Annex No.3.

Guidelines and evaluation criteria for assessment of scientific quality of interim results of the implementation of post-doctoral research applications

1. Introduction

1.1. Ageing of human resources and insufficient regeneration thereof presents a major problem in the science system of Latvia. In order to solve this problem, within the framework of the European Regional Development Fund investment programme for support of post-doctoral research has been developed in order to encourage post-doctoral experts holding the Doctor's degree to stay in the field, by developing their skills and improving research capacity, by providing the possibilities for commencing the post-doctoral career in scientific institutions or in businesses, as well as by encouraging enhancement of research competences of post-doctoral researchers and their involvement in international research cooperation. Research applications providing contribution to achieving the goals of the Smart Specialisation Strategy[1] (hereinafter– RIS3), implementation of the growth priorities or development of the smart specialisation areas have received the funding:

Directions of transformation of the national economy	Growth priorities	Smart specialisation areas
1. Change of the production and export structure in traditional economy areas	***1st priority:*** More efficient use of raw materials for production of goods with greater added value, creation of new materials and technologies, and diversification of their application. Wider use of non-technological innovations and Latvian creative industry potential to produce goods and services with greater added value of national economy sectors.	**1. Knowledge-intensive bio-economy** **2. Biomedicine, medical technologies, bio-pharmacy and biotechnologies** **3. Smart materials, technology and**
2. Future growth sectors, in which products and services with high added value exist or may appear	***2nd priority:*** The creation of such innovation system that provides support for the creation of new products and technologies within the framework of existing sectors and cross-sectors, as well as for new sectors with high growth potential based on key sectors defining the development and providing an effective new products/services identification system, and that is able to find and provide support for the creation of	

[1] http://tap.mk.gov.lv/lv/mk/tap/?pid=40334802&mode=mk&date=2014-10-21

	new products both in the existing sectoral and cross-sectoral frameworks, and creating of new sections with high growth potential.	**engineering systems** **4. Smart energy** **5. Information and communications technologies**
3. Sectors with significant horizontal impact and contribution in national economy transformation.	***3rd priority:*** Improvement of energy efficiency, which include the creation of new materials, production process optimisation, introduction of technological innovations, use of alternative energy resources and other solutions.	
	4th priority: Development of a modern and contemporary standard-compliant ICT system in the private and public sectors.	
	5th priority: A modern, and corresponding to the future labour market demands, education system that facilitates the transformation of national economy and development of competences required for the implementation of RIS3 priorities, enterprising spirit and creativity at all levels of education.	
	6th priority: Advanced knowledge base (basic science and scientific infrastructure) and human capital in areas of knowledge, in which Latvia has a comparative advantage and which are important in the process of transformation of the national economy: in areas of knowledge related to the smart specialisation areas (1) knowledge-intensive bio-economy, (2) biomedicine, medical technologies, bio-pharmacy and biotechnologies, (3) smart materials, technologies and engineering systems, (4) smart energetics, and (5) ICT, as well as key technologies identified by the European Commission (nanotechnologies, micro-and nano-electronics, photonics, advanced materials and manufacturing systems, biotechnologies).	
	7th priority: Studying of the existing resources of territories and specialisation, proposing the prospective economic development opportunities and directions int. al. leading and prospective business directions in the municipal territories.	

1.2. Funding has been assigned to a scientific institution registered with the Register of Scientific Institutions of the Republic of Latvia (hereinafter referred to as the scientific institution) or tiny (micro), small, medium or large merchant registered with the Enterprise Register of the Republic of Latvia (hereinafter – merchant) for implementation of an individual research application, including learning, international mobility and networking events. Research application is implemented by a post-doctoral expert – scientist from Latvia or abroad, who has acquired the doctoral degree at least five years prior to submission period of research application. Post-doctoral expert implements the research application with the scientific institution or merchant who accepts and provides access to infrastructure or human resources

for implementation of studies necessary within the framework of research applications. The research application may be implemented in a partnership with a foreign or Latvian research institution, university or an enterprise. Funding has been granted for performing fundamental or industrial research. Within the framework of a research application it is also possible to implement the transfer of know-how and technologies, protection of the technology rights to the industrial property object created during the research, enhancing the competences of the post-doctoral researcher, participation in the international mobility and networking activities.

1.3. The following activities shall be supported for implementation of the research applications:

1) research, including fundamental or industrial study;
2) acquisition, approval or defence of technology rights regarding outcome of the activities performed within the framework of the respective research;
3) publishing of scientific articles and publications; presentation of research outcomes in conferences and seminars; as well as implementation of other knowledge management measures;
4) improvement of competences (learning);
5) international mobility and networking.

1.4. The following activities shall not be supported for implementation of the research application:

1) preparation of studies and methodical materials;
2) preparation and reading of lectures;
3) development of home pages;
4) organisation of conferences, seminars, etc.;
5) development of new, separate IT systems not related to the research and not supported by research.

1.5. Post-doctoral research programme[2] envisages provision of evaluation of the scientific quality of interim results of the research applications in order to monitor implementation of the research application. In order to perform the evaluation, implementers of the research applications have submitted a report on progress of implementation of the post-doctoral research application for evaluation of the scientific quality of the interim results (hereinafter – report).

1.6. Evaluation of the scientific quality of the interim results of the research applications shall be organised by the State Education Development Agency (hereinafter - the Agency).

2. Purpose for evaluation of the scientific quality of the interim results of the research application

Purpose for evaluation of the scientific quality of the interim results of the research application is to evaluate interim implementation progress and scientific quality of the approved research applications in order to ensure research quality and achievement of the planned results. Scientific quality, socio-economic influence

[2] Section 19 of the Cabinet Regulations No. 50 of January 19, 2016, "On Implementation of Activity 1.1.1.2 "Post-doctoral Research Aid" of the Specific Aid Objective 1.1.1 "To increase the research and innovative capacity of scientific institutions of Latvia and the ability to attract external financing, investing in human resources and infrastructure" of the Operational Programme "Growth and Employment" (hereinafter Cabinet Regulations). Available: https://likumi.lv/ta/en/en/id/279803-regulations-regarding-implementation-of-activity-1112-post-doctoral-research-aid-of-the-specific-objective-111-to-increase-the-research-and-innovative-capacity-of-scientific-institutions-of-latvia-and-the-ability-to-attract-external-financing-investing-in-human-resources-and-infrastructure-of-the-operational-programme-growth-and-employment

and implementation quality of the research application form 3 criteria for evaluation of the implementation progress of the research applications. In order to promote also development of implementation skills of the research applications by the post-doctoral experts, argumentation for evaluation of the scientific quality of the interim results of the research applications and recommendations received on possibilities to improve implementation of the research applications are essential.

3. Experts

3.1. The remote anonymous evaluation of the scientific quality of interim results of research applications shall be performed by foreign experts included in the European Commission Experts Data Base (https://ec.europa.eu/programmes/horizon2020/en/experts). Experts involved in evaluation of each research application have been selected in accordance with criteria mentioned in Section 18 of the Cabinet Regulations[3]. The selection of experts shall be performed by Agency by using the search option based on the field and/ or sub-field of science specified by the implementer of research application and the key words and the summary of the research application. Scientific fields and sub-fields are classified in accordance with Cabinet Regulations No. 49 "Regulations on Latvian Scientific Fields and Sub-fields" of 23.01.2018 (available: https://likumi.lv/doc.php?id=296661).

3.2. Two experts of appropriate research field shall be invited for evaluation of the scientific quality of interim results of each research application. One of them shall be designated as the leading expert or "rapporteur" and shall be responsible for definition, validation with the other expert and approval of the consolidated opinion of invited experts. If a research application represents a multi- or inter-disciplinary research, experts who either have experience in such multi- or inter-disciplinary research or each of whom represent a particular field of science comprised by the relevant multi- or inter-disciplinary research shall be selected. A single expert may perform evaluation of the scientific quality of the interim results of several research applications in compliance with his/ her direction of research.

3.3. At first, the Agency shall evaluate the implementation progress of the research application, and invites to evaluate the interim scientific quality the experts who performed the initial evaluation of the scientific quality of the respective research application. If the expert who evaluated the initial scientific quality of the respective research application refuses to perform the evaluation of the scientific quality of the interim results of the research applications, the Agency invites the expert who has been selected in accordance with the procedure set out in Clauses 3.1-3.2 of the Guidelines to perform the expert examination.

3.4. An expert may not have a conflict of interest regarding the implementer of the research application and the research application subject to evaluation. A conflict of interest is admitted if:

1) the expert, his/ her relatives, represented institution or institutions can gain material or other benefit in relation to implementation of the particular research application;

[3] 18. In order to evaluate the scientific quality of research applications, recipient of funding shall ensure appropriate selection of the experts included in the European Commission Experts Data Base by using the following selection criteria:

18.1. The expert shall have a degree of Doctor of Sciences;

18.2. Scientific qualification of the expert corresponds to the scientific field or sub-field of the specific research application;

18.3. Current evaluation competence and work experience of the expert corresponds to the scientific field or sub-field of the specific research application;

18.4. The expert performs the evaluation independently; he does not represent the institution of the submitter of the research application and his activity does not contain such circumstances that might cause the conflict of interests.

2) the expert is the relative of the post-doctoral researcher or has been the supervisor of the post-doctoral researcher's research work;
3) the expert has had joint publications with the post-doctoral researcher during the last 3 years (a publication developed as the result of cooperation of more than 5 research institutions and where the expert or the post-doctoral researcher does not represent the research institution of the leading author of the publication shall be not be deemed a joint publication);
4) the expert has participated in implementation of joint research projects with the post-doctoral researcher during the last 3 years (a project implemented as the result of cooperation of more than 5 research institutions and where the expert or the post-doctoral researcher does not represent the research institution in charge of the project coordination shall be not be deemed a joint project);
5) the expert admits any other personal attitude to the post-doctoral researcher which may cause doubt regarding the impartiality of his evaluation.

The expert shall attest non-existence of the conflict of interest and shall also attest that the information related with the content of the research application and its evaluation shall be confidential and may not be disclosed to any third parties or used for the benefit of the expert's own interest. Examination of scientific results of the interim results of research applications shall be anonymous as regards the implementer of the research application and any third parties. The expert's name, scientific degree and represented organisation shall be known to the other experts who evaluate the relevant research application following completion of the individual evaluation of the scientific quality of the interim results of the research application and before performance of the consolidated evaluation.

4. Procedure

4.1. Before the report of research application is given for evaluation to the experts, evaluation regarding compliance of the research application with the administrative and compliance criteria is performed: the submitted report is completed in accordance with the report completion form; all necessary annexes have been appended to the report; and whether a research application not related to economic activity in the interim period corresponds to the criteria mentioned in Sections 2.1. and 2.4 of the Cabinet Regulations. Evaluation of compliance shall be performed for those research applications not related to economic activity for which the evaluation of compliance with the definition of research organisation has not been performed for the previous calendar year.

4.2. Evaluation of the scientific quality of the interim results of the research applications shall be performed in compliance with the present guidelines. The expert is entitled to consult the Agency regarding any matters related with the research application subject to evaluation or the evaluation procedure.

4.3. Evaluation of the scientific quality of the interim results of the research applications may be performed remotely by using the Agency's POSTDOC information system. Information system contains the present evaluation guidelines, submitted and evaluated reports of research applications, reports on implementation progress in evaluation of the scientific quality of the interim results, ensures performance of the evaluation procedure and saving of evaluations, as well as mutual communication between the experts and communication with the Agency.

4.4. The Agency shall invite the selected experts to perform the examination of the scientific quality of the interim results of the particular research applications. When an expert is invited to perform the examination of the scientific quality of the interim results of a particular research application the following information in English shall be sent to him/ her:

1) the post-doctoral researcher's name, surname,

2) the institution where the research is carried out,
3) the invitation to act as the rapporteur, if applicable;
4) the amount of the fee,
5) the envisaged time schedule of the examination.

By inviting the expert or rapporteur to perform the initial individual or consolidated evaluation of the scientific quality of interim results of a particular research application, the Agency takes into account the scientific qualification and topicality of the expert and rapporteur.

Upon the receipt of the expert's or rapporteur's agreement and attestation regarding the non-existence of the conflict of interest and non-disclosure of confidential information, the Agency shall sign a contract with the expert or rapporteur and provide access to the POSTDOC information system to him/ her. The following information accessible to experts or rapporteurs is included in POSTDOC information system:

1) Cabinet Regulations;
2) the present evaluation guidelines,
3) the research project proposal of the research application (in English),
4) report and the annexes thereto.

4.5. Evaluation of the scientific quality of interim results of the research applications shall consist of two stages:

1) the initial individual evaluation by each expert in compliance with evaluation criteria,
2) the definition and approval of the consolidated opinion by the experts' group.

4.6. In the course of performing the initial individual evaluation, the expert shall assign a score "Complies/Complies, with recommendations/Does not comply", clearly and understandably argument his/ her evaluation regarding each of the evaluation criteria. If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the scientific quality and implementation process of the research application. Following the entry of both initial individual evaluations of a research application in the POSTDOC information system, they and the information about the expert shall be accessible to both experts.

4.7. After placement of both initial individual evaluations of the scientific quality of interim results of one research application in POSTDOC information system, the rapporteur shall develop the draft consolidated opinion, including specification of the degree of the achievement of the planned results of the research application in relation to the plans of the research application, expressing it as percentage (if necessary). The other expert shall either agree to this draft or present his/ her objections and proposals for the evaluation and argumentation. Following the receipt of objections, the rapporteur shall draft a new consolidated opinion. The agreement on the opinion may consist of several stages. The consolidated opinion shall be deemed as validated after receipt of the consolidated opinion in the POSTDOC information system and signing of a respective certification of both experts on acceptance certificate on mutual validation of the experts' opinions.

The consolidated opinion contains evaluation, reasoned argumentation in each of the evaluation criteria, as well as recommendations for improvement of the implementation process of the research application. In the argumentation part, regarding each of the evaluation criteria, also the strengths and weaknesses of the implementation progress of the research application shall be specified which may serve as recommendations for improvement of the implementation process of the research application.

The post-doctoral researcher and the implementer of the research application is entitled to familiarise himself/ herself with the anonymised consolidated opinion after adoption of the resolution.

4.8. If the rapporteur and the other expert admits that there are major disagreements between them and the agreement of the consolidated opinion cannot be attained, they shall notify the Agency thereof and terminate further evaluation of this research application.

In this case the Agency shall invite the third expert for solving the dispute. The initial individual evaluations prepared by the two preceding experts, the draft consolidated opinion developed by the rapporteur and the objections by the other expert shall be introduced to him/ her. The third expert shall prepare a new consolidated opinion and submit it to the Agency. Evaluation on each of the criteria in this opinion may not exceed the highest or lowest evaluation assigned in individual evaluations. The argumentation on each criterion shall summarise the opinion of all the three experts.

4.9. If in the consolidated opinion of the evaluation of the scientific quality of the interim results of the research application any criterion has been evaluated as "Complies, with recommendations/Does not comply", the Agency shall send the conclusions of the evaluation and recommendations to the implementer of the research application with a request to be acquainted with the evaluation, to assess and provide his/her proposals for further actions. Proposals received from the implementer of the research application together with its evaluation and recommendations shall be sent by the Agency to the responsible authority, agreeing on amendments to the schedule of the research application, if necessary.

5. Evaluation criteria for evaluation of the scientific quality of the interim results of the research application, explanation thereof

5.1. The provided explanation of the three criteria shall not be deemed exhaustive or excluding, experts are entitled to interpret and to apply it in compliance with the practice and principles of evaluation of research projects adopted in the international research society and to adapt them to the practice adopted in the relevant field of science.

5.2. The expert characterises compliance of the report with the evaluation criterion by evaluation with the following meaning:

Does not comply: significant shortcomings have been detected in implementation of the research project that make further implementation of the research application and achievement of goals and results questionable;

Complies, with recommendations: shortcomings have been detected in implementation of the research project that encumbers implementation of the research application in general and achievement of goals and results, unless changes and improvements are made to the application;

Complies: shortcomings have not been detected in implementation of the research application, or these are insignificant and do not hinder successful implementation of the research application and achievement of results.

In the course of performing evaluation and application of criteria, the experts should take into account the specifics of the relevant direction of research in interpreting criteria and, in particular, whether this is an application of fundamental or industrial research.

5.3. Scientific quality

Expert shall evaluate:

1) Whether implementation process of the research application is aimed at achievement of goals

(including RIS3 growth priorities or smart specialisation area) and results planned in the application;

2) Whether methodology used in the research application is appropriate for achievement of the goal and end results of the research application;
3) Whether achieved research results are clear and unmistakable; scientific quality is appropriate, taking into account the scientific value, level of novelty of the achieved results, including:
   - activities performed and results achieved in the research application this far are scientifically of high quality and innovative;
   - information included in the scientific article[4] corresponds with the objective and content of the research application;
   - the product or technology developed within the framework of the implementation of the research application correspond to the definition of a new product[5] or new technology[6]. Correspondence to the definition of a new product or technology is evaluated, taking into account:
     a) comparison of target market and parameters of the analogous products and technologies existing in the market and the prototype developed within the framework of the research application: functional characteristics, type of use, technical specification, components, materials, software, cost price;
     b) Commercialisation potential of the new product / technology prototype developed within the framework of the research application characterised by technology readiness level (TRL) and degree of innovation.

[4] Indicator shall be deemed as achieved if post-doctoral researchers involved in the post-doctoral research applications develop the scientific article individually or as part of the co-authors of the scientific article.

[5] New product: Number of developed new products (goods or services that are completely new or have improved functional properties or changed intended type of use (including changed or improved technical parameters, components, materials, enclosed software, user-friendly properties)), for which transfer of knowledge and technologies has been ensured (i.e., specific knowledge, manufacturing skills and technology is ensured from the developer to the user for the needs of manufacturing or use) or for implementation of the project development in manufacturing or provision of services.
A new product shall not be:
- termination of use of any part of a process;
- replacement or extensive increase of capital (purchase of modules identical to used modules, insignificant enhancements, updates to equipment and software). New equipment or enhancements should be with significant improvements of specification;
- changes occurring due to change in price of components (changes in product price or productivity of the manufacturing process are not a product innovation, for example, in computer manufacturing, when the price of the microchip is decreased, the decrease in sales price of the same computer model);
- adaptation of the products to specific needs (for example, adaptation of a product to the customer's needs that do not cause such changes to functional or technical properties of the new product that ensure a higher competitiveness of the new product in comparison with current products);
- everyday, seasonal or cyclical changes and improvements (for example, a new seasonal collection in the manufacturing of clothing cannot be viewed as innovation);
- design changes (including flavour and fragrance) that does not change the functions, use or technical properties;
- resale of goods or processes of other manufacturers;
- improvements in promotion of marketing (including aesthetic changes);
- improvement of organisational processes in the merchant's operation.

[6] New technology: technology that corresponds to the definition provided in Clause 114 of Article 2 of the Commission Regulation (EU) No. 651/2014, of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty Text with EEA relevance (Official Journal of the European Union, 26 June 2014, No. L 187), i.e., new and innovative technology' means a new and unproven technology compared to the state of the art in the industry, which carries a risk of technological or industrial failure and is not an optimisation or scaling up of an existing technology.

5.4. Socio-economic influence

Expert shall evaluate:

1) social and economic influence of the achieved results of the research applications in implementation of economic transformation directions, priorities or smart specialisation areas set out in RIS3;
2) influence of the distribution and transfer measures of the achieved research results (including transfer of knowledge and technologies) on economic development of the implementer of the research application, cooperation partner (if applicable), and ensuring the needs of the society;
3) influence of achieved research results on further growth and increase in scientific capacity of the post-doctoral researcher;
4) contribution of the research application to promoting international cooperation in research.

5.5. Implementation quality

Expert shall evaluate:

1) Compliance of the financial resources used for performance of research application with the completed amount of work and achieved results;
2) compliance of activities, work packages, tasks , deliverables, and milestones performed during the implementation of the research project with the plans set out in Section 3.1 of Annex No. 4 "Research proposal" and timeline. Inter alia, expert evaluates whether it is possible to achieve the research results still planned within the implementation period of the research application;
3) Compliance of the resource and results management system with the objective(s) of the research application, including quality and risk management;
4) Compliance of the post-doctoral researcher's training with the set objectives and topic of the research;
5) Cooperation quality: distribution of partner functions and responsibility; contribution in achieving the objectives of the research application (if applicable).

The form of the initial individual evaluation by each expert

Initial individual evaluation of the expert evaluating the scientific quality of interim results of the research application

Research Application No.	
Title of the Research Application	

Expert	*Name, Surname, Degree, Institution*

Criterion	Arguments, comments	Evaluation
Scientific quality	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides specific recommendations for improvement of the scientific quality of the research application.	
Socio-economic influence	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the socio-economic influence of the research application.	
Implementation quality	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the implementation process of the research application.	
Date		

Form of the consolidated opinion by the experts' group

Consolidated evaluation of the group of experts evaluating the scientific quality of interim results of the research application

Research Application No.	
Title of the Research Application	

Experts	*Name, Surname, Degree, Institution* *The rapporteur is stated*

Criterion	Arguments, comments	Evaluation
Scientific quality	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the scientific quality of the research application.	
Socio-economic influence	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the socio-economic influence of the research application.	
Implementation quality	Strengths: Weaknesses: Recommendations: If any of the evaluation criteria is scored as "Complies, with recommendations/Does not comply", the expert provides recommendations for improvement of the implementation process of the research application.	
Total score		

Date	