



Agency for Science and Higher Education

**PRINCIPLES AND CRITERIA FOR THE EVALUATION OF SCIENTIFIC
ORGANISATIONS IN THE REPUBLIC OF CROATIA**

February 2013



CLASS: 003-08/13-02/0001

FILE NO.: 355-02-05-13-7

Zagreb, 01 February 2013.

Based on Decision of the Accreditation Council to adopt the document Principles and Criteria for the Evaluation of Scientific Organisation in the Republic of Croatia at its 35th session held on January 22nd 2013, and regarding the article 22nd of the Act on Quality Assurance in Science and Higher Education („Official Gazette", 45/09; hereinafter: Act), Article 7 of the Ordinance on Conditions for Issuing License for Scientific Activity, Conditions for Re-Accreditation of Scientific Organizations and Content of License (OG 83/2010, 5 July 2010; hereinafter: Ordinance), and on the basis of the Article 22 and Article 44, section 2, of the Agency for Science and Higher Education Statute, the Agency director issued

Principles and Criteria for the Evaluation of Scientific Organisation in the Republic of Croatia

Introduction

Institutional and financial support of scientific research carried out by institutions in the Croatian system of science is sustainable only if there is a system for quality assessment, continued work on performance enhancement and increased awareness that the importance and impact of scientific research lays in its contribution to the economy and society as a whole. Ultimately, the quality assurance system should ensure - through evaluations of publicly funded scientific organizations - a favourable ratio of scientific input/intake and output/outcome.

This document prescribes principles and criteria for the evaluation of scientific organisations in the Republic of Croatia. The principles and criteria represent the basis for all future documents necessary for re-accreditation of scientific organisations.

If science is to become a generator of positive changes in the society, then the evaluation of scientific activity needs to be oriented towards development. In contrast to the traditional approach of evaluating scientific research, which was mainly based on the output analysis (quantity and quality), using universal and international benchmarks and comparability, developmental approach places an emphasis on outcomes, efficacy and efficiency in the development of scientific institutions.

Output can be defined as a research result, while an outcome represents impact on the economy and society.

In line with this developmental approach, four basic criteria for the evaluation of the quality of research activity are defined as following:

1. quality of scientific research,
2. productivity (quantity) of scientific research,
3. impact and importance of scientific research,
4. efficacy and efficiency of a scientific organisation.

The criteria are interdependent and contribute to the common quality assessment. In order for a scientific organisation to be effective and efficient, it has to comply with the first three criteria, i.e. it has to carry out quality, productive and important scientific research, results of which are published and available to scientific and professional community, and make a positive impact on society. Efficacy and efficiency of scientific organizations primarily relates to the quality of management and the development of the entire organisation.

Description of the system for evaluation of scientific organisations

The procedure of re-accreditation of all scientific organisations listed in the Register of Scientific Organisations is carried out by the Agency for Science and Higher Education, on the basis of the Article 22 Item 1 of the Act on Quality Assurance in Science and Higher Education (Official Gazette, 45/09).

The Register of Scientific Organisations is maintained by the Ministry of Science, Education and Sports (MSES). Scientific organisations are listed in the Register on the basis of the license which confirms that a scientific organisation complies with the conditions for carrying out scientific activity. The organisation and maintenance of the Register of Scientific Organisations, procedure of listing and deleting the organisations from the Register is prescribed by the Ordinance on the Register of Scientific Organisations and the Register of Higher Education Institutions (Official Gazette, 72/04).

Organisations not enrolled into the Register or deleted from it cannot be funded from the state budget (Article 23 of the Act on Scientific Activity and Higher Education, Official Gazette 123/03, 198/03, 105/04, 174/04, 46/07, 45/09).

Legislation prescribes that all scientific organisations listed in the Register of Scientific Organisations have to be re-accredited every 5 years.

Legal framework

New legislation which entered into force in 2009, especially the Act on Quality Assurance in Science and Higher Education (Official Gazette, 45/09) re-defined the role of the Agency for Science and Higher Education as well as the role of other institutions in the Republic of Croatia that deal with quality assurance and development in science and higher education. This legislation addresses both public and private higher education institutions, public research institutes and other scientific organisations founded by the Republic of Croatia, as well as private research institutes and other legal persons listed in the Register of Scientific Organisations. They are all subject to obligatory evaluation carried out by the Agency for Science and Higher Education.

Evaluation of scientific organisations is based on the following legal documents:

- Act on Quality Assurance in Science and Higher Education (Official Gazette, 45/09),
- Act on Scientific Activity and Higher Education (Official Gazette, 123/03, 198/03, 105/04, 174/04, 46/07, 45/09),
- Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Scientific Activity and Re-Accreditation of Scientific Institutions (Official Gazette, 83/10),
- Ordinance on the Register of Scientific Organisation and the Register of Higher Education Institutions (Official Gazette, 72/04),
- documents of the Agency for Science and Higher Education which regulate re-accreditation of scientific organisations.

Scientific organisations in the Republic of Croatia

In line with the Act on Scientific Activity and Higher Education (Official Gazette, 123/03, 198/03, 105/04, 174/04, 46/07, 45/09), scientific organisations are:

- universities and their constituents,
- public research institutes,
- research institutes,
- Croatian Academy of Sciences and Arts, and
- other legal entities and their constituent units listed in the Register of Scientific Organisations (Article 22 Item 1).

The evaluation of scientific organizations differs for different types of institutions. While public universities, their constituents and public research institutes undergo complex assessments of the quality of scientific research and institution as a whole, and are required to meet the more stringent requirements of the Ordinance, private scientific organizations and (exceptionally) other public legal entities whose main activity is something other than scientific research (e.g. public institutes, hospitals, museums) are evaluated only in the part that is funded from public resources allocated for scientific activity and according to different minimum requirements of the Ordinance.

MINIMAL CRITERIA

Act on Quality Assurance in Science and Higher Education and the Ordinance stipulate that scientific organisations from the Register must meet the following requirements, depending on their type:

| Public scientific organizations (public scientific institutes, universities and their constituents, other public legal entities and their organizational units) | | <input type="checkbox"/> | Private scientific organizations (private scientific institutes, private universities and their constituents, other private legal entities and their organizational units) | | <input type="checkbox"/> |
|---|---|--------------------------|--|---|--------------------------|
| AREAS OF ASSESSMENT: | MINIMAL REQUIREMENTS: | | AREAS OF ASSESSMENT: | MINIMAL REQUIREMENTS: | |
| Evidence of strategic management and planning | strategic programme of scientific research for a period of at least 5 years | <input type="checkbox"/> | Evidence of strategic management and planning | strategic programme of scientific research for a period of at least 5 years | <input type="checkbox"/> |
| Working space and equipment | Evidence of adequate working space | <input type="checkbox"/> | Working space and equipment | Evidence of adequate working space | <input type="checkbox"/> |
| Research capacities | Evidence of the minimum number of researchers | | Research capacities | Evidence of the minimum number of researchers | |
| | 15 researchers | <input type="checkbox"/> | | 5 researchers | <input type="checkbox"/> |
| | 5 in the field of research of scientific organization | <input type="checkbox"/> | | 3 in the field of research of scientific organization | <input type="checkbox"/> |
| Financial resources | financial plan | <input type="checkbox"/> | Financial resources | financial plan | <input type="checkbox"/> |



In order to maintain university study programs, universities and their constituents must be licensed for performing scientific activity (and included in the Register) in the area and field in which they carry out university study programs. Re-accreditation of HEIs' scientific activities is carried out in a combined re-accreditation procedure of higher education and scientific activities.

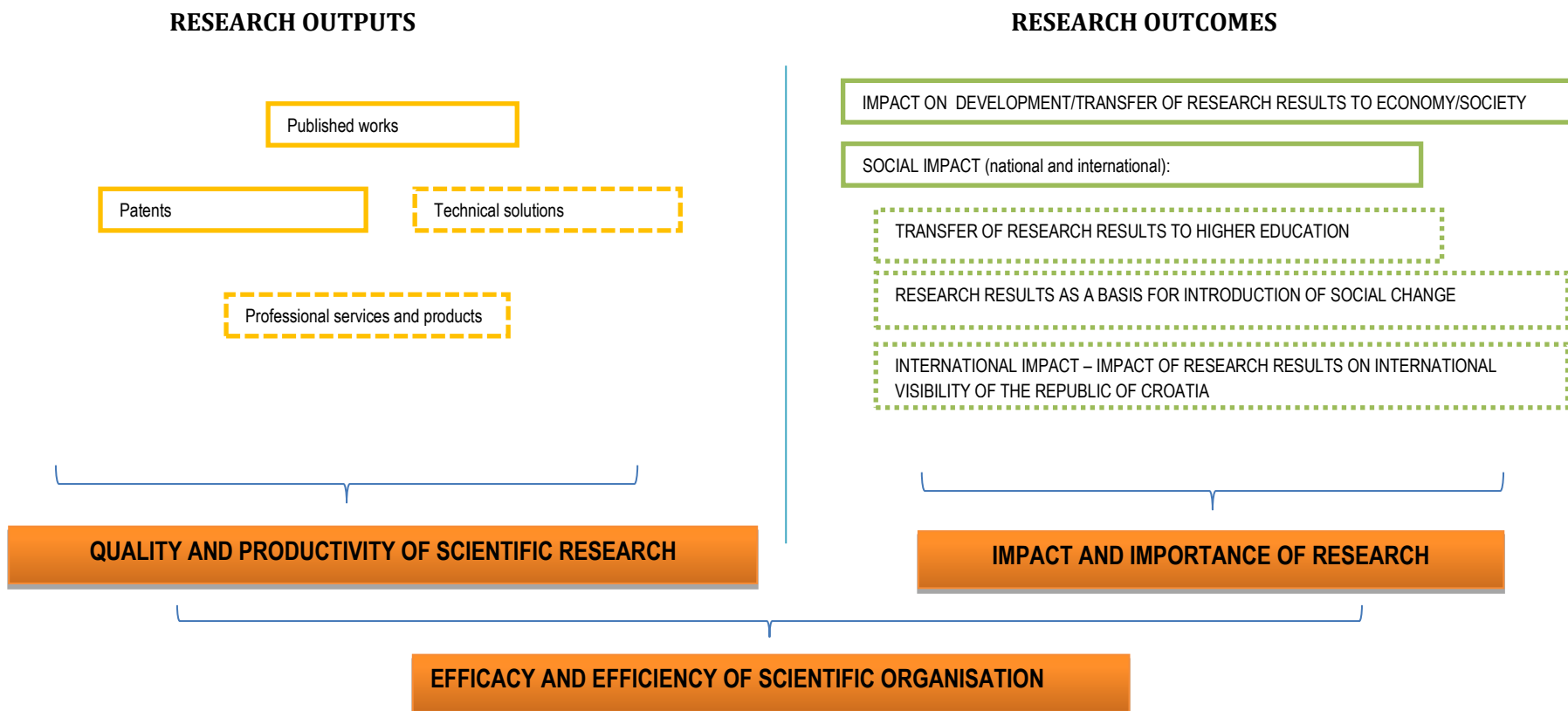
QUALITY ASSESSMENT

Universities and their constituents, as well as public research institutes, are subject to more stringent criteria in terms of minimum requirements for issuance of a license for performing scientific activity. In addition to the requirements prescribed by the Ordinance, during evaluations ASHE also assesses the quality of scientific research, strategy and focus, impact on society, management efficiency, etc., in line with this and other ASHE documents (Re-accreditation of public scientific institutes, Re-accreditation of higher education institutions, Instructions for drafting self-evaluation, Instructions for drafting final report).

Evaluation of other scientific organizations (private scientific organizations and - exceptionally - other public legal entities) is carried out by assessing compliance with the minimum requirements according to the Ordinance and Procedure of re-accreditation of private scientific organizations and other legal entities.



Dimensions of research activity evaluations





Definition of scientific research

According to the Act on Scientific Activity and Higher Education (Official Gazette, 123/03, 198/03, 105/04, 174/04, 46/07, 45/09), scientific activity includes scientific and developmental research, while scientific research can be further divided into fundamental and applied research. Developmental research is therefore not considered to be scientific research, but is based on it.

Fundamental research is a theoretical or experimental work carried out in order to produce new knowledge about basic events and facts (without direct application). Results of fundamental research do not have commercial value in the form of final product, and are published in the form of research papers which can be protected with patents.

Applied research is a theoretical or experimental activity carried out in order to produce new knowledge, primarily oriented to realisation of a practical goal. Applied research is usually based on the positive results produced by fundamental research and its products are often protected with patents.

Developmental research is a systematic activity based on results of scientific research and practical experience aimed at creating new products and systems as well as at the introduction of new processes or a significant improvement of the existing ones. The result of developmental research can be an original model or prototype. Recent developments favour new frameworks of linking fundamental and applied research and translating scientific findings into professional practice. One result of these new developments is translational research which is primarily used in medicine, where it enables the applicability of fundamental research.

In addition to traditional divisions, alternative frameworks of scientific activity such as curiosity-driven research and problem-solving research can also be used in evaluations. Humanities and other sciences use different types of divisions that can also be taken into account in evaluation procedures.

However, all types of scientific research should be evaluated on the basis of innovation of approach, outcomes, quality and impact.

Definitions of outputs and outcomes

The differences between scientific areas, fields and disciplines stem from their history, development dynamics and methodology in which scientific research is carried out. These differences lead to the various forms of presenting and communicating research results.

Research output relates to the results of research that can be measured by quantitative and qualitative indicators, such as papers (printed or electronic) in journals, conference proceedings, books and chapters in books, works of art, etc. Journals are the primary channel for communicating latest results of research for almost all fields, although their relevance may differ depending on the field. In some fields monographs/books have a key role, while in others a greater importance is given to conference proceedings and book chapters. There are also other



types of output: patents, computer software and databases, important works of art, audio-visual recordings, technical drawings, designs, work models, etc.

Table 1 shows primary forms of communication by scientific fields. One type of publishing does not carry the same weight in all the fields. Although researchers from the fields of natural and biotechnical sciences publish books, their basic outputs are papers in refereed journals. Conference proceedings are relevant in all fields, but they carry greater importance in the field of technical sciences. Books and book chapters also appear in all fields, although they are more prominent in social sciences and humanities. Patents are possible in all fields, although they are not so often used in social sciences and humanities. Outcomes in the artistic field are important artworks, compositions, media works etc., which are often protected as intellectual property.

Table 1 Primary methods of communication by scientific and artistic fields

| | <i>Natural sciences</i> | <i>Biotechnical sciences</i> | <i>Biomedical sciences</i> | <i>Technical sciences</i> | <i>Social sciences</i> | <i>Humanities</i> | <i>Artistic field</i> | <i>Interdisciplinary field</i> |
|-------------------------------|-------------------------|------------------------------|----------------------------|---------------------------|------------------------|-------------------|-----------------------|--------------------------------|
| <i>Journal articles</i> | X | X | X | X | X | X | x | x |
| <i>Conference proceedings</i> | x | x | X | X | x | x | | X |
| <i>Monographs/Books</i> | x | x | x | x | X | X | x | x |
| <i>Book chapters</i> | x | x | x | x | X | X | x | x |
| <i>Artefacts</i> | | | | | | | X | |
| <i>Prototypes and patents</i> | X | X | X | X | x | x | x | X |

* X – font size indicates dominant types of publications, by scientific area

Science entails a professional and ethical responsibility of transferring and applying results of research activity. An important characteristic of research is that it leads to valuable and useful outcomes.

Outcomes are defined as an impact that scientific research has on the development of society and economy. Specifically, this refers to the manner in which a scientific organization affects the development of society and economy with its scientific activities, especially in natural, biotechnical and technical sciences.

Outcomes can also be viewed in their relation to invested, for example by institutional revenues, equipment and other infrastructure, as well as commercial revenues returning to the institution for its scientific activity - i.e. the entire input and intake.

Contribution of research to socio-economic development can also be seen through the transfer of scientific research in higher education and society, as well as through the influence that institutional scientific activity might have on increasing the international recognition of the Croatian science.

Table 2 shows the primary outcomes for different types of scientific organizations. This table provides guidelines for assigning weights to research outcomes, which are not equally common

or relevant to every type of scientific organization, or field. For example, while scientific institutes and other legal entities that are in some part involved in research activities, especially in natural, biotechnical and technical, but also social sciences, can look for additional sources of funding (third party funding) more easily and more often, and contribute to development of the economy with its innovative solutions, this is not always the case for faculties and university constituents. Their primary outcome is teaching, although other outcomes are important as well. Missions of scientific organizations, especially institutes, from the fields of social sciences, humanities and art are more focused on influencing social reality, contributing to public policy making, and even social activism. Other legal entities and private scientific organizations need to meet only the minimum requirements. For university constituents, institutes, and private research institutes, however, an overall assessment of the quality of scientific work is required.

Table 2. Primary outcomes for different types of scientific organizations

| | <i>Universities and constituents</i> | <i>Public scientific institutes</i> | <i>Private scientific institutes</i> | <i>Other legal entities with scientific component (public)</i> | <i>Other legal entities with scientific component (private)</i> |
|---|--------------------------------------|-------------------------------------|--------------------------------------|--|---|
| IMPACT ON DEVELOPMENT / TRANSFER OF RESEARCH RESULTS IN THE ECONOMY | x | x | x | <i>Minimum criteria evaluated</i> | <i>Minimum criteria evaluated</i> |
| TRANSFER OF RESEARCH RESULTS IN HIGHER EDUCATION | x | | | <i>Minimum criteria evaluated</i> | <i>Minimum criteria evaluated</i> |
| RESEARCH RESULTS AS THE BASIS FOR INTRODUCTION OF SOCIAL CHANGE | x | x | x | <i>Minimum criteria evaluated</i> | <i>Minimum criteria evaluated</i> |
| INTERNATIONAL IMPACT - IMPACT OF RESEARCH RESULTS ON INTERNATIONAL RECOGNITION OF CROATIA | x | x | | <i>Minimum criteria evaluated</i> | <i>Minimum criteria evaluated</i> |

*depending on the scientific area (e.g. technical, biotechnical and natural sciences institutes and faculties have a greater impact on the development of economy than institutes from the area of humanities or arts. However, the latter, together with social sciences institutes, exert greater influence to social changes, public policies, etc., which former do not.)



CRITERIA FOR THE EVALUATION OF SCIENTIFIC ORGANISATIONS

QUALITY OF SCIENTIFIC RESEARCH – can be seen as a measure of excellence, the capability of scientists to carry out scientific research at the highest level which is then recognised as such within the national and international scientific community. Quality is based on the expertise, public character and ethics of research concepts and behaviour, visible in the work of researchers and research groups that contributes to the development and improvement of society. In general, quality is evaluated by peer review. Reviewers primarily draw on their own knowledge and expertise, insight into the evaluated institution's research outputs and outcomes and other information on the institution as a whole. In addition to expert opinion, quality can be measured by the level of impact that research results have in the wider community, which is typically quantified through citation metrics.

PRODUCTIVITY OF SCIENTIFIC RESEARCH – relates to the total output of the institution, i.e. number of publications and methods of publishing research results. Productivity is mostly measured with quantitative bibliometric indicators, i.e. indicators related to the type and number of publications (product of research). Within the context of evaluation, these indicators are measured with regard to the total number of researchers at the institution.

IMPACT AND IMPORTANCE OF SCIENTIFIC RESEARCH – is a criterion which refers to the direct impact of scientific activity on the development of society and economy, i.e. its usability and usefulness. In this context, an emphasis is given to the choice of research topics (their social relevance, contemporaneity and goal-oriented profile), which are evaluated with regard to their context and environment, as well as the institutional strategy of bringing their research closer to their stakeholders in society and economy. The impact can therefore be measured through the contribution of the research to the positive development of the community, on issues relevant for the whole society. In this part of the evaluation both qualitative and quantitative methods are used.

EFFICACY AND EFFICIENCY OF SCIENTIFIC ORGANISATION – relates to the assessment of organisational and managerial processes of the institution as a whole, while the other criteria relate specifically to scientific activity and its results. This criterion is directly influenced by the previous three. In order to be rated as effective, a scientific organisation needs to have high quality scientific research, good productivity and research results that have an impact on the economy and society as a whole. Scientific organisation should rationalise its resources in achieving goals in order to demonstrate accountability to public funding, which means their maximum utilization for the fulfilment of the institutional mission, i.e. its rational and transparent use.

Explanation of the assessment scale by criteria:

- 1 – not compliant, incorrect
- 2 – mostly not compliant, mostly incorrect
- 3 – partly compliant, partly correct
- 4 – mostly compliant, mostly correct
- 5 – fully compliant, correct
- n/a – not applicable



1. QUALITY OF SCIENTIFIC RESEARCH

1.1. Quality of human resources

Producing quality research is not possible without high quality human resources. Human resources are therefore one of the sub-criteria within the research quality criterion. Under this criterion, only staff directly involved in scientific production will be assessed. Human resources of the organisation as a whole will also be assessed under the criteria regarding efficacy and efficiency of the institution.

| | | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|---|---|---|
| 1. | The organisation has an adequate number and profile of scientists for fulfilling its strategic programme of research. | | | | | |
| 2. | The organisation has a human resource development policy (new employment, selection and advancement) based on excellence. | | | | | |
| 3. | The organisation employs qualified technical, administrative and professional staff which supports its research activities. | | | | | |
| 4. | Doctoral students, post-docs and researchers from foreign research institutions are interested in participating in organisation's activities. | | | | | |
| 5. | The organisation has an adequate number and profile of doctoral students whose research and PhD theses contribute to the strategic programme of research and are in line with the policy of excellence. | | | | | |
| 6. | Average time for completing PhD studies is within the timeframe set by the contract. | | | | | |
| 7. | Project leaders and leaders of research teams are appointed to their positions on the basis of their excellence and reputation. | | | | | |

1.2. Quality of scientific research

These sub-criteria are used for assessing the excellence of research, so only those elements that represent the quality of scientific activity are taken into account, e.g. papers published in high-impact journals, refereed proceedings from international conferences, publications that have a high impact in national and international context etc. Citation is used as a metric indicator of quality of published scientific research. Value of citation is determined after a certain period of time, depending on the issue that is the focus of the research.

Other indicators, like the quantity of publications and other outputs, will be taken into account under the criteria „productivity of scientific research“. The same applies to conference participations. The experts who evaluate the organisation come from the same scientific field and will be able to assess whether publications and conferences are prestigious or not, and what are the primary methods of communication and presentation of scientific output.



| | | 1 | 2 | 3 | 4 | 5 |
|----|---|----------|----------|----------|----------|----------|
| 1. | The organisation bases its research on original ideas and original scientific approach. | | | | | |
| 2. | Published research of scientists employed at the institution is of top quality. | | | | | |
| 3. | The organisation contributes significantly to its scientific field with its research results. | | | | | |
| 4. | Institution has an adequate number of scientific publications per researcher that are published in prestigious primary modes of communication for the field, and the trend of publishing (decrease/increase) is adequate. | | | | | |
| 5. | The number of papers presented at high-level conferences is satisfactory. | | | | | |
| 6. | The number of international research projects lead by the institution is satisfactory. | | | | | |

2. PRODUCTIVITY OF SCIENTIFIC RESEARCH

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|----------|----------|----------|----------|----------|
| 1. | The number of reviewed publications per scientist (that are not included under sub-criteria 1.2., item 4) and its trend (decrease/increase) is satisfactory. | | | | | |
| 2. | The number of submitted and defended PhD theses is satisfactory. | | | | | |
| 3. | Total number of papers at scientific conferences is satisfactory. | | | | | |
| 4. | Other results not related to reviewed publications (papers in specialized journals or socially relevant publications, services, works of art, exhibitions, software, etc.) are satisfactory. | | | | | |
| 5. | The number of applied innovations (patents, prototypes, licenses) is adequate. | | | | | |
| 6. | The number of national research projects is appropriate. | | | | | |
| 7. | The organisation is a partner in the adequate number of international research projects. | | | | | |

**3. IMPACT AND IMPORTANCE OF SCIENTIFIC RESEARCH****3.1. Impact on economy**

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|----------|----------|----------|----------|----------|
| 1. | The organisation developed a system of support to technology transfer (a functional system with adequate administrative support for commercialisation of results). | | | | | |
| 2. | The organisation cooperates with the private sector. | | | | | |
| 3. | The organisation contributes to society and industry. | | | | | |
| 4. | The organisation's laboratories are accredited and utilized for cooperation with stakeholders. | | | | | |

3.2. Transfer of research results to society

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|----------|----------|----------|----------|----------|
| 1. | The organisation has established mechanisms for cooperation with external stakeholders. | | | | | |
| 2. | The organisation is involved in the national networks of institutions, with the goal of disseminating scientific results within the community. | | | | | |
| 3. | The organisation has established mechanisms for dissemination of its work within the scientific community. | | | | | |
| 4. | The organisation developed formal and stable partnerships with external stakeholders. | | | | | |
| 5. | The organisation's capacity to recognise and stimulate social demand for its activities is satisfactory. | | | | | |
| 6. | The organisation has established mechanisms for dissemination of the knowledge produced to the society as a whole. | | | | | |
| 7. | The organisation participates in creating public policies. | | | | | |
| 8. | The researchers are involved in various scientific and/or policy-making bodies. | | | | | |
| 9. | The organisation conducts surveys of its clients' and partners' satisfaction, and uses them to improve the cooperation. | | | | | |

**3.3. Transfer of research results to higher education**

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|----------|----------|----------|----------|----------|
| 1. | The researchers teach at undergraduate and graduate study programmes. | | | | | |
| 2. | The researchers teach at postgraduate and doctoral study programmes. | | | | | |
| 3. | Teaching workload of the institution's researchers is satisfactory. | | | | | |
| 4. | The researchers teach at non-university/professional educational programmes. | | | | | |
| 5. | Teaching activities of the researchers are in line with their field of expertise at the scientific organisation. | | | | | |

3.4. International impact

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|----------|----------|----------|----------|----------|
| 1. | Outgoing international mobility of the researchers is satisfactory. | | | | | |
| 2. | Mechanisms for attracting foreign PhD students and researchers are in place. | | | | | |
| 3. | The organisation has developed networks with institutions on international level for disseminating research results within the broader scientific community. | | | | | |
| 4. | The organisation has established reputation and international visibility in its field. | | | | | |
| 5. | The researchers participate in various scientific and/or policy-making committees/panels on the international level. | | | | | |
| 6. | The researchers participate in international reviews of projects, programmes and publications. | | | | | |



4. EFFICACY AND EFFICIENCY OF THE SCIENTIFIC ORGANISATION

4.1. Strategic plan

| | | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|---|---|---|
| 1. | The organisation's strategic programme for research is in line with its mission. | | | | | |
| 2. | The organisational policies are appropriate for its environment. | | | | | |
| 3. | The organisation supports innovation in research and implements it in its activities. | | | | | |

4.2. Management of the scientific organisation

| | | 1 | 2 | 3 | 4 | 5 |
|-----|---|---|---|---|---|---|
| 1. | The organisational structure and governing mechanisms are aligned with the organisation's mission and vision. | | | | | |
| 2. | The organisation developed a system for collection data on the results of its research activities. | | | | | |
| 3. | The organisation developed appropriate organisational mechanisms for coordinating research, teaching, administrative and other activities and services. | | | | | |
| 4. | The organisation developed procedures that regulate and assure that decision-making is linked to results. | | | | | |
| 5. | The organisation developed mechanisms for identifying and motivating the highest quality employees. | | | | | |
| 6. | The organisation developed mechanisms for awarding and sanctioning its research staff according to their scientific productivity. | | | | | |
| 7. | The organisation has a policy regulating the professional development of its research staff. | | | | | |
| 8. | The organisation has a policy of mobility and exchange of research staff. | | | | | |
| 9. | The system of tracking employee satisfaction is compatible with the organization's human resources policy | | | | | |
| 10. | The organisation has a research productivity strategy in place. | | | | | |
| 11. | The organisation has a system of internal quality management in place. | | | | | |



4.3. Infrastructure

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|---|---|---|---|---|
| 1. | The organisation's facilities and equipment are suitable for development of its activities. | | | | | |
| 2. | The level of infrastructure utilisation is satisfactory. | | | | | |
| 3. | Access to scientific databases is satisfactory. | | | | | |
| 4. | The organisation can utilise space and equipment owned by other institutions. | | | | | |
| 5. | The organisation has in place a policy of sharing its infrastructure with other stakeholders. | | | | | |
| 6. | The organisation monitors the satisfaction of its staff with the existing infrastructure. | | | | | |
| 7. | The organisation monitors cost-effectiveness and commercial exploitation of the existing infrastructure. | | | | | |
| 8. | The organisation has in place procedures for control, periodic review and improvement of its equipment and laboratories. | | | | | |
| 9. | The organisation has in place a policy of infrastructure and facility management. | | | | | |

4.4. Funds: projects and contracts

| | | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|---|---|---|
| 1. | The organisation marks an increase in the budget in the past five years. | | | | | |
| 2. | The organisation secures adequate financial resources from competitive sources (competitive project funding). | | | | | |
| 3. | The organisation secures adequate financial resources from non-competitive sources (programme, institutional or memorandum/contract funding). | | | | | |
| 4. | The organisation secures adequate resources from national sources of funding. | | | | | |
| 5. | The organisation secures adequate resources from international sources of funding. | | | | | |
| 6. | The organisation secures adequate resources from private sources of funding (through commercial services). | | | | | |
| 7. | The degree of dependency on the public budget or donor institution is satisfactory. | | | | | |
| 8. | The degree of allocating funds towards scientific activity is satisfactory. | | | | | |
| 9. | The organisation developed mechanisms for forecasting financial risks. | | | | | |

Quality grade

The expert panel will prepare the report on the evaluation of scientific organisation after reading the self-evaluation report (which covers a 5-year period) and visiting the institution. The evaluation shall be based on the four main criteria.

The report shall contain the most important findings, and its conclusion shall summarize the findings expressed through the proposed quality grade from 1 to 5, with the grade 5 relating to world-class research and grade 1 to research that is below the acceptable standards. The panel must take into account the full 5-degree scale and apply the criteria according to the explanation and weight for each criterion and sub-criterion.

In case of disciplines carried out only on the national level, the grading will relate to the quality of research nationally. Research in these disciplines is graded 5 if it is the best research in Croatia.

FINAL ASSESSMENT OF THE QUALITY OF SCIENTIFIC RESEARCH

Excellent (5) - World-class research. Researchers are world-renowned scientists in their respective fields and their research has significant impact on the development of the field. At the national level, research has a very high visibility and a strong impact on society and/or economy.

Very good (4) - The research is competitive at the international level, providing an important contribution to the field, and it is recognized as leading national research, significantly contributing to social and/or economic development.

Good (3) - The research is recognised at the national level and is providing international contribution to the field, with moderate impact on society and/or economy.

Satisfactory (2) - The research is plausible and contributes to the understanding of the field, but it is not inspiring. It is recognised at the national level, but has minor impact on society and/or economy.

Unsatisfactory (1) - The research is not plausible or inspiring, scientific or technical approach is inadequate and there is repetition of existing research. Research has very minor social impact and/or very minor impact on the development of economy.

| Unsatisfactory | Satisfactory | Good | Very good | Excellent |
|----------------|--------------|-----------|-----------|-----------|
| 0 - 1,4 | 1,5 - 2,4 | 2,5 - 3,4 | 3,5 - 4,4 | 4,5 - 5 |

Criteria weights

| | GRADE | WEIGHT | BENCHMARK |
|--|-------|--------|-----------|
| 1. QUALITY OF SCIENTIFIC RESEARCH | | | NO |
| 1.1. Quality of human resources | | 10 | |
| 1.2. Quality of scientific research | | 15 | |
| 2. PRODUCTIVITY OF SCIENTIFIC RESEARCH | | 10 | YES |
| 3. IMPACT AND IMPORTANCE OF SCIENTIFIC RESEARCH | | | NO |
| 3.1. Transfer of research results to society | | 5 | |
| 3.2. International impact | | 10 | |
| 3.3. Impact on economy | | 10 | |
| 3.4. Transfer of research results to higher education | | 5 | |
| 4. EFFICACY AND EFFICIENCY OF THE SCIENTIFIC ORGANISATION | | | NO |
| 4.1. Strategic plan | | 5 | |
| 4.2. Management of the scientific organisation | | 5 | |
| 4.3. Infrastructure | | 5 | |
| 4.4. Funds: projects and contracts | | 10 | |