"> • according to competitive research programmes, | <ul style="list-style-type: none"> • according to competitive technology programmes, | <ul style="list-style-type: none"> • in accordance with state orders for carrying out innovative activities, |
| <ul style="list-style-type: none"> • to carry out experimental development activities according to the orders of economic entities, | <ul style="list-style-type: none"> • according to state investment programmes and state investment projects for state research and higher education institutions, | <ul style="list-style-type: none"> • from state funds, | <ul style="list-style-type: none"> • funds allocated from international and foreign foundations and organisations, | <ul style="list-style-type: none"> • from other legally obtained funds. |

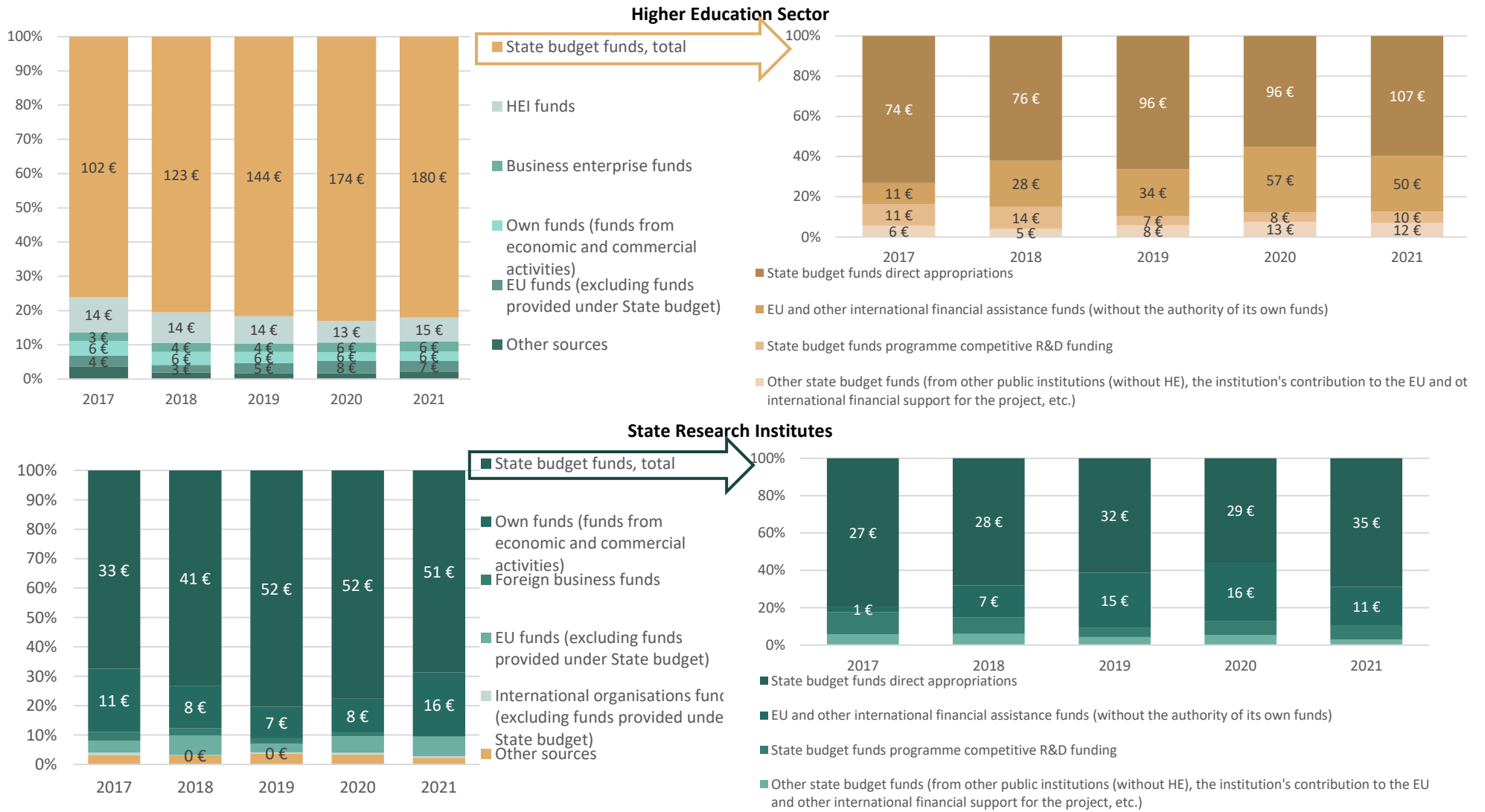
In 2021, the total R&D funding in HE and Government (R&D expenditure by state research institutes accounts on five-year average for two thirds of Government R&D expenditure) sectors amounted to EUR 317.1 million (the amount was 32% higher than in 2017). The structure of R&D funding sources of the HE sectors and state research institutes shows that in 2017–2021, state budget funding comprised around 50% of HE sector’s and around 75% of state research institutes’ funding sources (see Figure 22). The EU funding is the relevant funding source for both sectors. It influences the fluctuation of the total funding for R&D in these two sectors.

Institutional and competitive R&D funding will be discussed in more detail below.

¹⁸ Article 75 in the *Law on Higher Education and Research of the Republic of Lithuania*. 2009, No. XI-242.

¹⁹ Article 84 in the *Law on Higher Education and Research of the Republic of Lithuania*. 2009, No. XI-242

Figure 22. Sources of R&D funding in HE sector and state research institutes, EUR million



Source: Statistics Lithuania, 2022

3.2.1. Institutional funding for R&D activities from the state budget

Institutional funding from the state budget for the development of R&D activities is allocated to research and higher education institutions according to the results of the R&D activities assessment. The total amount of institutional funding depends on the needs of the state's economic, social, and cultural development and the state's financial capabilities.²⁰ Direct state budget appropriations for R&D activities of the universities and research institutes are distributed by the MoESS.

Since 2019, institutional funding from the state budget for R&D activities is allocated for universities and research institutes according to the results of²¹:

(1) The annual assessment of R&D activities, carried out since 2009 (for now, constitutes 40% of the allocated funding);²² and

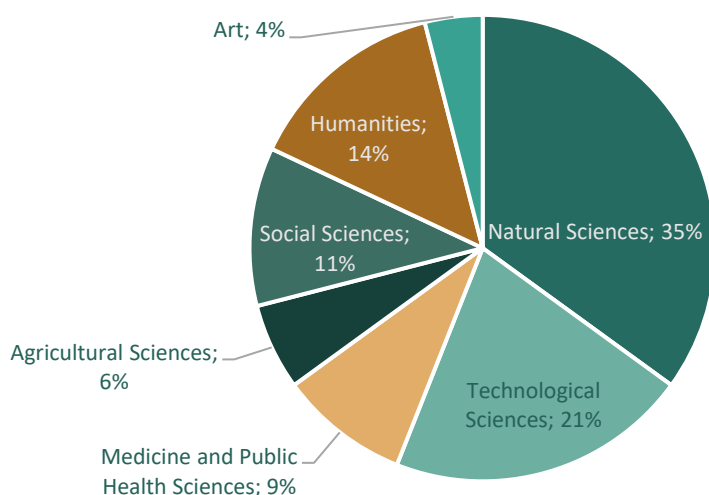
(2) The Comparative Expert Assessment of R&D activities, carried out since 2017 every five years (for now, constitutes 60% of the allocated funding)²³.

The amounts of institutional funding regarding these two assessments are presented in Table 3.

NB: only since 2021, institutional (basic) funding principles regarding annual and Comparative Expert Assessments were drawn in the Law on Higher Education and Research. This addition appeared, considering the decision of the Constitutional Court of Lithuania. The Court examined the validity of both assessments in the allocation of institutional (basic) funding to research and higher education institutions. The issue was examined by the Court due to dissatisfaction from the academic community. Until 2021, the principles of institutional (basic) R&D funding were presented in secondary legal acts.

Institutional funding for universities and research institutes for R&D and art activities are divided according to the areas of research and art (see Figure 23).

Figure 23. Percentage distribution of state budget for R&D and art activities between the areas of research and art



Source: Order of the Minister of Education, Science and Sport, 2021, No. V-1593

²⁰ Article 75¹ in the Law on Higher Education and Research of the Republic of Lithuania. 2009, No. XI-242.

²¹ Changes to The Law on Higher Education and Research of the Republic of Lithuania will lead to changes in assessment from 2024: 70% of the budget will be allocated regarding the results of the Comparative or Expert Assessment and 30% of the budget will be allocated regarding the results of the annual quantitative or incentive assessment.

²² The assessment covers a period of one year (N-1) and the funds are allocated based on the results of the last three years (N-3, N-2, N-1) for year N+1, where N is the year of the Annual Assessment.

²³ The assessment covers the period of five previous years M-5 to M-1, and funds are allocated to years M+1, M+2, M+3, M+4 and M+5, where M is the year of the Comparative Expert Assessment.

3.2.2. Competitive R&D funding

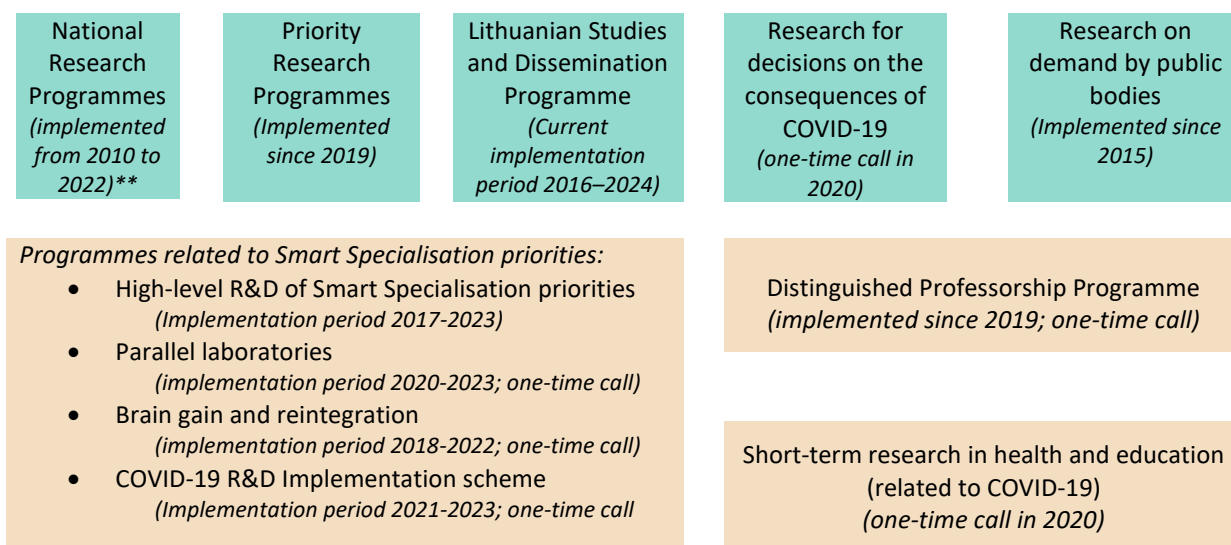
Another important R&D funding source for universities and research institutes is competitive – programme (project) based funding. Competitive R&D funding is financed from the state budget and the ESIF. In 2021, the state budget for competitive-programme based R&D funding was almost five times smaller in the HE and Government sectors compared to the EU and other international financial assistance funds (see Figure 22).

The main institution responsible for competitive R&D funding in the country is the RCL²⁴. Also, some of the programmes were funded by the MITA²⁵ (which since 2022 is integrated into the Innovation Agency) and other institutions authorised by the Government or by the MoESS and the MoEI. Other ministries (e.g., Ministry of Agriculture, Ministry of Health, and Ministry of Environment) also have small competition-based programmes for R&D financed from the ESIF. The main competition-based R&D funding programmes (state commissioned and bottom-up) for HE and research institutions administered by RCL and MITA are presented in the Appendix, Table 8.

In the RCL, competitive R&D funding is distributed as (i) top-down programmes (state-commissioned research) (see Figure 24), (ii) bottom-up projects (see Figure 25), (iii) support for academic career, mobility and dissemination of research results (see Figure 26), (iv) international collaboration programmes and projects related to EU research and innovation programmes (see Figure 27).

Competitively funded research programmes that are dedicated for solving strategically important issues related to the state, society, and economic development are regarded as state-commissioned research. Research funded under such programmes must be related to national strategic documents. Usually, they are financed by different funding sources. The RCL administers programmes funded from the state budget or ESIF (see Figure 24). One third of the RCL budget is dedicated to such programmes annually.

Figure 24. Top-down research programmes administered by RCL^{26*}



* - ■ Programmes funded from the State budget ■ Programmes funded from the ESIF

** - National Research Programmes were included in the Law of Higher Education and Research until 2018. Currently the programmes are replaced by Priority Research Programmes which are the initiative of the RCL.

Source: RCL

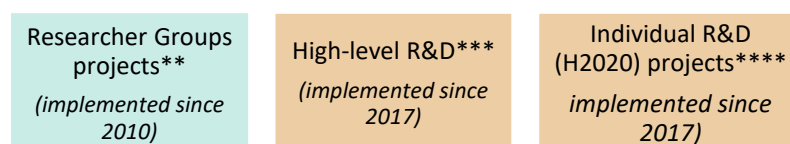
The RCL also administers three competitive R&D funding programmes where researchers have a possibility to freely initiate research topics. One of them is funded from the state budget and the other two from the ESIF.

²⁴ For more information, please visit: <https://www.lmt.lt/en/research-funding/786>

²⁵ For more information, please visit: <https://mita.lrv.lt/en/>

²⁶ For more information about each of the programme mentioned, please visit: <https://www.lmt.lt/en/research-funding/national-programmes/2899>

Figure 25. Bottom-up research programmes administered by RCL



* - Programmes funded from the state budget Programmes funded from the ESIF

** - **Researcher Groups projects programme** is intended to develop scientific potential and raise the qualifications of researchers. This measure is the largest between RCL programmes both in terms of allocated funds and the number of financed projects. Eleven calls for applications have been announced since 2010. About seven million EUR are allocated annually to projects initiated by researchers from the state budget allocations allocated to the RCL.

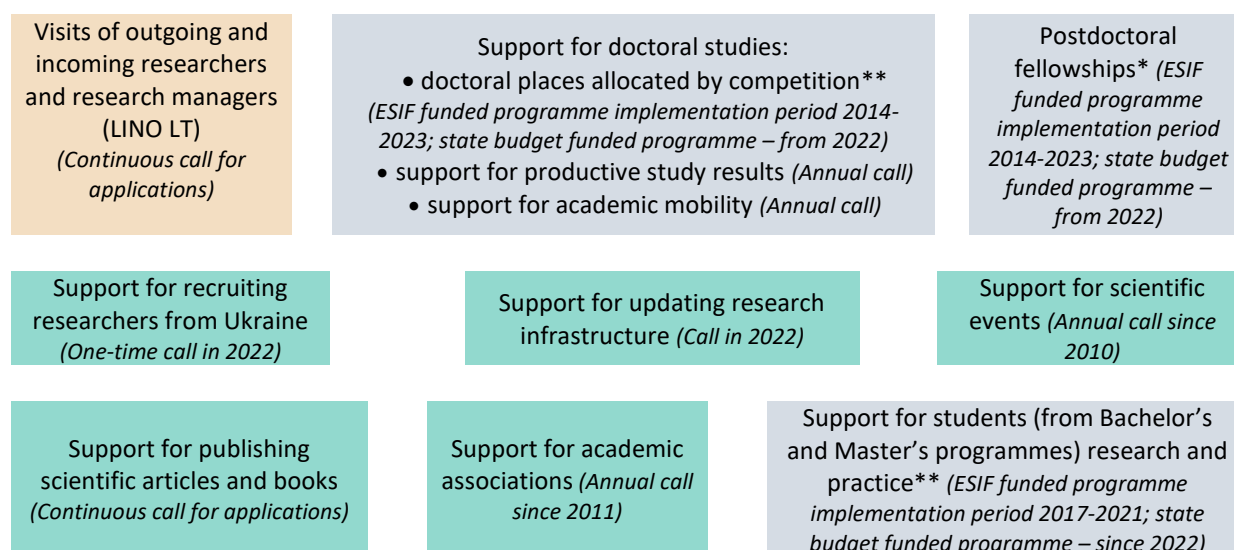
*** - **High-level R&D programme** is intended to attract top-level foreign scientists, bring together groups of researchers, initiate and carry out international-level scientific research that would contribute to increasing the international awareness of HE and research institutions, strengthening the scientific potential of these institutions, educating young scientists, improving the competences of researchers, and developing the current scientific activities or topics. In 2021, six project financing contracts for 5.3 million EUR were signed.

**** - **Individual R&D (H2020) projects programme** is dedicated to finance projects that were submitted to the ERC, evaluated with high scores, but did not receive funding due to huge competition. In 2017-2020, nine projects were financed for 1.25 million EUR.

Source: RCL

The RCL has various support mechanisms for doctoral students, research mobility, research results dissemination, post-doctoral fellowships, etc. Some of the programmes have annual calls for applications, others – depend on the available funding.

Figure 26. RCL support for academic career, mobility and dissemination of research results*



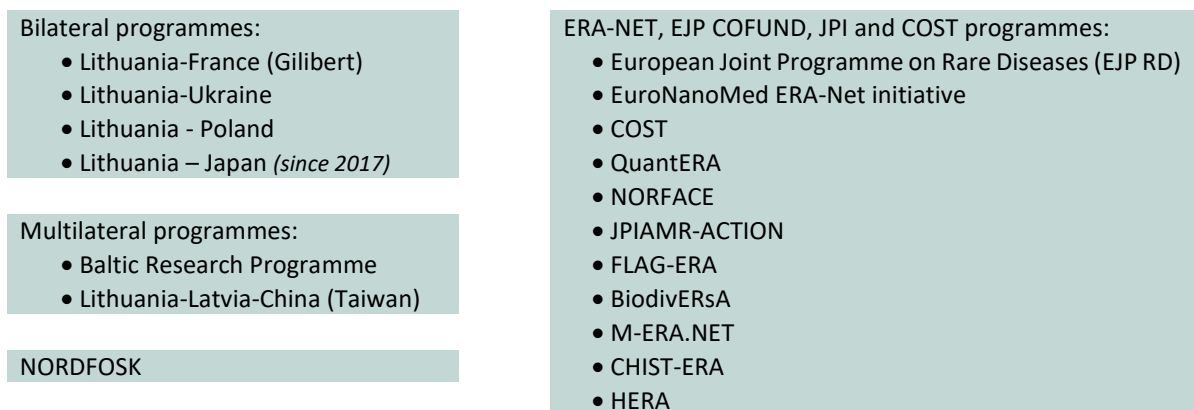
* - Programmes funded from the state budget Programmes funded from the ESIF

** - There were some calls funded from the state budget and some from ESIF.

Source: RCL

The RCL aims to develop international relations and supports Lithuanian researchers' collaboration with the international scientific community. By participating in ERA-NET, EJP COFUND, JPI and COST programmes coordination initiatives, the RCL provides opportunities to Lithuanian researchers to get involved in international projects and networks, to develop international relations and cooperation and thus participate in projects of the Horizon Europe programme. Bilateral and multilateral cooperation programmes and other international initiatives administered by the RCL are funded from the state budget (except the Baltic Research Programme).

Figure 27. RCL programmes for international collaboration and projects related to EU research and innovation programmes



Source: RCL

The RCL receives funding from the national budget and has administered thirteen different calls in 2021 with a budget of approximately eighteen million EUR. Other national sources for competitive R&D funding mainly arrive from the ESIF and it is also foreseen from EU's Recovery and Resilience Facility (RRF) financial instrument²⁷. The RCL has administered eleven different calls in 2021 from the ESIF.

4. The organisation principles for R&D activities

This chapter presents the regulatory principles for the organisation of the research system on the national level: classification of research areas and fields, minimum qualification requirements for researchers, regulation of doctoral studies. Also, the institutional R&D assessment system, according to which, the results of the state budget funding for universities and research institutes are allocated, and national and international research infrastructures are also discussed.

4.1. Classification of research in Lithuania

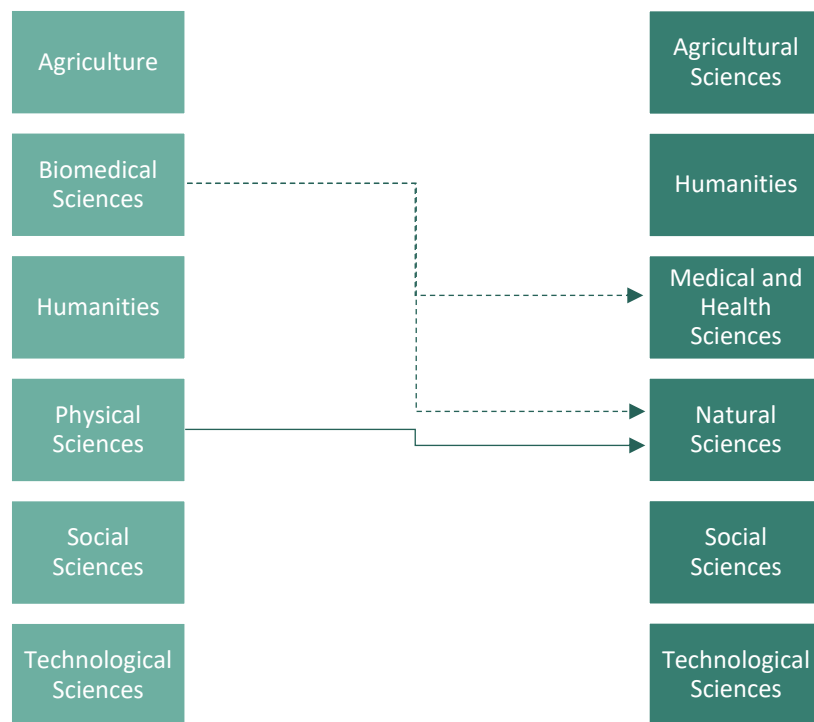
In 2018, the classification of research areas was renewed by the Government of the Republic of Lithuania²⁸. The decision was made considering the intention to bring the national classification of research areas closer to the one proposed by the OECD FORD. Full classification of research areas with research fields are presented in the Appendix, Table 10.

Figure 28. Changes in the national classification of research areas*



²⁷ For more information, please visit: <https://data.consilium.europa.eu/doc/document/ST-10477-2021-ADD-1/en/pdf>

²⁸ Resolution of the Government of the Republic of Lithuania. 2018, No. 1317. Available in Lithuanian at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/a010ca61043a11e98a758703636ea610>



* - The dotted-line arrows mark changes from 2010 to 2018: a part of the research fields, which were attributed to the area of Biomedical Sciences according to the previous (2010) classification, in 2018 were split into two areas of research: Medical and Health Sciences and Natural Sciences. The full line arrow marks the transition of research fields of the Physical Sciences to the area of Natural Sciences in 2018.

4.2. The research community and the requirements for researchers and teaching staff

4.2.1. Requirements for researchers

According to the Law on Higher Education and Research²⁹, a researcher is a person with higher education, who develops knowledge, conceptualises, or creates new products, processes, methods, and systems or directs research and experimental (social, cultural) development projects. A researcher, holding a doctoral degree, is a definition of a scientist.

The minimum qualification requirements^{30,31} for state research and studies institutions' researchers are applied to those who pursue the position of a research worker through public competition. HE and research institutions may adopt these requirements differently, but they act as a guiding standard for institutions, and they are obliged to apply these or even higher requirements to candidates for research worker positions. A person is accepted for the position of research worker for a term of five years. If a person wins a competition for the same research worker position for the second time in a row, an open-ended employment contract for this position is concluded. A person holding a permanent research worker position must take attestation every five years according to the procedure established by the institution. Research and higher education institutions can also invite researchers to work under a fixed-term employment contract for a period of no longer than two years. In such cases, the institution itself determines the procedure for admission to work.

²⁹ Article 4 in *The Law on Higher Education and Research of the Republic of Lithuania*. 2009, No. XI-242.

³⁰ *RCL Chairman's order*. 2021, No. V-61. Available in Lithuanian at: <https://www.e-tar.lt/portal/lt/legalAct/e3bac890645c11eb9dc7b575f08e8bea>

³¹ *RCL Chairman's order*. 2018, No. V-340. Available in Lithuanian at: <https://www.e-tar.lt/portal/lt/legalAct/8a9615307dbe11e8ae2bfd1913d66d57>

The minimum qualification requirements are applied for four³² categories of research workers positions: Chief Researchers; Senior Researchers; Researchers; Junior Researchers. The requirements are different for researchers working in the Social Sciences and Humanities (SSH) and for persons implementing research in the areas of Natural Sciences, Technological Sciences, Medical and Health Sciences and Agricultural Sciences (NTMA). To become a junior researcher a person must have a master's degree, for other positions a person must hold a doctoral degree.

Every candidate for a researcher's position should comply with minimum requirements of the key areas regarding scientific, educational, and other activities into which a researcher should engage (see Appendix, Table 11)³³. Internationally recognised research outputs and activities are the most valuable for all researchers of higher-level positions (Chief and Senior Researchers). From 2021, greater attention is paid to participation in international and national R&D or RDI activities, thus aiming to encourage researchers and institutions to participate in Horizon Europe.

A researcher applying for the Chief Researcher, Senior Researcher or Researcher position should publish a fixed minimum number of publications (see Appendix, Table 12). The requirement to publish scientific articles in journals referred in the Clarivate Analytics Web of Science (further CA WoS) database is applied only for researchers working in the areas of NTMA sciences. It should be noted that a more prominent dimension for the internationality of publications of researchers from the areas of SSH, appeared only in the 2021 requirements' edition.

NB: In 2022 the Seimas adopted the amendment of the Law of Higher Education and Research, where a new concept of a researchers' career is adopted. From July 2023 there will be four levels of a researchers' career stages introduced to the HE and research system: first stage researcher; recognised researcher; established researcher; leading researcher. This change is adopted regarding *the European Framework for Research Careers (2011)*. The RCL will be responsible for determining the required competencies for researchers at each level.

4.2.2. Requirements for teaching staff of HEIs

Each HEI is responsible to set qualification requirements for teaching staff, regarding minimum requirements proposed in the Law on Higher Education and Research³⁴. There are four main positions for teaching staff: Professors, Associate Professors, Lecturers and Assistants. A person applying for the higher level positions (Professor's or Associate Professor's) must be a scientist, or a recognised artist, or Doctor of Art. Scientists' holding these positions should be engaged not only in the study process, but also carry out R&D activities and publish their results. A person working as an Assistant at university should engage in helping to implement R&D activities. There are no specific requirements (in the mentioned law) for Lecturers, regarding engagement in R&D activities or publications. Teaching staff members are subject to the same five year tenure and attestation provisions as research workers.

It is common for teaching staff members to dedicate at least one third of their activities to R&D; although, this proportion may differ regarding individual agreements. During a five year term or every five years, teaching staff members may be excused from teaching work for a maximum of one year to conduct scientific and/or artistic research and to improve their scientific and/or artistic and/or pedagogical qualifications. HE institutions can also invite teaching staff members to work under a fixed-term

³² Regarding article 66 in the Law on Higher Education and Research of the Republic of Lithuania, there are also positions of postdoctoral researchers (*a person can hold this position only in an institution other than the one where he or she prepared his / her doctoral dissertation and who is employed no later than five years after the defence of the dissertation*) and other researchers' positions established by HEIs'.

³³ It is noteworthy that in Lithuania, depending on the demand of teaching staff in HEI's, success in competitive R&D funding and other aspects, a person can apply and work for a fixed time in one or more institutions and not necessarily in the same positions (for example, work part time as an associate professor at "X" university, and work part time as a senior researcher at "Z" research institute). For example, the study of the careers of PhD graduates in Lithuania, revealed that ¼ of PhD graduates who work in HEIs and in both positions (as researchers and as teachers), work full time or more. Source: MOSTA. (2019). *Mokslo daktary karjera Lietuvoje: Užimtumas, pajamos ir veiklos sektorius*. Available in Lithuanian at: <https://strata.gov.lt/images/tyrimai/20190415-mokslo-daktaru-uzimtumas-ir-pajamos.pdf>

³⁴ Article 65 in the *Law on Higher Education and Research of the Republic of Lithuania*. 2009, No. XI-242.

employment contract for a period of no longer than two years. In such cases, the institution itself determines the procedure for admission to work.

4.3. Organisation of doctoral studies and postdoctoral fellowships

4.3.1. Organisation of doctoral studies

The organisation of doctoral studies is based on the regulation for the doctoral studies in science³⁵. This regulation covers procedures of the third cycle studies (doctoral studies), including: studies, research, preparation of a doctoral thesis, its defence and awarding of a doctoral degree. The degree of Doctor of Science can be awarded to a person who has successfully completed a full-time (up to four years) or part-time (up to six years) doctoral studies, prepared a dissertation (thesis) and defended it, or to a person who defended a thesis prepared externally. The volume of doctoral studies is at least thirty ECTS.

The regulation presents the requirements for universities (alone or together with other national and (or) international universities and (or) research institutes) who are seeking to implement doctoral studies. The right to conduct doctoral studies is obtained only in those fields of research in which high-level research is conducted. This means that the right to conduct doctoral studies relies on the results of the annual and the Comparative Expert Assessments (see section 4.5) and compliance of supervisors and doctoral studies committee members with the minimum qualification requirements for researchers (see section 4.2.1).

The RCL evaluates the requests submitted by the institutions for the granting of the right to doctoral studies, prepares conclusions and a recommendation regarding the granting or non-granting of the right to doctoral studies. The Minister of Education, Science and Sport, relying on the results and recommendations prepared by the RCL, takes the final decision. A list of institutions granted with the right to implement scientific doctoral studies is presented in the Appendix, Table 13.

From 2023, Comparative Expert Assessment will be used for the granting of the right to implement doctoral studies for the institutions. If an institution, seeking the right to doctoral studies in a specific field of research, receives at least four points after evaluating the quality of its R&D activities in that field of research, the RCL, when evaluating the institution's application for the right to conduct doctoral studies, will not assess the level of scientific research and the adequacy of the institution's infrastructure. If an institution receives less than three points after evaluating the quality of its R&D activities in that field of research, the possibility for this institution to obtain the right to implement doctoral studies is unlikely; unless there is a joint doctoral study programme implemented with international institution in which the level of research is much higher.

There are two possible ways of entering the doctoral study programme: a) a person may apply for a doctoral study place³⁶ via open competition initiated by the HE or the research institute or b) an institution firstly applies with a suggested doctoral studies theme for competitive doctoral studies funding initiated by the MoESS and the RCL³⁷ and afterwards a person may apply for a particular doctoral studies theme. Through the competitive doctoral studies funding process, a state-funded doctoral study place can be allocated to an institution together with another institution that does not have the right to conduct doctoral studies or with a company that carries out high-level R&D activities.

³⁵ Latest version: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania. 2020, No. V-739. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/71ae1e80993e11eaa51db668f0092944/asr>*

³⁶ According to article 77 in the Law on Higher Education and Research of the Republic of Lithuania, the number of state-financed doctoral study places and study scholarships in HE and research institutions is approved by the MoESS according to the fields of research (and art), not exceeding the state funding calculated based on the approved preliminary number of study places and study scholarships and standard tuition fees, taking into account the needs of the state's economic, social and cultural development, the financial possibilities of the state and the evaluation, carried out by the RCL, of the results of research (art) activities of HE and research institutions, the results of doctoral studies, the possibilities of preparing doctoral students in that research (or art) area and the tuition fees of doctoral studies for the relevant year determined by HE and research institutions.

³⁷ In such a case RCL carries out the selection, the evaluation of doctoral study themes and makes decisions on the allocation of funded PhD study places. From 2014 to 2022, competitive doctoral studies funding was financed through the ESIF under the project 'Development of doctoral studies'. Since 2022, competitive PhD study places are financed from the state budget.

As of RCL 2021 data, thirteen universities and ten research institutes implement scientific doctoral study programmes. Doctoral studies are conducted in accordance with the doctoral studies regulations prepared by individual institutions (or their groups, if studies are conducted jointly). The requirements for PhD students seeking to defend their dissertations are presented in the Appendix, Table 14.

Every six years the RCL also performs the evaluation of the quality and effectiveness of doctoral studies conducted by institutions³⁸.

4.3.2. Organisation of postdoctoral fellowships

After having received a doctoral degree, a new researcher (who has received a doctoral degree no more than five years ago) may apply for a competitive postdoctoral fellowship programme. The RCL has administered such a programme since 2009. It should be noted, that there are also initiatives by individual institutions to attract young researchers through their own initiated postdoctoral fellowship programmes, also researchers are encouraged to participate in the Marie Skłodowska–Curie Actions Postdoctoral Fellowships Programme.

In the RCL, a postdoctoral fellowship’s duration is two years. A person with a doctoral degree awarded by a Lithuanian or foreign research and studies institution can apply to the programme. The application is submitted by the executing institution together with the supervisor of the postdoctoral fellowship and the postdoctoral candidate. The postdoctoral fellowship is only possible in a different Lithuanian research and studies institution other than the one where the dissertation was defended, or, if in the same institution, then necessarily in a different structural department. While implementing the postdoctoral fellowship programme, a person must visit a foreign institution³⁹.

Until 2022, the postdoctoral fellowships programme was financed from the ESIF. Calls for applications were held intermittently (not annually). To achieve stability and consistency of the postdoctoral fellowships programme, it was decided to finance the programme from the state budget.

Table 4. Basic information about postdoctoral fellowships from 2017–2022

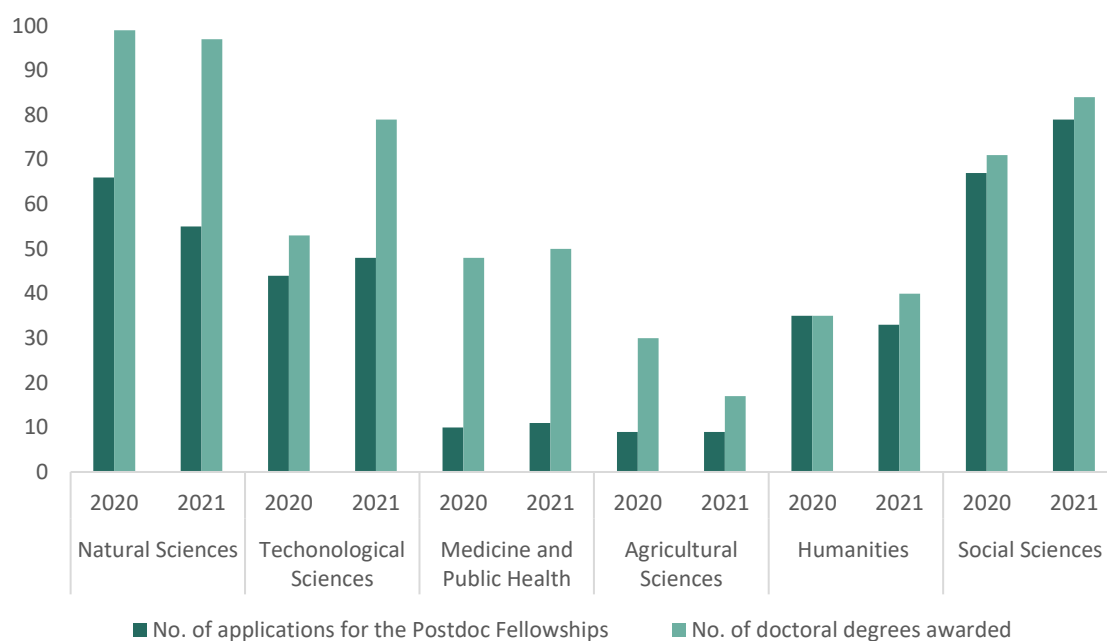
| Call for application | Employment period of Postdocs | Estimated funds for the call | Success rate of applications |
|----------------------|-------------------------------|------------------------------|------------------------------|
| 2017 | 2017-12-01 – 2019-11-30 | 4.1 mil. EUR | 46% |
| 2020 | 2020-08-01 – 2022-07-31 | 12.4 mil. EUR | 68% |
| 2021 | 2021-06-01 – 2023-05-31 | 5.8 mil. EUR | 31% |
| 2022 | 2022-11-01 – 2024-10-31 | 8.4 mil. EUR | 55% |

Source: RCL

³⁸ Considering that the SKVC is responsible for the evaluation of studies (ex-ante and ex-post) and institutional reviews, assessments prepared by RCL are analysed and used by answering questions related to how R&D activities provide a basis for quality teaching, implementation of institutional missions to provide studies, advance the knowledge base, and engage in knowledge transfer, etc. SKVC. (2021). Self-Assessment Report of Quality Assurance Agency Activities. p. 12–13. Available at: https://skvc.lt/uploads/documents/files/EN%20versija/2022%20ENQA/SKVC_self-assessment-report_for_ENQA_review_2017-2021_EN_final.pdf. The description of the procedure for the evaluation of doctoral studies carried out by RCL and approved by the Chairman of RCL is available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/5879bb80745011eaa38ed97835ec4df6/asr>

³⁹ For more information in English, visit: <https://www.lmt.lt/en/research-funding/career-development-mobility-and-networking-opportunities/postdoctoral-fellowships/848>

Figure 29. Number of postdoctoral fellowships applicants and new doctoral degree holders by areas of research in 2020–2021



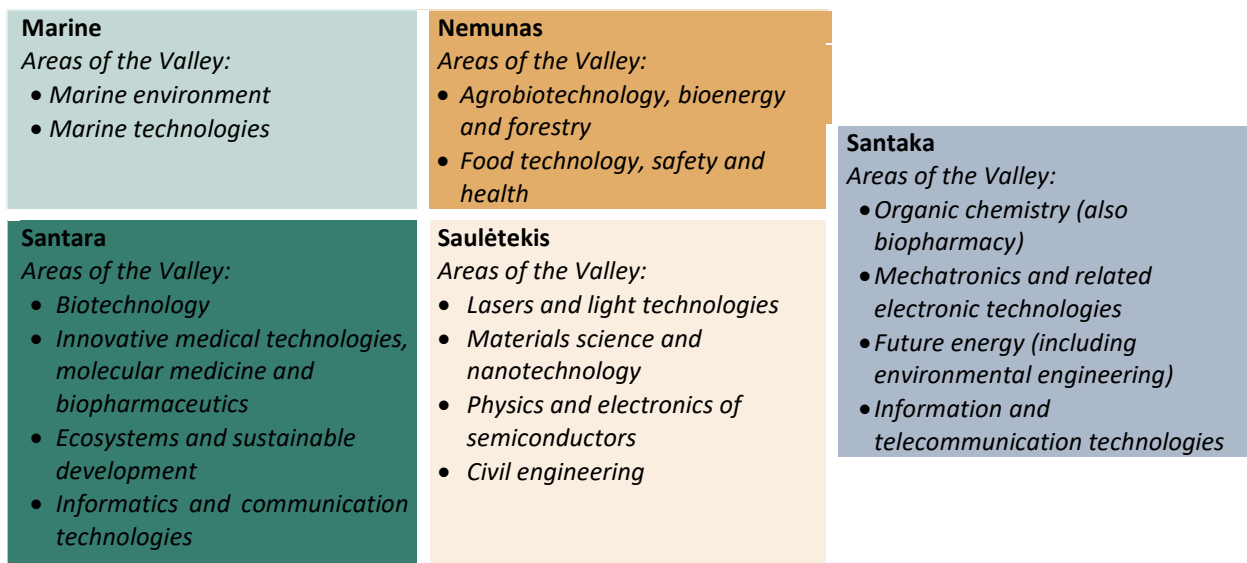
Sources: RCL and Statistics Lithuania, 2022

4.4. National and international R&D infrastructures

4.4.1. National R&D infrastructures

Since 2007, Lithuania invested a considerable amount of EU ESIF in research and innovation (R&I). One of such investments' directions was into renewal and creation of new research infrastructure. Approximately 300 million EUR investments were planned under Concept of the Establishment and Development of Integrated Science, Studies and Business Centres (Valleys).

Figure 30. Science Valleys



Five⁴⁰ science valleys (see Figure 30) were developed. The aim of the Valleys programme was to create ecosystems that would promote the integration of science, business, and studies: it would allow raising the quality of studies, training researchers, conducting fundamental and applied public and private research, establishing knowledge-intensive companies and providing knowledge-intensive services to Lithuanian and foreign companies. Ambitious goals of the Valleys programme and indicators to be achieved were set, but the monitoring and assessment of the investment was scarce and fragmented. During the ESIF Operational Programme, 2014-2020, under the Valleys framework, twenty-five open access centres (R&D laboratories, which should provide R&D services for business) have been established. Some science and technology parks were operating in the Valleys. However, the evaluation reports of the measures of the Valleys programme, which created research infrastructure (RI), concluded that infrastructure is not fully exploited for business and science cooperation, that it is mainly used for scientific purposes and should be regarded as a modernisation of public research infrastructure^{41,42,43}.

4.4.2. International R&D infrastructures

Developing and maintaining internationally significant R&D infrastructures is expensive and for a small country like Lithuania. The participation in international RI projects is the main possibility to provide its researchers with access to facilities and methods of cutting-edge world level research. Having become a Member State of the EU, Lithuania appointed its representatives to the European Strategy Forum on Research Infrastructures (ESFRI) and has been participating since 2004 in the activities of the forum.

Targeted preparations for Lithuania to participate in European infrastructures began in 2011, the RCL drew up and published the first Roadmap for RIs of Lithuania⁴⁴. The Lithuanian Roadmap for Research Infrastructures (Roadmap) is a long-term regularly updated planning instrument designed to identify the strategic directions of the long-term development of the national RIs. It encompasses all areas of science, ranging from humanities and social sciences to physical and technological sciences. The Roadmap lists significant national RIs that are seeking participation in the international RIs in addition to those that are already involved in the international research ecosystem. Part of the 2014–2020 ESIF investments for R&D infrastructures was allocated to integration in international RIs. Lithuanian HE and research institutions mainly participate in network infrastructures. Most of the investments in such networks were used for covering the annual memberships or entrance fee, implementation of the activities foreseen in the membership plan and modernisation of national RI to meet the requirements. Another part of the EUSF covers the renewal and development of the national RIs⁴⁵.

In the last decade Lithuania joined several important international RIs:

- In 2013 Lithuania joined the European Research Infrastructure Consortium 'European Social Survey'. Three years after the preparation of the Lithuanian Roadmap for Research Infrastructures, Lithuania joined the first international research infrastructure. Lithuania's representative in this consortium was the Kaunas University of Technology. Since 2019, Vytautas Magnus University has taken over the function of representing Lithuania.

⁴⁰ The Government of the Republic of Lithuania in 2008 approved development programmes of five Valleys. For more information visit: <https://eimin.lrv.lt/en/sector-activities/innovation/valleys>

⁴¹ *Investicijos į MTEP ir inovatyviosios bei sumaniosios ekonomikos vystymą: pasiekimų, išmokytojų pamokų ir išliekančių plėtros poreikių žemėlapis.* (2020). Available in Lithuanian: https://smsm.lrv.lt/uploads/smsm/documents/files/veikla/es_investicijos/MTEP%20SMSM%20ir%20EIM%20zemelapis%20FINAL%202020-04-02.pdf

⁴² Valstybės kontrolė. (2017). Valstybės investicijos į mokslinius tyrimus ir eksperimentinę plėtrą siekiant inovacijų augimo. Available in Lithuanian: <https://strata.gov.lt/wp-content/uploads/2021/12/102.pdf>

⁴³ Agnė Paliokaitė, Pijus Krūminas, Blagoy Stamenov; RIO Country Report 2015: Lithuania; EUR 27882 EN; doi:10.2791/049440

⁴⁴ Latest approved Roadmap of Lithuanian RIs (2015) is available in English: https://www.lmt.lt/data/public/uploads/2017/10/lmt_kelrodis_en_geras_atvartai.pdf. Discussions about the renewal took place in 2019, but there are no tangible results yet.

⁴⁵ *Investicijos į MTEP ir inovatyviosios bei sumaniosios ekonomikos vystymą: pasiekimų, išmokytojų pamokų ir išliekančių plėtros poreikių žemėlapis.* (2020). Available in Lithuanian: https://smsm.lrv.lt/uploads/smsm/documents/files/veikla/es_investicijos/MTEP%20SMSM%20ir%20EIM%20zemelapis%20FINAL%202020-04-02.pdf

- In 2014, Lithuania has become a member of the European Research Infrastructure Consortium of Common Language Resources and Technology Infrastructure. Lithuania’s representation in the CLARIN ERIC infrastructure was delegated to Vytautas Magnus University.
- In 2016, Lithuania became a member of the European Molecular Biology Conference (EMBC) and, in parallel, a member of the European Molecular Biology Organisation (EMBO). On 26 April 2019, the President of the Republic of Lithuania approved the law ratifying the Agreement on the Establishment of the European Laboratory of Molecular Biology, signed in Geneva on 10 May, 1973.
- In 2018, Lithuania became the associated member of the European Organisation for Nuclear Research (CERN). According to the action plan on CERN Associate Membership for 2017–2021 approved in 2016 by the National Strategic Council for Research, Development and Innovation led by the Prime Minister, the main membership coordinator is the Ministry of Education, Science and Sport, while the Ministry of Economics and Innovation is responsible for industrial relations and the establishment of CERN business incubators in Lithuania.
- In 2020, Lithuania joined two international biomedical and biotechnological scientific networks – Instruct and BBMRI infrastructures. By joining these international infrastructures Lithuania expects to promote the participation of Lithuanian scientists in international projects and networking, the implementation of applied research and new technologies, and increases the competitiveness of Lithuanian science. In the ‘Instruct’ infrastructure, Lithuania will be represented by the Life Sciences Centre of Vilnius University, while in the BBMRI National Cancer Institute will represent Lithuania.
- In 2021, the European Commission granted the legal status of European Research Infrastructure Consortium (ERIC) to the Extreme Light Infrastructure (ELI). The ELI ERIC consortium was established by Lithuania and the foundation of two international powerful laser centres in the Czech Republic and Hungary and which were later joined by Italy. Lithuania is represented in the ELI ERIC consortium by Vilnius University (VU) and the Centre for Physical Sciences and Technology (FTMC).

Lithuania currently is a member of seven international RIs that grant Lithuanian researchers access to well-established international research facilities.

Table 5. National RIs having memberships in the international RIs

| National RIs | Memberships in the international RIs |
|---|--------------------------------------|
| ESS LT – European Social Survey (VMU) | ESS ERIC |
| Lingua (CLARIN-LT) – Electronic Resources of the Lithuanian Language (VMU) | CLARIN ERIC |
| CosyBio – Centre for Computational, Structural and Systems Biology (VU) | EMBL / EMBO / EMBC; INSTRUMENT ERIC |
| Consortium Biobank-LT – National Networks of Biobanks (NVI) | BBMRI ERIC |
| Laser RI – High-Intensity and Broad Spectral Range Ultrashort Pulse Laser Research Infrastructure of National and International Access (VU IR FTMC) | ELI ERIC |
| Consortium CERN-LT | CERN |

Source: RCL

4.5. Annual and Comparative Expert Assessments of R&D

It is the responsibility of HEIs and Research Institutes’ themselves to take measures to assure the quality of studies and research. The RCL implements institutional assessments of R&D activities carried out by universities and research institutes.

The institutional assessment of R&D activities consists of two steps⁴⁶:

- 1) The annual assessment of R&D activities (Annual Assessment) (since 2009),
- 2) The comparative expert assessment of R&D activities (CEA) (since 2017 and is carried out every five years).

The results of the two-step evaluation are used to allocate the institutional (basic) funding for R&D for universities and research institutes (see section 3.2.1.). The right to carry out doctoral studies for universities and research Institutes is granted considering the results of both assessments⁴⁷.

4.5.1. Annual Assessment of R&D Activities carried out by universities and research institutes

The Annual Assessment⁴⁸ of universities and research institutes⁴⁹ is based on the attitude that researchers should constantly raise their research qualifications and carry out at least two of the following activities: a) carry out high quality R&D activities and publish their results in the most prestigious scientific journals⁵⁰ or the most prestigious publishing houses⁵¹; b) participate in international R&D programmes; c) offer their R&D services for economic entities, pursue and execute R&D orders from economic entities; d) carry out Lithuanian studies.

The Annual Assessment results allow the comparison of institutions according to their research (art) activities, using common indicators of performance; the following are examined⁵²: (i) dissemination of the institutions' research results (research outputs), (ii) institutions' funds received from R&D projects and (iii) funds received from R&D contracts⁵³. Four commissions of experts evaluate these annual results. The Expert Commissions evaluating research outputs are formed on the basis of research areas: 1) NTMA, 2) Social Sciences, 3) Humanities. R&D projects and contracts are evaluated by a separate Expert Commission.

Research outputs are submitted by institutions for evaluation by assigning them to types of research outputs; they are also classified by fields of research⁵⁴. The members of the Expert Commissions check whether the assignment of research output was performed correctly, and indicate the points received by the institution for each submitted output (See Appendix, Table 15). The RCL evaluates more than ten thousand R&D outputs annually. The more international the research output, the higher the score. The experts assigned by the RCL evaluate the institutions' funds in each area of research and determine the estimates of the Annual Assessment of research outputs.

⁴⁶ It should be noted that art activities of HEIs are also evaluated in similar manner, but aspects regarding art activities, are not included in this report. Also, aspects, regarding evaluation of R&D activities of the Colleges, are not included in this report.

⁴⁷ *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2020. No. V-739. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/71ae1e80993e11eaa51db668f0092944/asr>

⁴⁸ Description of the current Annual Assessment procedure: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2021, No. V-1593. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e4367a300bbe11ec9f09e7df20500045>

⁴⁹ Eighteen state and non-state universities and seventeen research institutes, three university hospitals and two Lithuanian national libraries take part in the Annual Assessment of R&D (art) activities.

⁵⁰ The ratio of the scientific journal Impact Factor (IF) to the Aggregated Impact Factor (AIF) for a subject category is a measure of the journal's prestige. Journals referenced in the CA WoS and Scopus databases are considered as international journals. Also, peer-reviewed publications published in Lithuania until 2022, are considered as international journals, if the weight of foreign authorships of articles in such publications in the last three years was greater than a quarter of the weight of all authorships.

⁵¹ An internationally recognised scientific publishing house is a publishing house that regularly publishes and internationally distributes the research outputs of scientists from many countries, internationally recognised periodicals and continuing scientific publications, providing information about the nature of the publishing house and international recognition on the internet. The list of such publishing houses is compiled by RCL, taking into account the results of the last Annual Assessment and the suggestions of experts. The list may be revised every year.

⁵² Data should be submitted regarding Units of Assessment, formed in Comparative Expert Assessment of R&D activities.

⁵³ R&D activities are not considered as the R&D orders of economic entities, if projects or programmes were funded by i) the RCL, the MoESS, the MITA; ii) ESIF, if Institutions participated in such projects with the rights of project executors.

⁵⁴ It should be noted that research outputs presented in the Annual Assessment also are used as the basis of research outputs presented for CEA.

The Annual Assessment allows the updating of the lists of internationally recognised publishing houses and the lists of R&D projects of international programmes every year, specifying which international projects are recognised as R&D and what part of their funds can be credited.

4.5.2. CEA of R&D activities carried out by universities and research institutes

The first pilot CEA assessment was organised in 2014⁵⁵. This CEA did not have any influence on state budget allocations for state HEI’s and research institutes. The results of the CEA have been used for this purpose since 2018.

The CEA includes the evaluation of three criteria related to the institutions’ R&D activities: quality (weighting factor 0.65), economic and social impact (weighting factor 0.2) and development potential (weighting factor 0.15). The quality of the R&D activities is assessed in fields of research; other criteria are evaluated at the level of research area. In 2023 the assessment period is 2018–2021.

Each participating Institution in the CEA, regarding its size and departmental structure, can form one or more units of assessment (UoA). Experts for the CEA are selected, and Expert Panels are formed, considering: (i) the scope of the UoA groups, (ii) the areas of research in which UoAs are formed, and (iii) the fields of research in which the quality of the R&D activities will be assessed. The size of each Expert Panel is at least six experts (there is an exception where the Expert Panel may be composed of at least four experts). The Expert Panel consists of high-level researchers and teachers working in foreign research and higher education institutions and meeting the requirements set by the RCL.

Table 6. Main responsibilities of the CEA participants

| Institutions (UoAs) | Experts | RCL |
|---|--|---|
| <ul style="list-style-type: none"> •to submit and confirm correctness of the data about R&D activities; •to receive visiting experts at the UoA; •to get acquainted with the assessment results and the report prepared by the Expert Panel; •if the UoA has any objections - submit an appeal. | <ul style="list-style-type: none"> •to get acquainted with the provided information necessary for the assessment and assign preliminary scores to the assessed UoAs; •to participate in the Expert Panel discussions and (if needed) participate in the visits to UoAs; •to decide (as the Panel) on the final scores of UoAs assessed; •to prepare an assessment report; •to consider appeals (if required). | <ul style="list-style-type: none"> •to organise all the processes of the CEA from A to Z, including: <ul style="list-style-type: none"> •preparation of the system for the UoAs to submit data about R&D activities ('Vieversys'); • formation of the Expert Panels; •organisation of experts' visits to UoAs; •formation of the Appeals Committee; •preparation of the summary of the CEA results, etc. |

Source: RCL

⁵⁵ Description of the current CEA procedure: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2021, No. V-1593. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e4367a300bbe11ec9f09e7df20500045>

Table 7. Basic information on long-term institutional R&D programmes implemented by state research institutes

| Duration of the programmes | No. of programmes | No. of institutes implementing these programmes |
|----------------------------|-------------------|---|
| 2012–2016 | 50 | 11 |
| 2017–2021 | 49 | 12 |
| 2019–2023 | 1 | 1 |
| 2021–2025 | 1 | 1 |
| 2022–2026* | 42 | 11 |

NB. When preparing these programmes, the institutes must provide means for the dissemination of R&D results, but actual funds for the publication and dissemination of results are not provisioned. In such cases institutes must find funding from other sources. The expected results of the programmes' implementation are more often associated with the preparation of scientific outputs (monographs, scientific studies, articles, etc.), organisation of scientific conferences and participation in them. Sometimes it is identified that during the implementation of the programmes at least several doctoral theses will be defended, students' theses will be prepared and preparations will be made for the submission of applications for other scientific projects. Until 2019, when planning budgets of the long-term institutional R&D programmes, research institutes had to indicate the part of the funding that would be allocated to researchers' normative positions. For example, depending on the programme, the funds planned for researchers' normative positions in the 2017–2021 programmes accounted from 23 to 100% of the institute's long-term programme implementation budget. On average, funds provisioned for the implementation of the programmes for the period 2022–2026 is around 3 199,63 thousand EUR. Minimum funding for the programme's implementation is 632 thousand EUR and maximum, 12 257 thousand EUR⁵⁶.

Table 8. National strategic documents and their goals related to R&D or HE and research institutions:

| Strategic document | Vision / Goal and key initiatives or tasks related to it | Indicator |
|---|--|---|
| Lithuania's Progress Strategy 'Lithuania 2030' ⁵⁷ <i>(The strategy was approved by the Seimas in 2012)</i> | Vision: Smart Society Key initiatives: <ul style="list-style-type: none"> To develop national programmes unlocking learners' potential and talents, as well as systems for talent identification and development, and for academic mobility. To support non-formal academic, sporting and creative education of gifted children: to bring together the country's best teachers, science, culture and sports experts, to attract foreign professionals. To create an environment favourable for science and research, ensuring Lithuania's appeal for top researchers and scientists. To create a world-class study and research centre, with a view to strengthening the existing national infrastructure and mobilising the best scientific and teaching potential. The centre would bring together study opportunities in the interdisciplinary network, providing for interdisciplinary research and development, and opening up the research infrastructure for business-science interaction. | At least one Lithuanian university among the TOP 300 universities in the world by 2030 (Academic Ranking of World Universities) |
| | Vision: Smart Economy Key initiatives: <ul style="list-style-type: none"> To promote integration of industries and services, and research organisations into global and Nordic-Baltic systems of business, culture, science and education, to become important players. To focus funding of science and research institutions on the development of market-relevant innovations. | 10th or higher place in the EU regarding R&D expenditure (GDP%) by 2030 |

⁵⁶ Order of the Minister of Education, Science and Sport. 2022, No. V-585. Available in Lithuanian: https://sism.lrv.lt/uploads/sism/documents/files/moksliniai_tyrimai/2022/2022-04-19_V-585.pdf

⁵⁷ Lithuania's Progress Strategy "Lithuania 2030". Available in English: https://lrv.lt/uploads/main/documents/files/EN_version/Useful_information/lithuania2030.pdf

| | | |
|--|---|---|
| | <ul style="list-style-type: none"> To facilitate integration of business, education, science and culture; to create favourable conditions for the development of creative and cultural industries and their international competitiveness. To achieve the degree of harmony in national industry and services, thus enabling generation of high added value, and serving as catalyst for the progress in research and other industries. | 10th or higher place in the EU regarding university-industry collaboration by 2030 |
| National Progress Programme 2014–2020 <i>(The programme was approved by the Government in 2012)⁵⁸</i> | 1st Priority: Education of Society, Science and Culture Goal 1.4: To encourage creation, dissemination, and use of knowledge | |
| | Tasks related to R&D or HE and research institutions: 1.4.2 Strengthen R&D infrastructure and human capital 1.4.3 To promote cooperation in the development of R&D 1.4.4 To encourage top-level research 1.4.5 To promote the non-commercial use of knowledge gained during research | Key indicator of the goal related to R&D or HE and research institutions: <ul style="list-style-type: none"> The share of publications by researchers of Lithuanian research and higher education institutions out of 10% of the most cited scientific publications in the world (8% by 2020) |
| | 4th priority: High added-value-oriented, integrated economy Goal 4.1: Foster value creation networks focused on global markets | |
| | Tasks related to R&D or HE and research institutions: 4.1.1 To encourage the creation, development and integration of value creation networks into international networks 4.1.2 To create incentives for science, study, and business cooperation | Key indicator of the goal related to R&D or HE and research institutions: <ul style="list-style-type: none"> The level of cluster development according to the World Economic Forum's World Competitiveness Index (70th place between ~140 countries) Share of cooperating technological companies (out of all companies that introduced technological innovations) (52.5% by 2020) |
| | Goal 4.2: To promote the productivity of business and development of innovative business | |
| | Tasks related to R&D or HE and research institutions: Task 4.2.2. To form the demand for innovations, promote the creation and commercialisation of new innovative products and services | Key indicator of the goal related to R&D or HE and research institutions: <ul style="list-style-type: none"> Business expenditure on R&D (share of GDP) (0.9% by 2020) Share of companies implementing innovations (47% by 2020) |
| | 6th priority: Culture (horizontal)* Goal 6.2: To develop high-quality cultural services by ensuring their diversity, innovation, accessibility, and dissemination | |
| | Tasks related to R&D or HE and research institutions: Task 6.2.3 To conduct research in the field of culture, analysis of the needs of cultural services, culture-related R&D | |
| 8th priority: Health for all (horizontal)* Goal 8.1: To strengthen and protect the health of the Lithuanian population | | |
| Tasks related to R&D or HE and research institutions: Task 8.1.3 To promote the creation, use and dissemination of knowledge in the field of health | | |
| National Progress Programme 2021–2030 | 1st strategic goal: To move to a sustainable economic development based on scientific knowledge, advanced technologies, and innovations and to increase the country's international competitiveness | |

⁵⁸ Resolution of the Government of the Republic of Lithuania. 2012, No. 1482. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.439028/asr>

| | | |
|--|---|--|
| <i>(The programme was approved by the Government in 2020)⁵⁹</i> | Tasks related to R&D or HE and research institutions: 1.1 To strengthen human resources and competences for the development of high-level science and science-based technologies 1.2 To create high-level scientific knowledge that increases the country's competitiveness 1.3 To promote the creation of science-receptive business and cooperation between science and business and to develop an entrepreneurial culture in science and study institutions 1.5 To promote the development, implementation and dissemination of advanced technologies and innovations 1.10 To promote the creation and use of intellectual property | Key indicators of the goal related to R&D or HE and research institutions: • Lithuania's place according to the 'Global Innovation Index' (20 th place by 2030) • Total R&D expenditure as a percentage of GDP (2.2% by 2030) Added value generated by the life sciences sector as a share of total value added (5% by 2030) |
| | 3rd strategic goal: To increase the inclusiveness and effectiveness of education in order to meet the needs of the individual and society | |
| | Tasks related to R&D or HE and research institutions: 3.7 To develop science-based studies, making better use of the potential of free scientific research, and to contribute to the solution of challenges relevant to Lithuania and the world | Key indicator of the goal: Number of universities ranked in the QS World University Rankings: - Two universities to TOP 500 by 2030 - One university to TOP 300 by 2030 |

* - Horizontal priority means that it covers areas that are characterised by complex problems and cannot be solved by the measures of one or more sectoral policies.

Table 9. Competitive-programme based R&D funding programmes in Lithuania administered by the RCL and the MITA*

| Administering body | Programme | Funding source | Programme implementation period | No. of the Calls | Project duration (in months) | Maximum budget of the project (thousand EUR) |
|--------------------|---|----------------|---------------------------------|---|---|---|
| RCL | State commissioned research programmes | | | | | |
| RCL | National Scientific Programmes | State budget | 2016–2018 | 2 | 35 (1 st call) 20 (2 nd call) | 300 (1 st call) 160 (2 nd call) |
| | | | 2015–2021 | 2 | 42 (1 st call) 23 (2 nd call) | 350 (1 st call) 150 (2 nd call) |
| | | | 2015–2021 | 3 | 42 (1 st call) 30 (2 nd call) 23 (3 rd call) | 200 (1 st call) 140 (2 nd & 3 rd calls) |
| | | | 2017–2022 | 2 | 21–34 (1 st call) 22 (2 nd call) | 120 (1 st call) 100 (2 nd call) |
| | | | 2015–2018 | 2 | 24 (1 st & 2 nd calls) | 110 (1 st & 2 nd calls) |
| RCL | Priority Research Programmes | State budget | 2020–2022 | 2 | 23 (1 st & 2 nd calls) | 110 (1 st call) 100 (2 nd call) |
| RCL | Lithuanian Studies and Dissemination Programme** | State budget | 2016–2024 | 12 (7 of them were calls for research projects) | From 28 to 36 | 120 (in the last 3 calls) |
| RCL | Research on demand by public bodies | State budget | Since 2015 | 6 | From 16 (in 2 nd call) to 18 (from the 3 rd call) | 70 75 (in the 6 th call) |
| RCL | Research for decision-making on the consequences of COVID-19 | State budget | June–December 2020 | 1 | 7 | 100 |
| RCL | Short-term research in health and education | EU Funds | February–December 2021 | 1 | 11 | 400 |
| RCL | Programmes related to Smart Specialisation priorities | ESIF | 2017–2023 | 2 | 48 (1 st call) 42 (2 nd call) | 700 |
| RCL | Parallel laboratories | ESIF | 2020–2023 | 1 | 42 | 700 |

⁵⁹ Resolution of the Government of the Republic of Lithuania. 2020, No. 998. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/c1259440f7dd11eab72ddb4a109da1b5/asr>

| | | | | | | | |
|--------------------------------------|---|---------------------------------------|-----------------------|------------|----|--|---|
| RCL | | Brain gain and reintegration | ESIF | 2018–2022 | 1 | 48 | 1 000 |
| RCL | | COVID-19 R&D implementation scheme*** | ESIF | 2021–2023 | 1 | up to 24 | 300 |
| RCL | Distinguished Professorship Programme | | ESIF | 2020–2022 | 1 | 36-42 | 1 000 |
| MITA | R&D projects for national defence needs | | State budget | 2015–2018 | 4 | 17 | 80 (in 3 rd call) 200 (in 4 th call) |
| Bottom-up research programmes | | | | | | | |
| RCL | Researcher Groups projects | | State budget | Since 2010 | 12 | up to 36 | 150 (since 6 th call) |
| RCL | High-level R&D | | ESIF | 2017 | 1 | 42–48 | 600 |
| RCL | Individual R&D (H2020) projects | | EISF | 2017 | 2 | up to 36 for MSCA up to ERC for ERC | <i>funded projects range from 129 to 192</i> |
| MITA | Technological development projects | | State allocated funds | Since 2017 | 3 | up to 24 | 100 |

* - Only those MITA programmes are included, where the applicant was a research and higher education institution. All other MITA's programmes and measures are focused on companies and only in few of them can research and higher education institutions be partners.

** - This programme includes two categories of projects: research projects and dissemination projects. The data in the table includes calls for research projects.

*** - The call was announced due to the additional EU funds for RCL to finance commissioned research in the Smart Specialisation.

Table 10. Classification of research areas and fields in Lithuania⁶⁰

| Area of Research | No. | Field of Research |
|------------------------------------|-------|---|
| Agricultural Sciences | A 001 | Agronomy |
| | A 002 | Veterinary |
| | A 003 | Animal Sciences <i>(until 2019 it was Zootechnics)</i> |
| | A 004 | Forestry |
| Humanities | H 001 | Philosophy |
| | H 002 | Theology |
| | H003 | History and Theory of Arts |
| | H004 | Philology |
| | H 005 | History and Archaeology <i>(until 2019 it was only History)</i> |
| | H 006 | Ethnology |
| Medical and Health Sciences | M 001 | Medicine <i>(until 2019 it was part of Biomedical science area)</i> |
| | M 002 | Odontology <i>(until 2019 it was part of Biomedical science area)</i> |
| | M 003 | Pharmacy <i>(until 2019 it was part of Biomedical science area)</i> |
| | M 004 | Public health <i>(until 2019 it was part of Biomedical science area)</i> |
| | M 005 | Nursing <i>(until 2019 it was part of Biomedical science area)</i> |
| Natural Sciences | N 001 | Mathematics <i>(until 2019 it was part of Physical science area)</i> |
| | N002 | Physics <i>(until 2019 it was part of Physical science area)</i> |
| | N003 | Chemistry <i>(until 2019 it was part of Physical science area)</i> |
| | N 004 | Biochemistry <i>(until 2019 it was part of Physical science area)</i> |
| | N 005 | Geology <i>(until 2019 it was part of Physical science area)</i> |
| | N 006 | Physical Geography <i>(until 2019 it was part of Physical science area and it was called "Geography")</i> |
| | N 007 | Palaeontology <i>(until 2019 it was part of Physical science area)</i> |
| | N 008 | Astronomy <i>(until 2019 it was part of Physical science area)</i> |
| | N 009 | Informatics <i>(until 2019 it was part of Physical science area)</i> |
| | N 010 | Biology <i>(until 2019 it was part of Biomedical science area)</i> |

⁶⁰ Sources: (1) *Resolution of the Government of the Republic of Lithuania*. 2018, No. 1317. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/a010ca61043a11e98a758703636ea610> and (2) *Order of the Minister of Education, Science and Sport*. 2019, No. V-93. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/064e79a22a4f11e9a505bd13c24940c9/ZJMNxsaspl>

| | | |
|-------------------------------|-------|--|
| | N 011 | Biophysics <i>(until 2019 it was part of Biomedical science area)</i> |
| | N 012 | Ecology and environmental sciences <i>(until 2019 it was part of Biomedical science area)</i> |
| | N 013 | Botany <i>(until 2019 it was part of Biomedical science area)</i> |
| | N 014 | Zoology <i>(until 2019 it was part of Biomedical science area)</i> |
| Social Sciences | S 001 | Law |
| | S 002 | Political sciences |
| | S 003 | Management <i>(until 2019 it was called "Management and Administration")</i> |
| | S 004 | Economics |
| | S 005 | Sociology |
| | S 006 | Psychology |
| | S 007 | Education |
| | S 008 | Communication and Information |
| Technological Sciences | T 001 | Electrical and Electronic Engineering |
| | T002 | Civil Engineering |
| | T 003 | Transport Engineering |
| | T 004 | Environmental Engineering |
| | T 005 | Chemical Engineering |
| | T 006 | Energetics and Thermo Engineering <i>(until 2019 it was called "Energetics and Power Engineering")</i> |
| | T 007 | Informatics engineering |
| | T 008 | Materials engineering |
| | T 009 | Mechanical engineering |
| | T 010 | Measurement engineering |

* - The classification was started in 2018.

Table 11. Key points of the minimum qualification requirements for research workers by research area since 2018 and since 2021 (both are currently valid)

| Group of research areas | Requirements of 2018 ⁶¹ | Requirements of 2021 ⁶² |
|--|--|--|
| SSH | A research worker should carry out scientific research and publish their results. | |
| | A research worker should carry out applied research and applied scientific activities. | A research worker should carry out applied research. |
| | A research worker should engage in educational, training and science dissemination activities. | A research worker should carry out international and national R&D projects or R&D and innovation (RDI) projects. |
| | | A research worker should train a new generation of researchers. |
| | | A research worker should carry out other applied scientific activities. |
| | | The research worker should engage in educational or scientific dissemination activities. |
| NTMA <i>(until 2018 – PABT*)</i> | A research worker should carry out scientific research and publish their results in publications with Impact Factor in the Clarivate Analytics Web of Science database. | A research worker should carry out scientific research and publish their results. |
| | A research worker should be the author or co-author of patents issued by the EPO – European Patent Office, the USPTO – United States Patent and Trademark Office or the JPO – Japan Patent Office. | A research worker should carry out applied R&D activities. |

⁶¹ Source: *Order of the Chairman of the RCL*. 2018, No. V-340. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/8a9615307dbe11e8ae2bfd1913d66d57>

⁶² Source: *Order of the Chairman of the RCL*. 2021, No. V-61. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e3bac890645c11eb9dc7b575f08e8bea>

| | | |
|--|--|---|
| | A research worker should be the author of plant or animal varieties that have passed international expertise in European specialised centres. | A research worker should carry out international and national R&D projects or RDI projects. |
| | A research worker should publish scientific results in scientific monographs published by scientific publishing houses. | A research worker should train a new generation of researchers. |
| | A research worker should carry out experimental and technological development work. | The research worker should engage in educational or scientific dissemination activities and carry out other works important for the development of the country's economy, culture, and society. |
| | A research worker should train the new generation of scientists. | |
| | The research worker should carry out science popularisation activities and other works important for the development of the country's economy, culture, and society. | |

* - Physical, Agricultural, Biomedical and Technological Sciences.

Table 12. The minimum publication requirements for different research workers' positions valid since 2018⁶³ and since 2021⁶⁴

| | SSH | | NTMA | |
|--------------------------|--|--|--|--|
| | 2018 | 2021 | 2018 | 2021 |
| Chief researcher | At least fifteen scientific articles in peer-reviewed scientific publications or in a non-dissertation-based monograph or study and at least ten scientific articles in peer-reviewed scientific publications. | A) A non-dissertation-based scientific monograph published by an internationally recognised publishing house and at least five international-level scientific articles. B) A non-dissertation-based scientific monograph and at least seven international-level scientific articles. C) At least fifteen scientific articles of international level. | At least fifteen scientific articles in international scientific publications. | A) A non-dissertation-based scientific monograph published by an internationally recognised publishing house and at least twelve international-level scientific articles. B) At least fifteen scientific articles of international level. |
| Senior researcher | At least ten scientific articles in peer-reviewed scientific publications or a monograph or study and at least five scientific articles in peer-reviewed scientific publications. | A) A non-dissertation-based scientific monograph published by an internationally recognised publishing house and at least two international-level scientific articles. B) A non-dissertation-based scientific monograph and at least three international-level scientific articles. | At least seven scientific articles in international scientific publications. | A) A non-dissertation-based scientific monograph and at least four international-level scientific articles. B) At least seven scientific articles of international level. |

⁶³ Source: *Order of the Chairman of the RCL*. 2018, No. V-340. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/8a9615307dbe11e8ae2bfd1913d66d57>

⁶⁴ Source: *Order of the Chairman of the RCL*. 2021, No. V-61. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e3bac890645c11eb9dc7b575f08e8bea>

| | | | | |
|--------------------------|--|---|---|--|
| | | C) At least seven scientific articles of international level. | | |
| Researcher | At least two scientific articles in peer-reviewed scientific publications. | At least two scientific articles of international level. | At least three scientific articles in international scientific publications | At least two scientific articles of international level. |
| Junior Researcher | No requirements for publications. | No requirements for publications. | No requirements for publications. | No requirements for publications. |

Table 13. HEIs and research institutes having the right for PhD studies implementation

| Area of research | Field of research | HEIs and research institutes having the right for PhD studies implementation ⁶⁵ | Number of state-funded doctoral study places in 2021 ⁶⁶ |
|--|--|--|--|
| Natural Sciences | Mathematics | VU | 7 |
| | Physics | VU with FTMC | VU: 10; FTMC: 18 |
| | | KTU in partnership with University of Southern Denmark | 1 |
| | Chemistry | KTU | 6 |
| | | VU with FTMC | VU: 9; FTMC: 12 |
| | Biochemistry | VU | 12 |
| | | VMU with LSMU, LAMMC | VMU: 1 |
| | Geology | VU with NRC | VU: 1; NRC: 1 |
| | Physical geography | VU with KU, NRC | VU: 1; KU: 2; NRC: 2 |
| | Informatics | VU | 5 |
| | | KTU with VMU, Vilnius Tech | VMU: 1 |
| | Biology (until 2019 it was part of Biomedical science area) | LSMU | 7 |
| | | VMU with NRC, IMC | VMU: 3; NRC: 3; IMC: 3 |
| | | VU | 9 |
| | | LSU in partnership with University of Tartu (Estonia)) | 7 |
| | Biophysics (until 2019 it was part of Biomedical science area) | VU | 4 |
| LSMU with VMU | | LSMU: 1 | |
| Ecology and environmental sciences (until 2019 it was part of Biomedical science area) | KU | 4 | |
| | VU with NRC | VU: 2; NRC: 7 | |
| | VMU with LAMMC | VMU: 3 | |
| Zoology (until 2019 it was part of Biomedical science area) | VU with NRC | VU: 2; NRC: 3 | |
| Technological Sciences | Electrical and Electronic Engineering | KTU | 4 |
| | | Vilnius Tech with FTMC | Vilnius Tech: 2 |
| | Civil Engineering | Vilnius Tech | 7 |
| | | KTU | 3 |
| | Transport Engineering | Vilnius Tech with VMU, KU and KTU | Vilnius Tech: 4; KU: 2; KTU: 2 |
| | Environmental Engineering | KTU with VMU, LEI | KTU: 3; VMU: 4; LEI: 7 |
| | | Vilnius Tech | 3 |
| Chemical Engineering | VU | 5 | |
| | KTU | 7 | |

⁶⁵ Source: Order of the Minister of Education, Science and Sport. 2019, No. V-160. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/67893ea236e111e98893d5af47354b00/asr>

⁶⁶ Sources: (1) Order of the Minister of Education, Science and Sport. 2021, No. V-1153. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/a36237e0d2c711eb9787d6479a2b2829/asr> and (2) Order of the Minister of Education, Science and Sport. 2021, No. V-1166. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e2e0b930d31e11eba2bad9a0748ee64d>

| | | | |
|--|--|---|--------------------------|
| | Energetics and Thermo Engineering | KTU with LEI | KTU: 2; LEI: 8 |
| | Informatics engineering | VU | 3 |
| | | KTU with Vilnius Tech | KTU: 4; Vilnius Tech: 3 |
| | Materials engineering | VU with FTMC | VU: 1; FTMC: 8 |
| | | KTU | 9 |
| | | Vilnius Tech | 3 |
| | Mechanical engineering | KTU with VMU | KTU: 5; VMU: 2 |
| | | Vilnius Tech | 5 |
| | Measurement engineering | KTU | 2 |
| Medical and Health Sciences | Medicine <i>(until 2019 it was part of Biomedical science area)</i> | LSMU | 19 |
| | | VU | 19 |
| | Odontology <i>(until 2019 it was part of Biomedical science area)</i> | LSMU | 1 |
| | | VU | - |
| | Pharmacy <i>(until 2019 it was part of Biomedical science area)</i> | LSMU | 3 |
| | Public health <i>(until 2019 it was part of Biomedical science area)</i> | LSMU | 1 |
| | | VU | 2 |
| Nursing <i>(until 2019 it was part of Biomedical science area)</i> | LSMU | 2 | |
| Agricultural Sciences | Agronomy | VMU with LAMMC | VMU: 2; LAMMC: 11 |
| | Veterinary | LSMU | 3 |
| | Animal Sciences <i>(until 2019 it was Zootechnics)</i> | LSMU | 2 |
| | Forestry | VMU with LAMMC | VMU: 1; LAMMC: 3 |
| Social Sciences | Law | MRU with VMU | MRU: 13; VMU: 1 |
| | | VU | 4 |
| | Political sciences | VU | 2 |
| | | VMU with LKA, KTU, KU | VMU: 2; KTU: 1; KU: 1 |
| | Management <i>(until 2019 it was called "Management and Administration")</i> | VU | 5 |
| | | Vilnius Tech | 2 |
| | | ISM (in partnership with Aarhus university (Denmark), BI Norwegian Business School, University of Tartu (Estonia)) | 1 |
| | | KTU | 4 |
| | | VMU with KU, MRU, VU <i>(The right to doctoral studies is granted to Vilnius University for persons, who enrolled in doctoral studies at the ŠU until 31/12/2020, to complete the studies)</i> | VMU: 2; KU: 1; MRU: 4 |
| | Economics | VU | 4 |
| | | Vilnius Tech with LCSS | Vilnius Tech: 2; LCSS: 3 |
| | | KTU with LEI, KU | KTU: 2; LEI: 3; KU: 1 |
| | | VMU with ISM, MRU, VU <i>(The right to doctoral studies is granted to Vilnius University for persons, who enrolled in doctoral studies at the ŠU until 31/12/2020, to complete the studies)</i> | VMU: 2; ISM: 1; MRU: 3 |
| | Sociology | VU | 3 |
| | | VMU, LCSS, KTU | VMU: 2; LCSS: 5; KTU: 2 |
| | Psychology | VU | 5 |
| | | VMU with MRU | VMU: 2; MRU: 3 |
| Education* | VU with KU, MRU | VU: 2; KU: 1; MRU: 2 | |
| | VMU | 3 | |
| | KTU with LSU, VU <i>(The right to doctoral studies is granted to Vilnius University for persons, who enrolled in doctoral studies at the ŠU until 31/12/2020, to complete the studies)</i> | KTU: 2; LSU: 4; VU: 3 | |

| | | | |
|---|-------------------------------|--|---------------------------------|
| | Communication and Information | VU Vilnius Tech with VMU* | 2 Vilnius Tech: 2; VMU: 1 |
| Humanities | Philosophy | VU | 2 |
| | | VMU with LCRI, EHU | VMU: 1; LCRI: 2 |
| | Theology | VMU | 1 |
| | History and Theory of Arts | KTU | 2 |
| | | Vilnius Tech with KU | Vilnius Tech: 2 |
| | | VDA with LCRI, LMTA | VDA: 2; LCRI: 3; LMTA: 1 |
| | | VMU | 1 |
| | Philology | VU with LLTI | VU: 7; LLTI: 3 |
| | | VMU with KU, LKI, VU (<i>The right to doctoral studies is granted to Vilnius University for persons, who enrolled in doctoral studies at the ŠU until 31/12/2020, to complete the studies</i>) | VMU: 1; KU: 1; LKI: 3 |
| | | VMU with MRU (<i>to complete the studies for persons, who enrolled in MRU doctoral studies until 02/01/2019</i>) | - |
| History and Archaeology (<i>until 2019 it was only History</i>) | VU with LII | VU: 6; LII: 6 | |
| | VMU with KU | VMU: 1; KU: 2 | |
| Ethnology | VMU with KU, LII | VMU: 1; LII: 1 | |
| | VU with LMTA, LLTI | VU: 1; LLTI: 2 | |

* - The institutional distribution among HEIs with the right to doctoral studies in Education was changed in 2022 by the order of the Minister of Education, Science and Sport (No. 1237). From 2019 to 2022 – VMU had a right to implement doctoral studies in Education together with MRU, KU and VU.

Table 14. The requirements for the PhD student seeking to defend his (her) dissertation

| From 2017 to 2020 ⁶⁷ | Since 2020 ⁶⁸ |
|---|---|
| <ol style="list-style-type: none"> The PhD student has passed the exams. The doctoral student has published the most important results of his (her) research in at least two articles published (or accepted for publishing) in peer-reviewed scientific publications or in a scientific monograph. Regarding the research area, the PhD student must publish his (her) results: <ol style="list-style-type: none"> in SSH – at least two articles in peer-reviewed scientific publications, one of which is published in an international publication where more than half of the members of the editorial board are not representatives of the country where the publication is published, or in a scientific monograph. in PABT – at least two articles in international scientific publications with a citation index in the CA WoS database. The PhD student has presented his (her) results of the research at international scientific events. (recommended) The PhD student has completed at least 3 months of internship at a foreign research and higher education institution(s). The PhD student meets other requirements set out in the doctoral regulations | <ol style="list-style-type: none"> The PhD student has passed the exams and completed other subjects stipulated in the students' work plan. The doctoral student has published the most important results of his (her) research in at least two articles published or in peer-reviewed scientific publications with a DOI, or in a scientific monograph, which were not presented in already defended dissertations*. Regarding the research area, the PhD student must publish his (her) results: <ol style="list-style-type: none"> in SSH – in at least two articles in peer-reviewed scientific publications, one of which is published in an international publication where more than half of the members of the editorial board are not representatives of the country where the publication is published, or in scientific publications with a citation index in CA WoS or Elsevier Scopus (Scopus) databases or in a scientific monograph. in NTMA - at least two articles in international scientific publications with a citation index in the CA WoS database. The PhD student has presented his (her) results of the research at international scientific events. (recommended) The PhD student has completed at least three months of internship at a foreign research and higher education institution(s). According to the procedure established by the institution, the PhD student can do an internship in a Lithuanian or foreign company, institution, or organisation. The PhD student meets other requirements set out in the doctoral regulations and the doctoral students work plan. |

⁶⁷ Source: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2017, No. V-149. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/9cc596d205d411e78352864fdc41e502?jfwid=-967db9a4n>

⁶⁸ Source: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2020, No. V-739. Available in Lithuanian: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/71ae1e80993e11eaa51db668f0092944/asr>

* - If the PhD student is from the industrial PhD studies programme, and he (her) has a co-authored patent, this patent could be equated to a publication.

Table 15. Types and scores of research outputs by the area of research⁶⁹

| Types of research outputs | The units of the volume of the research output | Area of research and the score assigned for the research output | | |
|--|--|---|----------------------------------|------------|
| | | NTMA | Social Sciences | Humanities |
| Scientific monograph published by internationally recognised scientific publishing house | Author's quires | - | 15 | 15 |
| Scientific monograph or part(s) of it published by internationally recognised scientific publishing house | Author's quires | 10 | - | - |
| Other monograph or synthetic research output (not less than eight author's quires) | Author's quires | | A prescribed formula is applied. | - |
| Part(s) of scientific monograph, scientific study, synthetic research output or parts of it published by internationally recognised scientific publishing house (all no less than four author's quires) | Author's quires | - | - | 15 |
| Scientific study, synthetic research output or parts or parts of it published by internationally recognised publishing house (all no less than two author's quires) | Author's quires | - | - | 10 |
| Scientific monograph published by other publishing house | Author's quires | - | - | 7 |
| Scientific study or synthetic research output (less than eight author's quire) | Author's quires | - | 2 | - |
| Part(s) of scientific monograph, scientific study, synthetic research output or parts of it (all no less than four author's quires) published by other publishing house | Author's quires | - | - | 7 |
| Scientific study, synthetic research output or parts of it, part of scientific monograph published by other publishing house (all no less than two author's quires) | Author's quires | - | - | 4 |
| Scientific article in international journal, part of the monograph published by internationally recognised publishing house (from 0,25 to two author's quires) | Unit | - | - | 5 |
| Scientific article in TOP10% of highly cited papers in the world | Unit | 2 | 3 | - |
| Scientific article in the journal which JIF/AIF is higher than 0,25 (if an article belongs to more than one category of research fields, then an average for all categories is calculated and it should be higher than 0,25) (exceptions may be applied) | Unit | A prescribed formula is applied. | - | - |
| Scientific article in the journal which has a citation index in JIF CA JCR and (or) SNIP Scopus data base (exceptions may be applied) | Unit | - | A prescribed formula is applied. | - |
| Scientific article in peer reviewed publication | Unit | - | 2 | 2 |
| Coordination of the H2020 or Horizon Europe project where the R&D activities were carried out | Unit | 26 | 40 | 40 |
| Coordination of the H2020 or Horizon Europe project where R&D activities were not carried out directly | Uni | 13 | 20 | 20 |
| The ERC grant | Unit | 40 | 60 | 60 |
| Scientifically synthesised dataset | Unit | - | - | 4 |
| Publication of applied research work | Author's quires | - | - | 2 |
| Review of a published research work, scientific dissemination publication (min. volume 0,35 author's quire). | Unit | - | - | 1 |
| Dictionary of terms, scientific manual, encyclopaedia in the research area or the research field | Author's quires | 1 | 1 | - |

⁶⁹ Source: *The order of the Ministry of Education, Science and Sport of the Republic of Lithuania*. 2021, No. V-1593. Available in Lithuanian: <https://www.e-tar.lt/portal/lt/legalAct/e4367a300bbe11ec9f09e7df20500045>

| | | | | |
|--|-------------------|----|---|---|
| A patent issued by the European Patent Office (EPO), United States Patent and Trademark Office (USPTO), or the Japan Patent Office (JPO) whose owners are Lithuanian citizens or other persons permanently residing in the Republic of Lithuania, or legal entities registered in the Republic of Lithuania | Unit | 15 | - | - |
| A patent application for the European Patent Office (EPO), United States Patent and Trademark Office (USPTO), or the Japan Patent Office (JPO) whose applicants are Lithuanian citizens or other persons permanently residing in the Republic of Lithuania, or legal entities registered in the Republic of Lithuania | Unit | 10 | - | - |
| A plant variety (except decorative) assessed at European specialised centres (Reports on Technical Examination of the DUS Testing required to be submitted) and animal breeds | Unit | 15 | - | - |
| A decorative plant variety assessed at European specialised centres (Reports on Technical Examination of the DUS Testing required to be submitted) and animal breeds | Unit | 3 | - | - |
| New species of organisms that have passed international expertise (typical specimen (standard) in the specified scientific collection; placement in the international catalogue of the group of organisms) | Unit | 15 | - | - |
| Establishment of spin-off companies and formation and (or) increase of their authorised capital | In thousand Euros | 1 | - | - |