



## **Standards and Guidelines for Evaluation of Research Teams and Projects**

### **Introduction**

The assessment of research quality assurance has usually been related to metrics combination concerning scientific publications. The widespread use of these metrics has affected all fields of knowledge and research activities. Within this trend is research programmes evaluation, in such a way that, indicators such as the Impact Factor of publications are used to review the CVs of research staff who develops these programmes.

This approach to scientific activity evaluation has been widely criticised, with regard to metrics calculation and subsequent biases, as well as concerning the foundations in which they are based. This criticism has crystallised in several manifestos and declarations by relevant scientists and institutions, questioning research assessment based only on quantitative indicators and providing guidance for refocusing these evaluations. It should be pointed out among them, the *San Francisco Declaration on Research Assessment* (DORA), developed by the American Society for Cell Biology (ASCB) at San Francisco, California, 16 December, 2012 and *The Leiden Manifesto for Research Metrics* (Hicks et al., 2015).

Over the last years, research started to change with regard to the approach used in the last few decades, as for example concerning the evaluation criteria applied for the grants programmes provided by the *European Research Council* (ERC), or the state calls for programmes such as *Juan de la Cierva* or *Ramón y Cajal*, since it is possible to identify changes which question the leading role of metrics in the evaluation of research staff CVs.

In line with this trend on the usual procedures renewal for research programmes evaluation, this document provides a guiding proposal with regard to the assessment of research programmes developed by DEVA-AAC.

### **Guidelines for evaluation**

Research evaluation plays a significant role in science development and its interaction with society. Research indicators can provide essential information which would be difficult to gather or understand from individual experience perspectives. Though it should not be allowed that quantitative information became an objective in itself. The best decisions are taken by combining robust statistics sensitive to the objectives and evaluated research nature. Both quantitative and qualitative evidence are necessary; each one of them is objective in itself. Decision-making on science should be based on high quality procedures informed by high quality data.

Research quality evaluation should be based on principles such as:



1. Quantitative evaluation should support qualitative assessment by experts. The indicators can be useful for correcting possible biases in peer-review and facilitating deliberation. Nevertheless, quantitative indicators should not substitute for reasoned reports by experts. Professional staff responsible of evaluation should not make decisions based on numbers and they should take full responsibility for their evaluations.
2. The differences in research publication practices and quotation among scientific fields should be taken into account, as well as the objectives of the reviewed research programme. Performance indicators should be clearly related to the research programme objectives and practice in the scientific field concerned.
3. Research staff individual assessment should be based not only on quantitative indicators, but also in their contributions qualitative evaluation. This approach should include diverse information concerning each researcher, with regard to knowledge, experience, activities and scientific achievements. Researchers scientific career stage should be considered in the review, specially the project PI.

### **Guidelines for research projects review**

Respecting the above-mentioned principles, evaluation of research projects quality will be organised with regard to the programme or call and objectives. Therefore, the review will be developed according to the guidelines and indicators provided in the call or programme.

As a general rule, the research projects reviews conducted by DEVA will comply with the following guidelines referred to the project content, principal investigator (PI) and research team.

#### **1. Research projects evaluation**

Concerning research programmes evaluation, in a explanatory way, it will be assessed:

- Clarity and originality of questions, hypothesis and objectives outlined.
- Scientifically rigorous and consistent approach provided.

It will be reviewed as well, in a reasoned way, the research programme viability taking into account the following aspects:

- The activities proposed to achieve the intended objectives.
- The research team capacity (human and material resources, and equipment) for addressing the objectives programmed.



- Estimate and distribution of realisation period for intended actions, with regard to research team capacity.
- Tasks distribution among team members, with regard to specialisation and training; and for coordinated inter or multidisciplinary projects, tasks coordination among the different subprojects.
- The budget applied for and, if applicable, the need for additional equipment for programmed tasks realisation.

The impact in scientific-professional, social and economic scope will be also subject of the review. For this purpose, the following aspects will be valued:

- Advance of knowledge as a result of the outcomes achievement.
- Contribution of these outcomes to inter and multidisciplinary scientific and technological knowledge.
- The social and economic impact derived from the actions and outcomes proposed.
- Plan for dissemination of results among scientific community and society.
- Attention, within the proposal, to social inclusion and gender dimensions, with regard to the programme objectives.

## **2. Assessment of principal investigators**

Evaluation of principal investigators (PI) will be carried out through a selection of the merits provided by the applicants, corresponding to the last few years. The number of contributions and the extension of time for review will be determined with regard to the characteristics of the research programme and the applicant's scientific career stage. The reasoned evaluation of merits, taking into consideration the programme PI scientific career stage, in accordance with the guidelines below:

- a) Merits are assessed with regard to the research programme topic and objectives.
- b) Proven skills for leading research at the frontier of knowledge.
- c) Evaluation of the contributions selected by the PI will include qualitative considerations:
  - Investigator's leadership and innovation capacity on her/his contributions.
  - Proven skills for leading research at the frontier of knowledge.
  - Previous experience in competitive project management.
  - Technological skills and knowledge of new developed scientific-technical tools.
  - Proven leadership in training and promotion of young researchers.
  - Proven leadership in scientific review processes (international publications impact, projects, research centres, etc.).
- d) The evaluation of the degree of collaboration with groups and entities in the development of research activities will take into account:



- Scientific and technological results achieved in collaboration with other research groups.
- Participation in international programmes and projects.
- Publishing research results, patented or in exploitation with other research groups and international entities.

International visibility, considering participation in international networks, invitation to conference and presentation of relevant research papers in international congress and other similar activities

### **3. Evaluation of research team**

Research teams will be assessed through a selection of merits, additional to the PI ones, provided by the applicants over the last few years and taking into account researchers career stages. Reasoned evaluation of merits by taking into account the following guidelines:

- a) Assessment of researchers only of team members with direct and significant involvement in the work plan proposed.
- b) Technological skills and management of developed new scientific-technical tools.
- c) The evaluation of merits, whenever it is based on quality rates and indicators, should take into account different indicators.
- d) The evaluation of contributions will include qualitative considerations:
  - The research team capacity, level of specialisation and technical, scientific or artistic education for addressing the project activities.
  - Technological skills and management of developed new scientific-technical tools.
  - Research team's results and contributions and their relation with the programme.
  - Scientific contributions produced in collaboration with other groups, specially international collaboration.

### **Guidelines for evaluation of programmes supporting human resources for research**

The evaluation of the applicants' merits and, if applicable, of senior research staff with tutoring or mentoring roles, will comply with the above-mentioned guidelines for the evaluation of research projects principal investigators, taking special consideration of their scientific careers stage.

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### **References**

Hicks et al. (2015). The Leiden Manifesto for research metrics. Nature, 520, 429-431.  
[www.ingenio.upv.es/manifiesto](http://www.ingenio.upv.es/manifiesto).



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