

# Towards a comprehensive evaluation: a common framework to evaluate research groups with different missions

Group Erefin

## **Abstract**

*This paper presents the work of a group named Erefin associating evaluation officers from a dozen of French research institutions. The work relies on scientific expertise in evaluation studies and on practical experience of evaluation in different research institutions. It has the operational objectives to provide common tools to help research institutions, divisions and units to describe their scientific profiles and strategies, to achieve self-evaluation and to prepare evaluation reports for the assessment by external visiting committees. The provided tools are both general and versatile so that they are applicable to a large range of disciplines and research practices and they respect each specific research type.*

## **The need for a comprehensive evaluation**

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The essential contribution expected from science and technology to the development of a knowledge-based society is enhancing the attention to the assessment of scientific research. This issue of extending the measure of quality of research to include the assessment of its economic, societal and cultural impacts is clearly understood and addressed.

In mission-oriented research institutions, the research is driven by social needs. They achieve targeted research that aims at solving problems issued from the actors practice that deserves investment in public research. This implies a strong interaction with stakeholders from the institute management as well as from the research groups. The policy design and research processes are much more socially interactive and the relationship with society goes beyond a preliminary consultation of stakeholders before defining research programmes or their cooperation to transfer scientific results to end users. Research programmes combine fundamental and applied research to fill the gaps not covered by disciplinary knowledge that are revealed while translating societal issues into scientific question.

Evaluation methods that ignore the final objectives of the research and does not consider the variety of activities and results they achieve would not be relevant. Mission-oriented research is therefore strongly concerned by the issue of relevant evaluation methods.

The need for a comprehensive evaluation, which takes into account all aspects of the research activity, is not only relevant for mission-oriented or specialized research groups and institutions. As widely explained in political and strategic statements, public research is not only expected to increase scientific knowledge but other objectives are assigned as the contribution to innovation, to scientific expertise and decision support to policy makers, contribution to societal debates and scientific literacy of the citizens. Whatever the weights these activities have in the agenda of the units, there is a need to extend the tools commonly used to assess the quality of academic research with other information, indicators and impact assessment methods related to the variegated missions and social environments of the research groups. The ability of the evaluation tools to cope with these aspects and their versatility to fit any type of research is a condition for the legitimacy and acceptability of an evaluation procedure.

## **Objectives of the Erefin group**

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In France, a national agency of evaluation (*Agence d'évaluation de la recherche et de l'enseignement supérieur Aeres*) has been created in March 2007 and is now in charge of the evaluation process for the whole national public research system. Both curiosity-driven and mission-oriented institutions and units are to be evaluated by the agency which had to define the evaluation processes and develop the evaluation tools to achieve its objectives.

Mission-oriented institutions had their own evaluation procedures for their research units but one of them could immediately be applied at a national level. Therefore, there was a need to improve the basic common framework for scientific assessment in order to properly evaluate research groups and institutions working in different contexts.

Hence, several mission oriented research institutions launched a working group – the Erefin<sup>1</sup> group – aimed at defining a common set of tools for research units evaluation. These tools are intended

for managers of the institutions when negotiating objectives with the different units,

for units to support their self assessment exercise and their reflexive process based on the comparison of a proclaimed strategy and their performance.

## The Erefin tool kit

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The tool kit developed by the Erefin group has three pieces:

1. an *activity table*, describing elementary activities. This table is intended to help to define the profile of a given research group;
2. a check list of possible “products” and short-term results for each elementary activity with a set of *quantitative descriptors* to summarize the whole set of results in a small number of figures and a synthetic histogram showing both the priorities and the level of diversity of the unit production;
3. a set of *evaluative questions* to help the group to analyse its mid and long term results and to help evaluation committees to achieve a qualitative evaluation of the unit in its context.

The set of elementary activities is organized as a two-entry *activity table*. The first entry distinguishes the different social groups with which the unit cooperates. The second entry aims at identifying knowledge production from relational activities and from the communication and transfer of knowledge and resources to different users. In general, each research group is not expected to be seriously involved in each type of activity, whereas a larger division or a whole institute has to achieve an overall balance to meet its strategic objectives.

The description of short term results or outputs related to the unit activity has to cover any type of activity in order to show the consistency of a proclaimed strategy and of investments with actual results. Knowledge production results are easily accountable but interaction activities and transfer and communication results can also be approached by indicators. Erefin established a check list of possible short term results for each cell of the *activity table*, which covers the research outputs in different domains and for different types of research, ranging from highly specific technological research, to medical, agricultural or environmental research and engineering.

Erefin proposes a set of *quantitative descriptors* based on the products presented in the list of outputs that the unit is expected to provide in its evaluation report. In future work, these descriptors will be linked with indicators relevant at a more aggregate level of organization.

The set of quantitative descriptors is only capturing outputs that are observable in the short term. Erefin named them *first level descriptors*, expecting to further develop second level

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<sup>1</sup> Erefin stands for *Évaluation de la Recherche Finalisée*. A dozen of research institutions have joined the group in the period 2007 - 2009. The group was initiated by research institutes in environment, agriculture, land use and natural resources management. Other mission-oriented institutes soon joined the group as Inserm (biological, medical and public health research) and CEA (defence and security, energy, health and information technology) or graduate institutes of science and technology as *AgroParisTech* and *École des Mines de Paris*.

descriptors for outcomes and impacts. The issues at stake have to be posed before thinking of possible indicators for measuring the quality of research. These issues are related to the missions of the unit and its mid and long term objectives. The usefulness and the actual use of the outputs are to be questioned and what makes the quality of a result is strongly dependent on the context. *Evaluative questions* help to take that context into account. Erefin collected evaluative questions for each elementary activity.

## **First observations and results**

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The table of activities and the descriptors have been designed through an interactive process that associated an increasing set of institutions, so that the experience in agriculture and environment of the first participants was fruitfully enriched by other domains (medical, engineering, public safety ...) leading to improved definitions, new representations and common understanding of the framework. At the different steps of the designing, chosen research groups have tested the tools and managers have been interviewed. These tools are therefore the result of a learning process associating different actors.

An example of a the use of the Erefin tools is the experiment that was designed with the Inra Director general in 2007. The aim was to explore the feasibility of a contract between a research unit and the division management. where the objectives of a unit would be described as long term goals as well as explicit products and accountable results to be reached within four years. This procedure aimed at helping the units to define their strategy and to negotiate their objectives. An output for the management was the consciousness that such a process provides a powerful tool to design the division scientific policy. The experiment had an impact on the engagement letters written by the heads of divisions to unit directors.

As a consequence of this experiment and of the positive reactions of research units and managers about Erefin tools, the typology of activities and the quantitative descriptors are now proposed as guidelines to unit directors of a number of French research institutions for the preparation of their evaluation reports. The impact of the guidelines will be analysed after the next research assessment.

Another perspective is to develop some of these descriptors into indicators to be used at the institution level. A first case will be on public decision support provided by research institutions because a new indicator is needed for the annual report to the Parliament of the activity of research institutions.