

*September 2020*

## **International Evaluation of Scientific Institution Activity, Latvia**



**Methodology**



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# 1 Introduction

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## 1.1 Objectives of the International Evaluation of Scientific Institutions Activity

In 2018 the Cabinet of Ministers of Republic of Latvia approved Regulation on Procedures for Organising the International Evaluation of Scientific Institutions Activity<sup>1</sup>. The Regulation defines the procedures by which the Ministry of Education and Science should organise an international evaluation of scientific institutions activity (hereinafter – international evaluation) once every six years.

The Cabinet of Ministers of Republic of Latvia also adopted a decision (Protocol number 45 23.§, 2 October, 2018) stating that The Ministry of Education and Science should in six months after completion of the international evaluation prepare an informative report on how the public funding for research will be tied to the results of the international evaluation.

The overall objective of the international evaluation is:

*Improvement of the quality of research performed by research institutions in Latvia, including improvement of international competitiveness of research institutions, better integration in the European Research Area, increased competitiveness of the country as well as implementation of effective and evidence based research, technology development and innovation policy.*<sup>2</sup>

The international evaluation will produce analytical material that will describe the scientific excellence and competitiveness of Latvian science, its socioeconomic impact and development potential of its scientific institutions. This material will

- Provide evidence for science policy making and funding allocations
- Enable the scientific institutions involved in the process to gain a significant impetus for improving their operations

The assessment is designed to meet the requirements of the Republic of Latvia Cabinet Regulation No. 619, 2018 and therefore based on the following principles:

- *In evaluating the quality of scientific activity, fundamental and applied research shall be evaluated as equally significant*
- *In evaluating the impact of scientific activity on the relevant field of science, its impact on the related fields, the conformity with the objectives of the State scientific and technological development, as well as education and innovation development policy shall be evaluated*
- *In evaluating the economic and social impact of scientific activity, the potential of scientific results to promote higher education, social equality, integration and welfare, public health, national security, sustainable development of the social, economic and culture field, public understanding of the significance of scientific activity, as well as impact on the achievement of the objectives, development of priorities and areas of the Smart Specialisation Strategy shall be evaluated*

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<sup>1</sup> Republic of Latvia Cabinet Regulation No. 619. 2018. Procedures for Organising the International Evaluation of Scientific Institution Activity. Available at: <https://likumi.lv/ta/en/en/id/301995-procedures-for-organising-the-international-evaluation-of-scientific-institution-activity>

<sup>2</sup> Objective of the assessment as defined in the Technical Specification, Annex 1 to contract between Ministry of Education and Science of Republic of Latvia and Technopolis Group Eesti.

- In evaluating the research infrastructure and its conformity with the operation of the scientific institution, the conformity with the institutional management, ensuring open access, long-term development, and resource planning shall be evaluated
- In evaluating the development potential of the scientific institution, the following aspects shall be evaluated:
  - the future vision of the scientific institution, including to what extent the evaluation of the strengths, weaknesses, opportunities and threats of the scientific institutions is justified
- the development plan of the scientific institution for the management of the following factors:
  - the ability of the selected scientific objectives to influence the international scientific community
  - the ability to initiate new research directions
  - the ability to attract students, doctoral candidates, and foreign researchers
  - the ability to attract funding as a result of tenders
  - international competitiveness of the academic staff
- In evaluating the quality of scientific activity, the cooperation of the scientific institution with the sector of national economy corresponding to the field of its activity shall be evaluated

## 1.2. Scope

The international evaluation is directed at institutions included in the Register of Scientific Institutions. Evaluation is compulsory to all state funded scientific institutions, while private scientific institutions can participate on voluntary basis.

*N.B. Throughout this document all of the above are referred to as “institutions”.*

The assessment will cover 38 institutions. Several institutions consist of multiple research units. The assessment will cover 64 research units. Table 1 illustrates the distribution of units across science fields.

*Table 1 Number of research units in each science field*

<b>Field</b>	<b>Number of units</b>
Natural Sciences	7
Medical and Health Sciences	8
Agriculture, Forestry and Veterinary Sciences	5
Social Sciences	17
Humanities	11
Engineering and Technology	16

The international evaluation covers the research activities of Latvian institutions from 1 January 2013 to 31 December 2018.

## 2 The Process

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### 2.1. Overview of the process

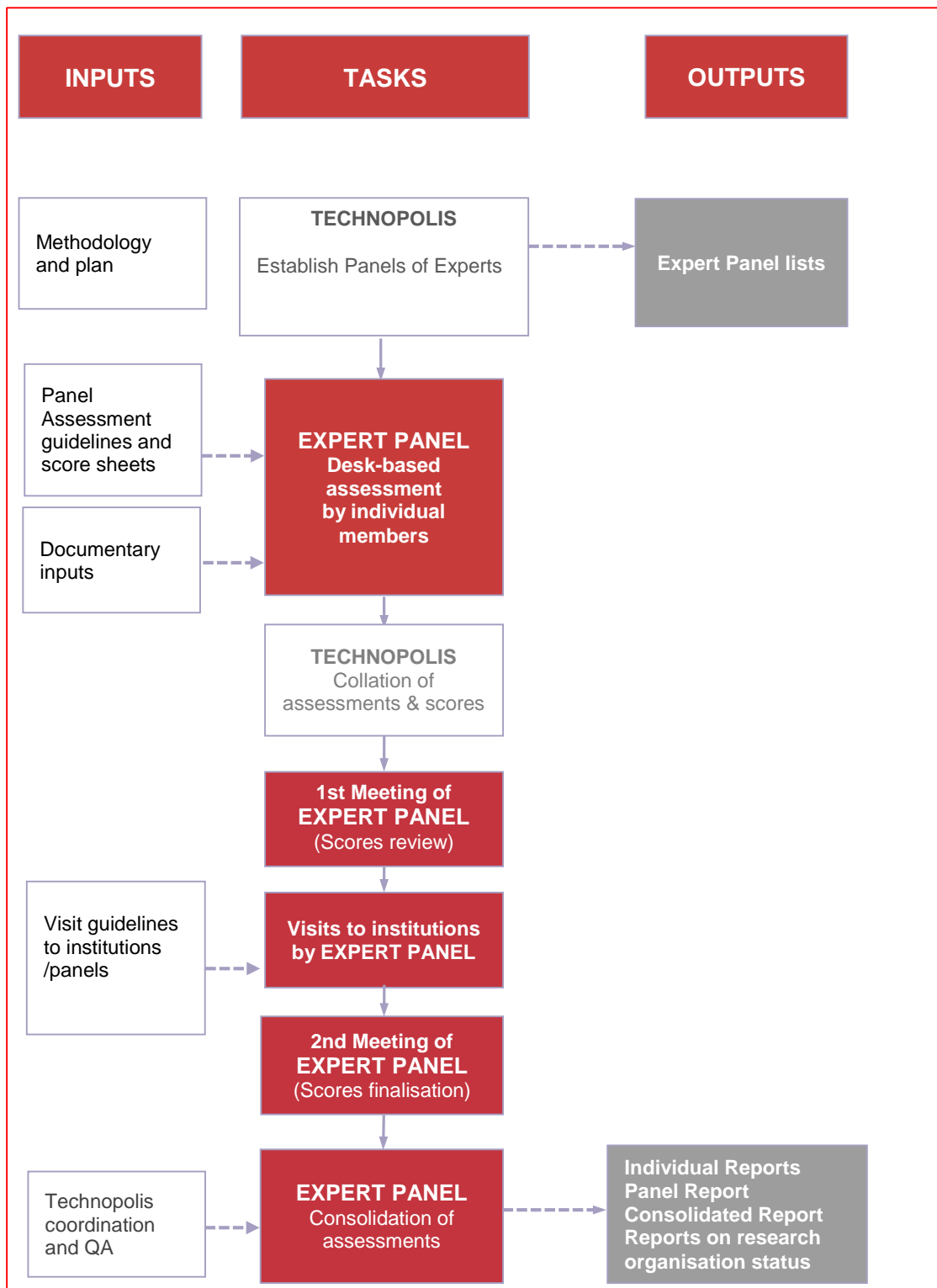
The international evaluation is a peer review of Latvian research institutions by panels of international experts. Their assessment is based on documentary evidence, a review of selected research outputs and institutional visits.

The international evaluation process is presented in **Error! Reference source not found.** The main documentary inputs to the international evaluation are this methodology and international evaluation plan that will guide the process, self-assessment reports, information from National Research Information System (NRIS), selected research publications, general background information and bibliometric analyses. The international evaluation starts with establishment of Expert Panels and preparation of documentary inputs for their work. This will result in Expert Panel lists and background information for panels to review. This will be followed by desk-based assessment performed by individual members of panels. Next step of the process is the first Expert Panel meeting to agree on initial assessments and scores. Following the meeting Expert Panels will visit institutions. After the visits the Expert Panels will meet again to agree on final assessments and scores. The process is completed by Individual Reports that will be coordinated with institutions. After reception of feedback from institutions Expert Panels will prepare Panel Reports. Technopolis Group will summarise the assessment in Consolidated International Evaluation Report.

In addition to international evaluation, conformity to the status of research organisation will be assessed for 38 institutions. Based on the assessment, report on the conformity to the status of research organisation will be provided for each institution. To assess conformity to the status of research organisation, institutions will be asked to provide description of financial and accounting policy and annual reports.



Figure 1 International Evaluation Process



## 2.2. Documentary inputs to the international evaluation

Institutional assessments will be based on documentary evidence, a review of selected research outputs and institutional visits.

The institutional assessments will make use of the following documentary inputs:

- Self-assessment reports submitted by institutions
- Selected research publications per institution
- Bibliometric indicators
- National Research Information System data
- General background information<sup>3</sup>, for example, EU and national regulations, policy planning documents, development strategies of research institutions and other material will be used to provide background information to Panel Members

The Expert panels will also be provided with guidelines on the assessment process and score sheets. Technopolis Group will prepare this.

The research publications to be reviewed will be selected from the ranked list provided in section 3.3 of the institutional self-assessment reports, with the number of publications based on the size of the institution (in staff numbers).

The number of research outputs to be assessed for each institution is calculated as follows:

- The minimum number of papers for review is **5** (whatever the size of the institution)
- The maximum number of papers for review per institution or unit is one paper per 10 academic/research staff as defined in section 2.1 in the self-assessment report (except where this would fall below a minimum of **5 papers**) i.e. the maximum number of papers to be reviewed is one-tenth of the number of academic/research staff, but not more than 15 papers
- Academic/research staff are defined based on section 2.1 in the self-assessment. It includes the total number of academic staff (excluding PhD students) and the total number of research staff (excluding PhD students) in the table in section 2.1.

## 2.3. Bibliometric analysis

Technopolis will perform bibliometric analysis for each institution to be assessed. The analyses will be provided to the experts in each of the Panels for the institutions covered by that panel.

The bibliometrics has been designed in consultation with the Ministry of Education and Science and in line with the Latvian Cabinet Order relating the "Procedure for Organizing International Assessment of Scientific Institutions".

**The results of the bibliometric analysis will be shared with each institution at least three weeks before the visit date.**

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<sup>3</sup> As defined in Chapter 4 of the Technical Specification, Annex 1 to contract between Ministry of Education and Science of Republic of Latvia and Technopolis Group Eesti.

The tables below explain in the components of the analysis and the indicators.

*Table 2 Components of bibliometric analysis*

Components of bibliometrics analyses	
Period of analysis	Publications published in the period 2013-2018
Type of documents	<ol style="list-style-type: none"> <li>1. The main document types for the analysis is articles in peer reviewed and reviews</li> <li>2. Separate analyses are provided for (i) conference proceedings and for (ii) books, chapters and monographs</li> </ol>
Approach to data harvesting	<p>Publications for each institution in the International Evaluation are identified in the bibliographic databases in the following way:</p> <ul style="list-style-type: none"> <li>• A search based on the affiliation ID of the institution (as a unit or sub-unit)</li> <li>• In those cases where the affiliation ID is not available for a sub-unit, the search is performed with the help of the unit affiliation ID combined with the designated subject areas (as defined in the self-assessment)</li> <li>• When neither option above is feasible, searches are based on the publications listed in section 3.3 of an institution's self-assessment reports.</li> </ul>
Data Source(s)	<p>The total number of publications and number citations for each institution is identified in Scopus and Web of Science.</p> <p>Where the number of outputs from both databases are comparable, indicators will be produced from one database. Where the number of outputs and number of citations are significantly different between the two databases, indicators will be produced from both.</p>

The following bibliometric indicators will be produced for each institution based on either Scopus or WoS (or, in some cases, both) depending on the criteria described in the last row of the table above.

*Table 3 Bibliometric indicators*

Bibliometric Indicators					
			Type of document		
Indicator	Name	Source Databases	Articles in peer-reviewed journals & reviews	Conference proceedings	Books, book chapters and monographs
Number of publications	Number of publications	Scopus <u>and</u> WoS	+	+	+

Number of citations	Total number of citations <sup>4</sup> (no citation window used) by type of document	Scopus <u>and</u> WoS	+	+	+
	Number of citations (citation window: year of publication plus two years)	Scopus	+	+	+
Average number of citations per publication	Total number of citations divided by the total number of publications	Scopus <u>and</u> WoS	+	+	+
	Number of citations (citation window: year of publication plus two years) divided by the total number of publications	Scopus	+	+	+
Normalised citation impact score (average for the institution)	Field-Weighted Citation Impact (FWCI)*	Scopus	+	+	+
	Category Normalized Citation Impact (CNCI)**	WoS	+	+	+
International research collaboration intensity	Per cent share publications published with at least one international co-author (i.e. an author affiliated to an institution in a country outside of Latvia)	Scopus <u>and</u> WoS	+	+	+
Quality of journals where publications are published	Per cent share of publications published in Q1 journals indicating top quartile journals (as defined by their journal impact factor)	Scopus <u>and</u> WoS	+	+	+

\* FWCI is an Elsevier impact indicator showing how the number of citations of a publication compares with the average number of citations received by all other similar publications indexed in the Scopus database. FWCI is useful to benchmark papers, researchers or institutions regardless of differences in size, disciplinary profile, age and publication types. The FWCI presented here is the average for the institution.

\*\* CNCI is a Web of Science indicator of impact that is calculated by dividing the actual count of citing items by the expected citation rate for documents with the same document type, year of publication and subject area. CNCI is an indicator of impact irrespective of age, subject focus or document type. It allows comparisons between entities of different sizes and different subject mixes. The CNCI of a set of documents (the collected works of an individual, institution, country) is the average of the CNCI values for all the documents in the set.

An FWCI or a CNCI of 1.00 indicates that the publications have been cited at world average for similar publications. Greater than 1.00 indicates that the publications have been cited more than would be expected based on the world average for similar publications, and a number less than 1.00 indicates that the publications have been cited less.

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<sup>4</sup> These numbers include self-citations.

## 3 Expert Panels

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### 3.1. Number and composition

The international evaluation will be conducted by independent international experts, supported by Technopolis Group. The experts will be divided into six Panels (Table 4). Each Panel will have six experts, with one expert assigned the role of Panel Chair. The disciplinary coverage of each Panel is provided in Table 13 in Appendix A.

*Table 4 Expert Panels*

<b>Panel (full title)</b>	<b>Panel abbreviation</b>
Natural Sciences	Panel N
Medical and Health Sciences	Panel M
Agriculture, Forestry and Veterinary Sciences	Panel A
Social Sciences	Panel S
Humanities	Panel H
Engineering and Technology	Panel E

Panel Members will be selected based on the following criteria:

- Doctoral degree
- Experience in conducting international research and development systems or scientific institutions evaluation in various countries
- At least 10 years of scientific work experience and original scientific publications in journals indexed in WoS or SCOPUS with citation index at least at the average of sector average index (does not apply to industry expert)
- Does not represent research institutions to be assessed and is not in conflict of interest

Technopolis Group performed the Research Assessment Exercise in Latvia in 2013. To ensure consistency, some Panel Members will be selected from the experts involved in the previous international evaluation and others will be new to ensure a fresh perspective. Each panel as a whole will provide disciplinary breadth to cover subject fields of institutions, will provide good geographical coverage across Europe and aim for gender balance.

To ensure presence of an industrial viewpoint, academic experts with industry experience or collaboration links with industry will be included in each panel.

The list of Panel Members will be sent to each institution in the NRIS and to the e-mail address of the contact person indicated in the self-assessment report and the official e-mail address of the institution. The institution will be given 5 working days to review the conformity of experts with the field of research activity of the institution in accordance with the normative regulation regarding the fields and subfields of science of Latvia. If there are objections, Technopolis Group will review the objections and if considered justified, list of experts will be reviewed and updated.

Panel Chairs are already selected and, in addition to the criteria listed above, Chairs have experience in chairing similar expert panels to evaluate research institutions. All experts listed in the Table 5 have agreed to participate in the international evaluation. Consistency and comparability between international evaluations is a real challenge and therefore we propose, wherever possible, the same Chairs as in the 2013 Research Assessment Exercise in Latvia. Four of the proposed six experts were Panel Chairs in the 2013 assessment exercise. The 2013 Panel Chairs for Humanities and Agriculture, Forestry and Veterinary Science are unavailable for the 2019 international evaluation and they recommended Panel Members from the 2013 evaluation to be Chairs in their place.

*Table 5 Panel Chairs*

<b>Panel name</b>	<b>Expert</b>	<b>Institution</b>	<b>Expertise and experience</b>
<b>Natural Science</b>	<b>Professor Mats Gyllenberg</b>	University of Helsinki, Finland	<p>Professor Gyllenberg is a Professor of Mathematics in the Department of Mathematics and Statistics at the University of Helsinki in Finland and Permanent Secretary of the Finnish Society of Sciences and Letters. Working in the field of biomathematics his research spans mathematics and biology.</p> <p>He chaired the Natural Science and Mathematics Panel of the 2013 Research Assessment Exercise in Latvia.</p> <p>Performed Evaluation of Research and Education of the Faculty of Mathematics and Natural Sciences at the Åbo Akademi University, Turku, Finland.</p> <p>He is a key player in the European research community: he is Chairman of the European Science Foundation's Standing Committee for Physical and Engineering Sciences and has been member of the ERC's Mathematics Evaluation Panel.</p> <p>President of the Finnish Mathematical Society, member of the prize jury for the Science Competition VIKSU 2001-2003, member of the Committee on Applied Mathematics of the European Mathematical Society. Published more than 230 papers and three books, h-index 33.</p>
<b>Medicine and Health Science</b>	<b>Professor Roland Pochet</b>	Université Libre de Bruxelles, Belgium	<p>Professor Pochet is a Professor in histology and cell biology in the Faculty of Medicine at the Université Libre de Bruxelles in Belgium and Secretary General of the Belgian Brain Council and Founder and Treasurer of the European Calcium Society, conducting research in the field of cell biology, neurosciences and diseases of the brain.</p> <p>He chaired the Life Science and Medicine Panel of the 2013 Research Assessment Exercise in Latvia and Medicine Panel of the 2014 Research Assessment Exercise in Czech Republic. Was panel member in research assessment exercise in Lithuania in 2015.</p> <p>Was the elected chair of the Biomedicine Domain of the intergovernmental organisation COST and co-chair of the Life Sciences panel of the Portuguese Science and Technology Foundation (FCT).</p>
<b>Humanities</b>	<b>Professor Svend Erik Larsen</b>	Aarhus University, Denmark	<p>Professor Larsen is Emeritus Professor of Comparative Literature in the School of Communication and Culture - Comparative Literature at the Aarhus University in</p>

			<p>Denmark, conducting research in Scandinavian studies, comparative literature, culture and semiotics.</p> <p>He was a member of the Humanities Panel of the 2013 Research Assessment Exercise in Latvia.</p> <p>Professor Larsen has Chaired the Academia Europaea nominations expert group in humanities. He has been a reviewer for Scandinavian and European research academies and councils for the European Science Foundation and COST, and external expert in the Romanian Research Assessment Exercise in 2011 and a FCT-reviewer of Portuguese Research centers (2007-2008) and an external expert in the evaluation of programs of literary studies in Sweden in 2012-2013.</p>
<b>Engineering and Technology</b>	<b>Professor Ron Perrott</b>	University of Oxford, UK	<p>Professor Perrott is Visiting Professor at the Oxford e-Research Centre at the University of Oxford working in the fields of parallel and distributed computing and cloud/grid computing. He is a Fellow of US Association of Computing Machinery and a Fellow of the IEEE.</p> <p>He chaired the Engineering and Computer Science Panel of the 2013 Research Assessment Exercise in Latvia.</p> <p>Professor Perrott has deep knowledge of the research assessment process as a member of two of the UK's Research Assessment Panels. He is recognised internationally leading, for example, an EU group that developed a Roadmap and Vision for Software Services throughout the European Union and as a member of several US National Science Foundation Panels.</p>
<b>Social Sciences</b>	<b>Professor John Furlong</b>	University of Oxford, UK	<p>Professor Furlong is a Professor of Education at the Department of Education University of Oxford. His current research interests centre on both teacher education and educational research policy and the links between them.</p> <p>Professor Furlong was member of Social Science panel in the 2013 Research Assessment Exercise in Latvia. He was member of the 2008 UK RAE Education Sub-Panel and also a member of the 2014 UK REF sub-panel for Education. Has participated in Romanian RAE 2011. Convenor for the 2014 Hong Kong RAE sub-panel for Education.</p>
<b>Agriculture, Forestry and Veterinary Science</b>	<b>Professor Paul Struik</b>	Wageningen University, The Netherlands	<p>Professor Struik is Professor in Crop Physiology in the Department of Plant Sciences at Wageningen University in The Netherlands and a non-executive Council member of the European Association of Potato Research, conducting research in the field of grassland science, agronomy and crop physiology.</p> <p>He was a member of the Agriculture, Forestry and Veterinary Science Panel of the 2013 Research Assessment Exercise in Latvia.</p> <p>Professor Struik has been member of the Reasearch Assessment Exercise in the UK. He has been a member of international review committees for institutions in the UK, Ireland, Sweden, Switzerland, the Czech Republic and Estonia. He is board member of international</p>

			research organisations ICARDA and CIMMYT and chair of international research committee of these organisations.
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### 3.2. Tasks

Two Panel Members will be assigned to review the documentary inputs (including research outputs) and provide an initial assessment and initial scores (and explanatory notes for the score) for each institution against the assessment criteria as specified in section Assessment Criteria and using the templates in Appendix B. The Technopolis Panel coordinator will collate the scores.

The Panel Members will visit<sup>5</sup> Latvia for at least five working days. On the first day they will attend a 1st Panel Meeting to review and moderate the scores and make any necessary adjustments. Following the meeting, the Panel Members will visit institutions in Latvia (described below). After the visits the Panel Members will attend a 2nd Panel Meeting to review scores in light of the visits and make any final adjustments. After the visit to Latvia the following reports will be prepared:

- The Expert Panel will prepare Individual Institute Reports for each institution evaluated using the outline in Appendix E
- The Panel Chair will prepare a Panel Report using the outline in Appendix C and presenting the Panel's assessment (i.e. that of the of Panel as a whole) for each institution plus a summary of the research performance across the disciplines covered by the Panel
- Based on Panel Reports Technopolis Group will prepare Consolidated Report presenting summary of all Panel Reports, comparison and recommendations

The Individual Institute Reports will be provided to each institute to enable them to provide feedback before the Panel Report is finalised. Institutes must provide feedback within 10 working days.

### 3.3. Institutional Visits

The Panel Members will visit all relevant institutions in Latvia either in-person or remotely. The visits will enable the Panel to meet with researchers and research managers /senior staff. During the visits institutions may organise interviews for the Panel Members with the sectoral ministry to which the scientific institution is subordinate, and with the representatives of the involved industries, taking into account the specific nature of the operation of the scientific institution.

The institutional visits will be approximately 3 hours in length and will entail:

- Interviews / group discussion with senior institution/university staff, faculty staff and leaders, where appropriate (between 1 and 1.5 hours). This should include the head of the particular institution/group being visited
- A tour of the facilities in case of in-person visits (between 45 minutes and 1 hour)

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<sup>5</sup> If possible.



- Interviews with researchers and doctoral students of the research institution and, if applicable, representatives of sectoral ministry or industry representatives (between 1 and 1.5 hours)

Panel interviews /discussions will be led by the Panel Members.

The schedule of the Panel is very tight, therefore research institutions are expected to prepare for the visit carefully based on the time available.

The research institutions to be visited in-person are asked to:

- Provide meeting space for in-person meetings, where the Panel can have the discussion with the senior staff and the researchers of the institution.
- Arrange the visit of the research facilities for in-person visits
- Arrange for the most relevant people from the research institution to be present

Due to Covid-19 pandemic and travel restrictions, visits to institutions will be:

a) partly remote, that is some of the experts will visit the institutions in-person while others will join the visit via video conference (real time video and audio streaming)

b) fully remote, that is all experts will visit the institutions via video conference (real time video and audio streaming)

The format of the visit will be decided two weeks before the visit date considering the travel restrictions and experts readiness to travel.

Remote meetings will follow the same structure and process as presented above except physical tour of facilities.

To compensate for the lack of physical tour of the facilities, Technopolis will provide filming service (director and camera operator) before the visit. This will allow institutions to prepare short videos to demonstrate research infrastructure. The video will be shared with experts before the visits to institutions.

Technopolis Group will invite each institution to the video conference (real time video and audio streaming) meeting two weeks before the meeting date by sending a meeting link. Meetings will be held in MS Teams or Zoom. Institutions have to be aware and consent that meetings will be recorded.

Dial-in option will be provided so that participants can join by phone in case they experience problems with internet connection.

Technopolis Group coordinator and the panel chair will moderate the video conference (real time video and audio streaming).

For remote meetings institutions are asked to:

- Provide e-mail addresses of people to be invited to the on-line meeting
- Join the on-line meeting via link provided by Technopolis Group. The link will be provided to the institution one week before the meeting
- Ensure presence of institutions IT support
- Arrange, that the **most relevant people** from the research institution **are present**

- Be aware and consent that the meeting will be recorded
- Technopolis Group coordinator and the panel chair will moderate the meeting. Please follow their instructions during the meeting

## 4 Assessment Criteria

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### 4.1. Quality of the Research Performance of the Institution

The overall process will assess the Quality of the Research Performance of each institution. The relevant Panel will score the research performance of each institution using the scale presented in Table 6 (using whole numbers only).

*Table 6 Overall assessment criterion: Quality of the Research Performance of the Institution*

<b>QUALITY OF THE RESEARCH PERFORMANCE OF THE INSTITUTION</b>	
<b>SCORE</b>	<b>DEFINITION</b>
5	Outstanding level of research
4	Very good level of research
3	Good level of research
2	Adequate level of research
1	Poor level of research

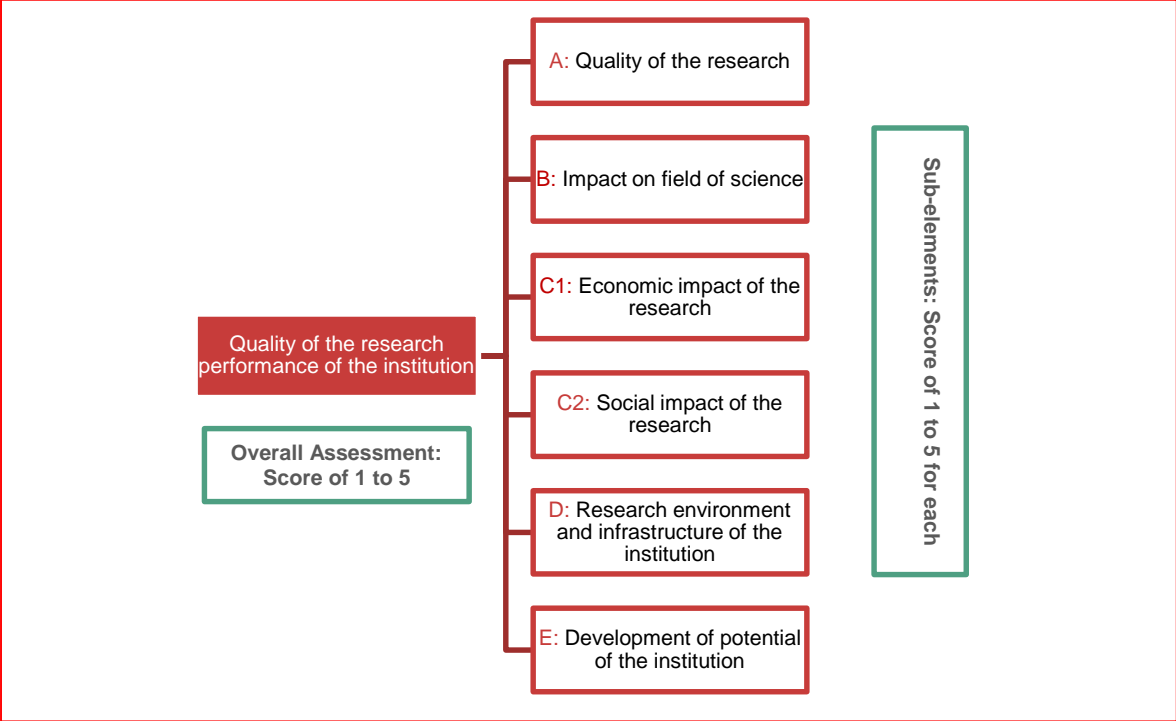
The score assigned to the overall assessment will be based on the assessment of five sub-elements A to E listed below and illustrated in Table 7. Expert Panel will provide the final overall score based on their overall view and not generated by mathematical average. The criteria and scoring for each sub-element is described in Tables 6 to 10.

- A** The quality of the research
- B** The impact on the development of the field of science
- C** The economic impact (C1) and social impact (C2) of the research
- D** The research environment and infrastructure of the institution
- E** The development potential of the institution

The panel will provide scores against each sub-element and the overall score and will also provide narrative descriptions of their scores the overall score and the sub-elements. The overarching final assessment of each institute will include the Panel's qualitative assessment of the institutes' alignment with the objectives of the State scientific and technological

development.<sup>6</sup> The Panels will also provide an assessment of each institute's potential to offer doctoral training based.

Table 7 Assessment criteria



4.2. Sub-elements

Tables 6 to 10 below describe the criteria and the 5-point scoring system for each sub-element. Appendix E illustrates the structure of the assessment output for each institution reviewed.

<sup>6</sup> The relevant policy documents and regulations that are listed in Appendix E

Table 8 Criterion A: Scientific Quality

A: QUALITY OF THE RESEARCH		
Particular factors to take into account		<ul style="list-style-type: none"> <li>Fundamental and applied research shall be evaluated as being of equal significance</li> </ul>
SCORE	DEFINITION	DESCRIPTION
5	<b>Outstanding</b>	<b>The institution is a Global Leader.</b> In terms of the quality, the research output of an institution is comparable with the best work internationally <sup>7</sup> in the same area of research. The research possesses the requisite quality to meet highest standard in terms of originality, significance and accuracy. Work at this level should be the primary point of reference in the respective area.
4	<b>Very good</b>	<b>The institution is a strong international player.</b> Research by the institution possesses a very good standard of quality in terms of originality and importance. Work at this level can arouse serious interest in the international academic community, and international publishers or journals with the most rigorous standards of publication (irrespective of the place or language of publication) could publish work of this level.
3	<b>Good</b>	<b>The institution is a strong national player with some international recognition.</b> The importance of research by the institution is unquestionable in the experts' assessment. Internationally recognized publishers or journals could publish work of this level.
2	<b>Adequate</b>	<b>The institution is satisfactory national player.</b> The international academic community deems the significance of the research by the institution to be acceptable. Nationally recognized publishers or journals could publish work of this level.
1	<b>Poor</b>	<b>The institution is a poor national player.</b> Research by the institution contains new scientific discoveries only sporadically. The profile of the research by the institution is expressly national, i.e., the institution is not involved in international debates of the scientific community. It focuses mainly on introducing international research trends in Latvia.

<sup>7</sup> The designation "international" indicates that the activity and achievements of institutions are internationally comparable with globally recognised research teams in the same area of research

Table 9 Criterion B: Impact on the Scientific Discipline

<b>B: IMPACT ON FIELD OF SCIENCE</b>		
Particular factors to take into account		<ul style="list-style-type: none"> <li>The impact of the research on the development of the scientific discipline and related fields</li> </ul>
SCORE	DEFINITION	DESCRIPTION
5	<b>Outstanding</b>	<b>The institution is a Global Leader.</b> The research outputs of the institution are published in the leading forums of the respective discipline, and they have a considerable impact on the development of the discipline; the institution is highly valued as a partner in international research projects.
4	<b>Very good</b>	<b>The institution is a strong international player.</b> The institution is internationally recognised in its discipline and is highly regarded as a partner in international research projects and networks.
3	<b>Good</b>	<b>The institution is a strong national player with some international recognition.</b> The institution occupies a stable position in the international scientific community, is considered a respected and recognized centre of competence, and possibly hosts national research centres.
2	<b>Adequate</b>	<b>The institution is satisfactory national player.</b> The institution occupies a stable position in the national scientific community. The position of the institution within the international scientific community is still evolving; it still has to strive for its status as a recognised member of the discipline; its impact on the international scientific community is undetermined.
1	<b>Poor</b>	<b>The institution is poor national player.</b> The publishing strategy and scientific impact of the institution are predominantly geared towards the national scientific community and has limited impact also at national level.

Table 10 Criterion C: Economic and Social Impact

C: ECONOMIC (c1) AND SOCIAL IMPACT (c2)		
Particular factors to take into account		<ul style="list-style-type: none"> <li>• <u>Economic impact</u> scoring will consider relevance to, and cooperation with, economic actors (with a particular focus on the national economy)</li> <li>• <u>Social impact</u> will consider development of the social and cultural spheres, the promotion of higher education, social equality, integration and welfare, public health, national security, public understanding of the significance of scientific activity</li> </ul>
SCORE	DEFINITION	DESCRIPTION
5	<b>Outstanding</b>	<b>Highly Important Research and Highly Sought-after R&amp;D Partner by Non-academics.</b> Research of the institution is highly important for the economy /society, which renders the institution a highly esteemed partner in research and development projects outside the academic environment. Staff members of the institution are in high demand as experts in the private / public sector /the public, and the institution is an important driver of societal development.
4	<b>Very good</b>	<b>Very Important Research and Sought-after R&amp;D Partner by Non-academics.</b> Research of the institution is very important for the economy /society. The institution's interactions with the private /public sector/the public stand out in terms of their extensive and dynamic nature.
3	<b>Good</b>	<b>Important Research and Satisfactory Level of Interaction with Non-academics.</b> Research of the institution is important for the economy /society. The institution's interactions with the private /public sector/the public are at a level that is expected of recognised academic institutions.
2	<b>Adequate</b>	<b>Important Research but Low Level of Interaction with Non-academics.</b> Research of the institution is important for the economy /society. The research activities of the institution are characterised by a low level of interaction with the private /public sectors/ the public.
1	<b>Poor</b>	<b>Important Research but no Interaction with Non-academics.</b> Research of the institution is important for the economy /society. The interaction by the institution with the private /public sectors / the public is yet to be established.

Table 11 Criterion D: Research Environment and Infrastructure of the Institution

<b>D: RESEARCH ENVIRONMENT AND INFRASTRUCTURE OF THE INSTITUTION</b>		
Particular factors to take into account		<ul style="list-style-type: none"> <li>• Organisation of the management of research at the institution</li> <li>• The long-term strategic and financial resource planning, including the human resource development strategy</li> <li>• The goal orientation of the research work</li> <li>• The availability and quality of support services, research infrastructure, databases, technical staff, staff teaching and training workload, the ratio of students involved in research to the overall number of staff members, etc.</li> <li>• Ability to ensure Open Access to research results</li> </ul>
SCORE	DEFINITION	DESCRIPTION
5	<b>Outstanding</b>	<b>The institution is a global leader.</b> The institution's research environment is fully comparable to the best international institutions in the discipline, in terms of the organisation, strategy and infrastructure of research work. It can attract the highest quality international researchers.
4	<b>Very good</b>	<b>The institution is a strong international player.</b> The institution is able to provide an internationally comparable excellent research environment to high-level international scientists in the given discipline.
3	<b>Good</b>	<b>The institution is strong national player.</b> The institution is able to provide a research environment that is comparable with globally recognised academic institutions in its discipline.
2	<b>Adequate</b>	<b>The institution is satisfactory national player.</b> The institution's research environment is still evolving to achieve a level that is expected in the international scientific community of a respected institution in the given discipline.
1	<b>Poor</b>	<b>The institution is poor national player.</b> The institution is still only in the process of creating an internationally comparable research environment.

Table 12 Criterion E: Development Potential of the Institution

E: DEVELOPMENT POTENTIAL OF THE INSTITUTION		
Particular factors to take into account	<p>The development potential of an institution comprises:</p> <ul style="list-style-type: none"> <li>• The ability of researchers to participate in international competition</li> <li>• The capability of the scientific environment to support the chosen research</li> <li>• The capability of the selected scientific objectives and research themes to impact the international scientific community and society at large</li> <li>• The ability to initiate new research directions</li> </ul> <p>The assessment will take into account:</p> <ul style="list-style-type: none"> <li>• The institution's future vision and plans</li> <li>• How realistically the institution assesses its strengths and weaknesses, opportunities and threat, and whether the institution has a carefully considered plan to manage such factors</li> <li>• The future vision of the scientific institution, including to what extent the evaluation of the strengths, weaknesses, opportunities and threats of the scientific institutions is justified</li> <li>• The age and career progression of the active scientific staff</li> <li>• The ability to attract students, doctoral candidates, and foreign researchers</li> <li>• Ability to raise funding that is awarded competitively</li> <li>• Its orientation towards topical issues in the selection of research themes</li> <li>• Involvement in promising international collaboration projects and networks, etc.</li> </ul>	
SCORE	DEFINITION	DESCRIPTION
5	<b>Outstanding</b>	<b>High potential to become global leader.</b> The institution is able to assume scientific leadership in the given scientific discipline. It is expected that over the next 5-10 years it will achieve a significant international breakthrough in the particular scientific discipline, and it will attract leading researchers and promising doctoral students. Within the foreseeable future, the institution is able to achieve a level of excellence that is comparable with the most outstanding institutions in the world within their discipline.
4	<b>Very good</b>	<b>Potential to become strong international player.</b> The institution is able to establish itself as a recognized and respected player in the international scientific community within the given scientific discipline. It is expected that over the next 5-10 years it will achieve an excellent level of scientific quality and influence and will become a highly regarded partner in international collaboration projects and networks.



<b>E: DEVELOPMENT POTENTIAL OF THE INSTITUTION</b>		
<b>3</b>	<b>Good</b>	<b>Potential to become international player.</b> Over the next 5-10 years the institution will be able to strengthen its position in the international scientific community as a convincing actor and a trustworthy partner within international collaboration networks.
<b>2</b>	<b>Adequate</b>	<b>Potential to become strong national player.</b> The institution is capable of being a visible local player in its area of research, which from time to time can be expected to contribute to the activities of the international scientific community.
<b>1</b>	<b>Poor</b>	<b>Very limited scope for developing its research quality and reputation.</b> The institution has to work hard to establish itself as an internationally notable institution in its discipline within the foreseeable future.

## 5 Quality Management and Feedback Mechanisms

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### 5.1. Quality Management

Quality Management Processes are integrated in all key components of the international evaluation, in order to assure the quality and timely delivery of all outputs.

The objective of the quality assurance is to guarantee that all deliverables are organised and produced according to the highest standards, meet the requirements presented in the Republic of Latvia Cabinet Regulation No. 619, 2018 and are in line with the expectations of Ministry of Education and Science of Republic of Latvia (Client).

The overall quality objectives are to ensure that:

- The objectives of the international evaluation are fulfilled to the entire satisfaction of the Client
- Operation of the team and the deliverables produced are consistently of high quality
- All activities are adequately planned, implemented, communicated and controlled
- All requirements of the Client falling within the scope of the project are fulfilled to their full satisfaction

To ensure consistency between methods and procedures applied by Expert Panels, guidelines for performing international evaluation, scoring and writing reports will be provided to all Expert Panels. Technopolis Group will assign a Panel Coordinator to each Expert Panel with responsibility of organising the work of the Expert Panel and acting as a day-to-day point of contact for the Panel Members. The Panel Coordinators will provide support to Expert Panels through the evaluation. A Senior Technopolis Group team member will also be available at all times to address any queries from Panel Members or Panel Coordinators. A Senior Technopolis Group team member will attend each Expert Panel meeting to moderate the work of the Expert Panel and ensure consistency and comparability between Expert Panels.

To ensure objectivity and no external impact on Experts, Experts will be asked to report in case institutions have made contact with them before or after the site visits.

The internal quality control process will be conducted at two levels:

- At the project level, the project manager of the assessment will conduct regular reviews in order to ensure that all quality commitments have been followed through and that each team member is keeping up with the timetable of the international evaluation
- At the deliverable level, all reports and deliverables will be quality-checked. The project manager will ensure that all documents are readable and properly formatted and reviewed by Quality Controller of the project

The quality of language and visual consistency of each report will be assessed. It will be guaranteed that all reports submitted meet the highest linguistic and typographical quality standards. Quality and cohesion between the deliverables will be ensured by checking:

- Correct English grammar and clear readable text – avoiding over-long sentences and ensuring text is well structured, using bullets and subheadings
- Internal stylistic coherence and consistency, ensuring text is structured, punctuated and written in a consistent way throughout

## 5.2. Feedback Mechanisms

Republic of Latvia Cabinet Regulation No. 619, 2018 provides that two deliverables should be coordinated with the institutions:

- Institutions will be asked to familiarize with the members of the Expert Panels approximately in early January, 2020. The list of experts will be sent to each institution in the NRIS and to the e-mail address of the contact person indicated in the self-assessment report. The institution will be given 5 working days to review the conformity of experts with the field of science of activity of the institution in accordance with the normative regulation regarding the fields and subfields of science of Latvia. The institution should provide written confirmation of the list of experts in the NRIS. In case of objections, Technopolis Group will review objections and if considered justified, list of experts will be reviewed and updated
- After site visits to institutions Expert Panels will prepare Individual Reports. Individual Reports will be shared with institutions in the NRIS and institutions will be provided with an opportunity to familiarise with Individual Reports and provide their feedback in 10 working days. Expert Panels will consider feedback on factual information. Feedback on Panel assessment will be added in annex of the Panel Report

Technopolis Group is open to any other feedback during all stages of the international evaluation. All inquiries should be sent to e-mail address [raelv@technopolis-group.com](mailto:raelv@technopolis-group.com). Response will be provided in earliest terms possible.

## Appendix A      Disciplinary Coverage of the Panels

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Table 13 Panel coverage<sup>8</sup>

Panel title	Sub-fields
Natural Sciences	Mathematics Physical sciences Chemical sciences Earth and related environmental sciences Biological sciences Other natural sciences
Medical and Health Sciences	Basic medicine Clinical medicine Health sciences Health biotechnology Other medical sciences
Agriculture, Forestry and Veterinary Sciences	Agriculture, forestry, and fisheries Animal and dairy science Veterinary science Agricultural biotechnology Other agricultural sciences
Social Sciences	Psychology Economics and business Educational sciences Sociology Law Political Science Social and economic geography Media and communications Other social sciences
Humanities	History and archaeology Languages and literature Philosophy, ethics and religion Art (arts, history of arts, performing arts, music) Other humanities
Engineering and Technology	Civil engineering Electrical engineering, electronic engineering, information engineering Mechanical engineering Chemical engineering

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<sup>8</sup> As defined in the International Evaluation of Scientific Institutions' Activity, 2019, Self-Assessment Report template

<b>Panel title</b>	<b>Sub-fields</b>
	Materials engineering Medical engineering Environmental engineering Environmental biotechnology Industrial Biotechnology Nano-technology Other engineering and technologies Computer and information sciences

## Appendix B Panel Scoring Template

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### Overall score

Table 14 Reporting template: overall quality score

Institution ID No.		
Institution Name		
Panel Member		
Overall Assessment		QUALITY OF THE RESEARCH PERFORMANCE OF THE INSTITUTION
SCORE	DEFINITION	EXPLANATORY NOTES
Select from 1 to 5	Select the score definition to align with the score	

### Sub-elements scores

Table 15 Reporting template: sub-elements

Assessment sub-element		A: SCIENTIFIC QUALITY
SCORE	DEFINITION	EXPLANATORY NOTES
Select from 1 to 5	Select the score definition to align with the score	

Assessment sub-element		<b>B: IMPACT ON FIELD OF SCIENCE</b>
<b>SCORE</b>	<b>DEFINITION</b>	<b>EXPLANATORY NOTES</b>
Select from 1 to 5	Select the score definition to align with the score	
Assessment sub-element		<b>C1: ECONOMIC IMPACT</b>
<b>SCORE</b>	<b>DEFINITION</b>	<b>EXPLANATORY NOTES</b>
Select from 1 to 5	Select the score definition to align with the score	
		Please include your assessment of the institute's research with alignment with the objectives, development of priorities and areas of the Smart Specialisation Strategy
Assessment sub-element		<b>C2: SOCIAL IMPACT</b>
<b>SCORE</b>	<b>DEFINITION</b>	<b>EXPLANATORY NOTES</b>
Select from 1 to 5	Select the score definition to align with the score	

Assessment sub-element		D: RESEARCH INFRASTRUCTURE AND GOVERNANCE
<b>SCORE</b>	<b>DEFINITION</b>	<b>EXPLANATORY NOTES</b>
Select from 1 to 5	Select the score definition to align with the score	
Assessment sub-element		E: DEVELOPMENT POTENTIAL OF AN INSTITUTION
<b>SCORE</b>	<b>DEFINITION</b>	<b>EXPLANATORY NOTES</b>
Select from 1 to 5	Select the score definition to align with the score	
		Please include your assessment of the institute's potential to deliver doctoral training





## Appendix C Panel Report Outline

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### **Panel Report**

*Panel name*

*Panel members*

### **Introduction**

*Provides a brief introduction to the assessment inputs, process and scope.*

### **Individual assessment and recommendations for each institution**

*As provided in Appendix E*

### **Overview of the research performance across the Panel coverage**

*Describes the general level of quality of research, administration and governance structures, personnel, infrastructure, economic and social impact and provides recommendations.*

## Appendix D List of Relevant Policy Documents and Regulations

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### Regulations:

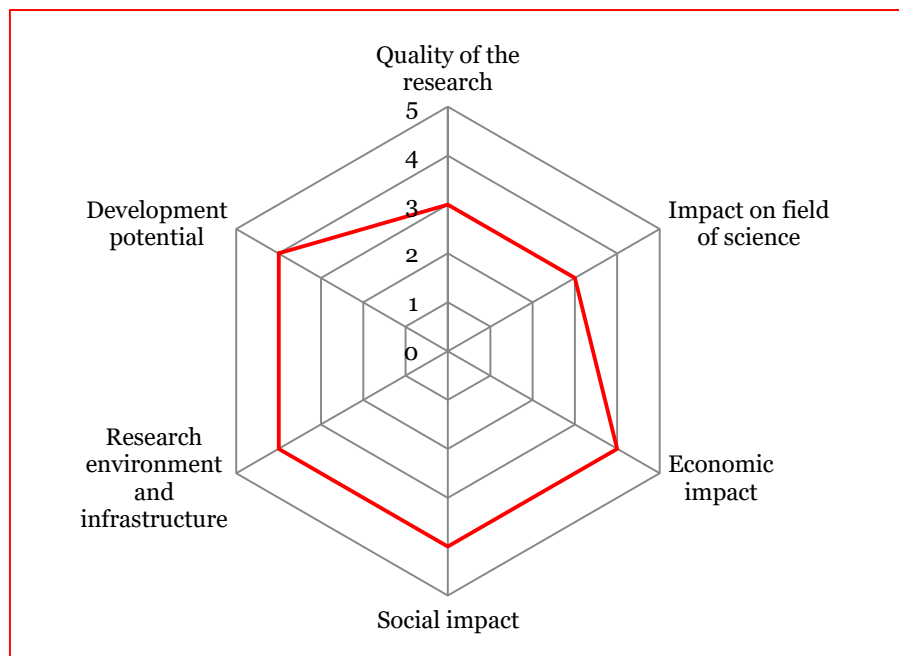
- Law on Scientific Activity
- Law on Higher Education Institutions
- Law on Education
- Republic of Latvia Cabinet Regulation No. 619. 2018. Procedures for Organising the International Evaluation of Scientific Institution Activity
- Procedures for Calculating and Allocating Financial Reference Amount to Scientific Institutions
- Regulation On Priority Directions in Science in 2014-2017 and 2018-2021
- Regulation on Latvia's science fields and sub-fields
- Procedures for Evaluating Fundamental and Applied Research Projects and Administering the Financing Thereof
- Procedures for the Implementation of State Research Programme Projects
- Regulation on National Research Information System
- Regulation on Provision of Doctoral Degree Rights Delegation to Higher Education Institutions

### Policy documents:

- Long Term Development Strategy of Latvia 2030
- National Development Plan 2014-2020
- EU Strategy Europe 2020
- Guidelines for Science, Technology Development and Innovations for 2014-2020
- Smart Specialisation Strategy Monitoring Report 2017
- Informative report on Modernization of Higher Education Governance and New Education Funding Model implementation progress and results, 2017
- Latvia's National Reform Programme for Implementation of Strategy Europe 2020 Progress Reports (2013-2018)
- Operational Programme "Growth and Employment"
- National Industrial Policy Guidelines 2014 - 2020
- Report on Latvia's Economic Development, 2016

## Appendix E Institute Evaluation Report Template

### Institute A (example scores)



Criteria	Scores
Quality of the Research	3
Impact on Field of Science	3
Economic Impact	4
Social Impact	4
Research Environment and Infrastructure	4
Development Potential	4
<b>Overall Score</b>	<b>4</b>

#### Qualitative description of the overall score the institute

The over-arching assessment of each institution the Panel Members based on:

- Documentary review
- Bibliometric analysis
- Institutional visits
- Final scores / Final overall score

This will include:

- A qualitative assessment of the conformity with objectives of State scientific and technological development as well as education and innovation development
- The panel's view on the potential of the institute to offer doctoral studies

<b>Descriptive text for each of the six criteria</b>
<b>A: Quality of the research</b>
<b>B: Impact on field of science</b>
<b>C1: Economic impact</b>  <i>This will include a qualitative assessment of the alignment with the objectives, development of priorities and areas of the Smart Specialisation Strategy</i>
<b>C2: Social impact</b>
<b>D: Research environment and infrastructure of the institution</b>
<b>E: Development potential</b>
<b>Recommendations</b>
Conclusions and recommendations for improvement of scientific performance and development in next period of 2021-2025. Recommendations will focus on improvement of the quality and impact of the research undertaken (where necessary), and on the research environment and infrastructure needed to support improved quality and impact.



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