



Evaluation tools for mission-oriented Research:

An experimental approach to design a framework for a fair and robust ex-post evaluation

Édith LEGOUY, Guy RIBA, Élisabeth de TURCKHEIM

INRA

The new context for evaluation in France (1)

Mars 2007 : launching of AERES, the national Agency for evaluation of research and higher education

AERES missions :

evaluate Universities and Institutes (section 1)

evaluate Research Units (section 2) *≈ 1000/year*

evaluate higher education courses and diplomas
(section 3)

The new context for evaluation in France (2)

This is a big change !

- making regular evaluation the rule (4 year rhythm)
- unifying heterogeneous processes
- separating evaluation and decision making

But :

- AERES started at once, designing methods and applying them at the same time
- reproducing the dominant model of academic research evaluation (CNRS, Universities...)

Missions-oriented Institutes are aware that ...

- they had **ad hoc procedures**, neatly designed, but quite different
- in some cases with a sort of **continuum** between external evaluation, advisory and decision making through overlapping commissions, councils, boards....
- they have to preserve **a top down scientific policy** and efficient management, related to their specific mission
- they aims at both scientific excellence and answering societal needs

An immediate and coordinated action is necessary...

to provide **AERES** with a **relevant methodology** that makes justice to mission-oriented research practice and production

- some lobbying was done before the law came out (8 Directors of institutes for agricultural, food and environmental research)

- **an informal group*** of persons in charge with evaluation was started to prepare common answers to negotiate with AERES

** the EREFIN group : 7 institutes in June 2006, 11 in January 2008*

First need : a common vocabulary to describe the panel of activities

- a short position paper (8p) to point out the specific practice and the essential role of non scientific partnership
- a table of 12 « elementary activities » to be combined into the Unit (specific) profile
- for each activity :
 - its description,
 - its products : final or intermediary results, objective products and signs of embedding,
 - quality criteria (qualitative)

but no indicators yet

The APC (Activity/Product/Criteria) table (1)

12 activities of Research Unit

- covering the **whole range** of activities in the different Institutes
- allowing **focus** on very specific missions
- each of them directed towards a given **social sphere** (research / policy and economy / society at large)
- separating **production and organization** (scientific networking, projects managing, internal Unit organization ...)

The APC (Activity/Product/Criteria) table (2)

3 activities shared with academic research

*A1. Producing **scientific certified knowledge** (including multidisciplinary research)*

*A2. **Organizing scientific communities**, building up and managing networks, conferences, journals...*

*A3. Developing and running large **scientific equipment** for a research community*

(sometimes not enough recognized as a contribution to research)

The APC (Activity/Product/Criteria) table (3)

4 activities for cooperation and communication with industrial, professional and policy-makers environment

A4. Developing partnership with

- industrial partners and professional organizations
- governmental bodies

A5. Producing “operational knowledge”, in a context of application (*useful and used products*)

The APC (Activity/Product/Criteria) table (4)

A6. Reporting on complex issues for the government
"expertise scientifique collective"

A7. Advising private clients (consulting in a contractual frame); advising governmental bodies on a recurrent mode

The APC (Activity/Product/Criteria) table (5)

3 activities related to science /society interface and education

A8. Surveying societal needs ; technological and industrial intelligence

A9. Disseminating scientific results to a broad public, contributing to scientific literacy

A10. Education and Training

The APC (Activity/Product/Criteria) table (6)

2 activities for the Unit management and internal life

A11. Designing a scientific policy for the Unit (including care balance and synergy between the activities)

A12. communicating and cooperating inside the Unit, regulating the use of resources

Is that APC table useful ?

- for the AERES ? not yet !
 - style of evaluation documents not yet adapted
 - a need for benchmarks to balance bibliometrics for their « quantitative evaluation »
 - and a method for (multidimensional) scoring/classifying
-
- for the Units ?
 - for the Institute management ?
- an experiment during 2nd semester 2007

Rationale for the INRA experiment

- a return « from the field » before going further
- using the table in a constrained situation
- make the « Terms of Reference » for a visiting committee **fair and robust**

Fair : founded on an agreement between the Unit and the Institute management, written 4 years before

Robust : an agreement (contract) that can be accounted for : it includes explicit expected products for each activity

Design of the experiment

7 Units

Agronomy (crop systems, crop and livestock systems)

Forestry, Ecology (lakes)

Environment and society

Pharmacology and toxicology

wrote a “contract”, signed by the Unit Director, the Head(s) of Department and the General Manager

The 5 steps of the experiment

- ♦ profile of past involvement and (self)-evaluation of productivity
- ♦ description on the Unit project as **explicit products for each activity**
- ♦ negotiation with the Head of department
- ♦ in the experimental phase, validation by the Direction
- ♦ at $T + 4$:
 - comparison of announced products with achieved ones,
 - analysis of attempts and arguments about delayed or abandoned objectives

First results (1)

- strong interest from the involved Directors or Units : APC is a helpful tool for internal communication and discussion

- choosing expected products is a strong commitment

- hard job to find the « products » :

- precise enough so that their achievement can be assessed
- but subject to change because of a changing context, of unpredictable opportunities...

examples : «same as before »,

« organizing meetings + writing minutes »

« designing a decision rule to decline or accept a proposal »

First results (2)

- commitment of the Head of department :
 - ♦ accepts the balance between activity
 - ♦ accepts the products as valuable and assessable
 - ♦ is engaged about human resources allocation
- such “contracts” could be very useful to design the **department device** : a specific profile for each Unit, as a piece of the department global strategy
- **radar graph** (8 directions) *Present use : actual involvement (% fte's)*

An example of a contract (1)

A case study in Agronomy :

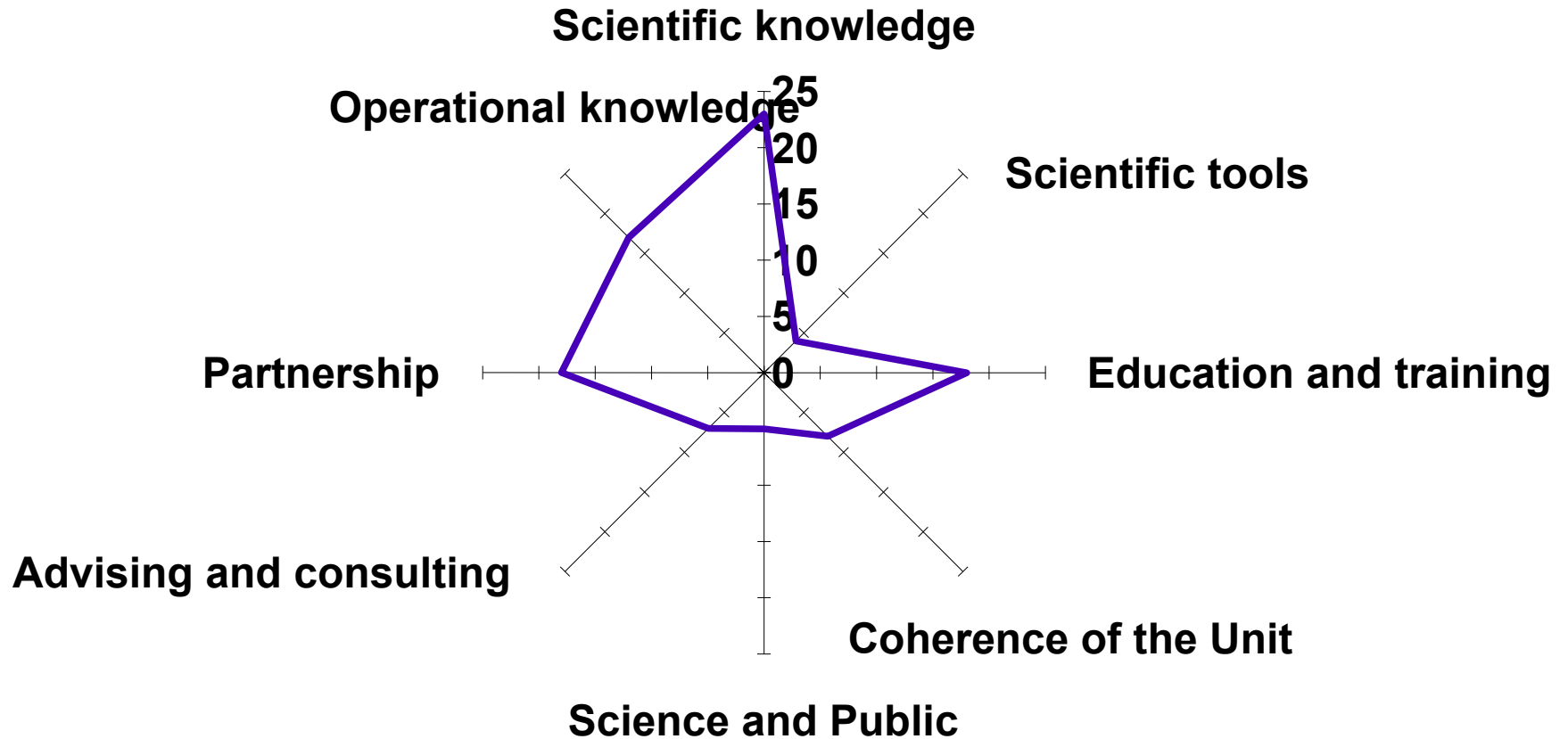
The Unit concern is : Improving plurispecific cropping systems for productive and environmentally friendly farming

The Unit missions are to produce new knowledge and to provide tools to assess or design plurispecific cropping systems

Unit organization : a joint Unit (3 Institutes)

- 2 research themes
- 5 specialized groups (5 cropping systems in Mediterranean or tropical conditions)

The Unit profile (involvement)



An example of contract (2)

Activity 4 : Partnership

Product 4.1 : at least one **contract framework** with agricultural development organizations from each team

Product 4.2 : ... one **joint research programme** with a development organization and territorial stakeholders involving the 2 themes and more than one team of the Unit

Product 4.3 : one **joint research programme** with policy makers and territorial stakeholders following one of the 4 European programmes the Unit is involved in

An example of contract (3)

Activity 5 : Operational knowledge

Product 5.1 : a least one **paper** per team and per year in a **professional journal** with a large audience

Product 5.2 : ... one **innovation** on a plurispecific cropping system or assessment on an innovating system developed by farmers, documented with usable information on performance and applicability

Product 5.3 : at least one **decision support tool** to assess or design cropping systems at the plot scale or at a larger scale

An example of contract (4)

Activity 1 : Certified scientific knowledge

Product 1.1 : 1.3 paper per year and per researcher fte in journals with IF >1

Product 1.2 : a few papers (from different teams) in journals with a large audience in Ecology or in Modelling and System engineering

Product 1.3 : at least one paper accepted in an international journal for each PhD (at the date of its defense)

An example of contract (5)

Activity 10 : Education and training

Product 10.1 : Design for a Master 2 new module for each of the 2 themes

Product 10.2 : defence of 4 HDR during the 2008-2010 period of time and registration of 2 more in the Doctoral School to which the Unit is affiliated

Product 10.3 : at least one session organized during the 2010 Congress of the European Society for Agronomy

Product 10.4 : at least a one day training session organized for development agents

An example of contract (6)

Activity 3 : Scientific tools / instruments

Product 3.1 : identification of 1 or 2 priority experimental site for each team

Product 3.2 : appliance for the recognition and funding of these sites as tools of general interest to regional and national financing bodies

....and so on for the activities A2, A6, A7, A8, A9, A11, A12

What next ? with whom ? (1)

For the INRA “contract” experiment :

- provide help to volunteering Units
- improve the « dictionary of products »
- add a description of the Unit environment (existing ASP tool)
- think about stakeholders involved in the design of the Unit contract ?

What next ? with whom ? (2)

In the EREFIN inter-institute group

- define a common classification for the *List of Products* in national evaluation documents
- select among them, a possible base for a portfolio of indicators
- use foreign experience and the OST expertise to propose a first portfolio of benchmarks for non-academic activities

What next ? with whom ? (3)

With the ESF group

- to be defined with you ...

With the AERES Council

- import European expertise on comprehensive evaluation
- refrain them from scoring with a uniform tool ...