

Indicators for the Evaluation of Research Programmes. Which use?

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Indicators and evaluation

- Indicators have been rarely and to a limited extent been used for programme evaluation
 - But there is a general claim for increased use
 - Why this is has not really happened?
- An analysis of the potential of S&T indicators
 - Which is the potential?
 - Why is not yet realised?
 - What we should do?
- Key message: S&T indicators can be a useful integration to existing evaluation approaches
 - But this requires a correct understanding of their nature and suitable structural measures
 - As well accepting a more complex evaluation process

Outline

- State of the Art
 - Good and bad examples
 - What indicators can and cannot do
- What indicators are?
 - And their possible role in the evaluation process
- Some elements of a framework
- Creating the conditions for use

Sources of this work

- Work in PRIME NoE concerning the development of S&T indicators
 - Around the concept of positioning indicators
 - Customized actor-level indicators for funding systems and higher education institutions
- A contract by DG Research on the use of S&T indicators for the evaluation of EU framework programmes

State of the art

- Rather few uses of S&T indicators for programme evaluation
 - Impact studies based on questionnaire dominate the field
 - Situation strongly contrasts institutional evaluation
 - Many claims for more use of indicators
- Few good examples (see Grupp 2000)
 - Some rather deceiving studies at the European level (for example on bibliometrics)
 - Some good example (FP7 ex-ante impact assessment)
 - Many ideas of possible indicators, but few established practices
 - In most cases methodological/sources limitations are severe

Where indicators are good

- Questioning basic programme assumptions
 - Is our representation of strenghts and weaknesses of ERA correct (ERA health check)?
 - Are we identifying correctly the emerging scientific and technological field?
- Looking to participants profiles and their evolution during the programme
 - Provided we can identify them in a clean way
 - Participants structural change as the main impact of research programs
- Characterizing programme operations
 - With basic descriptors and markers
 - Helpful to get an aggregated view of large programs as as a support to evaluation panel

Main limitations

- Indicators are not suitable to measure directly project outputs
 - Because attribution problems of outputs cannot be solved for basic reasons (projects are not a meaningful unit for research activities)
 - Because of time lags
 - Classical methods like survey and experts reviews are more suited for this kind of questions
- Indicators are not also very good in measuring direct project impacts
 - Case studies are more suitable (tracking causal links with project activities)

What indicators are

- Indicators = constructions which provides indications on some on observable property
- Based on theory and normative choices on reality, thus contestable
 - Indicators only indicate, do not measure
- Indicators as contributions to the (social and evaluative debate)
 - Need to be interpreted and debated by the stakeholders
 - See Barré 2004

Different levels of complexity

- ❑ Descriptors, describing but without further interpretation
 - Programme participants statistics
- ❑ Markers of non observable quantities, but without a well-defined relationships
 - Patents = markers of technological production
- ❑ Indicators which explicitly build the connection with some scale
 - Impact factors as measures of scientific quality
- ❑ Going towards indicators requires a long development and testing process
 - In many cases evaluation will be based on descriptors
 - Except where good practices already exists (accumultation of knowledge is very important)

In the evaluation process

- (In most cases) indicators are not meant to provide quantitative answers to specific questions
 - But to input to the evaluation debate providing additional evidence
 - As a support to the work of panels
- relevance and timeliness as the main criterion
 - Some technical quality is required, but this is not the main selection criterion
 - Evaluation is no place for long-term work on underlying methodological questions, but for pragmatic choices
- different strategies to construct indicators depending on time, resources, etc
 - counterevidence can be quite useful in this respect

Are the right organisations participating to the FP?

- Approach 1: identify the participants and compare their profile
 - To the international level
 - To the wished participants in the FP

Precise but requires a clean participants database and matching them with bibliometrics databases

- Do we have time, resources and infrastructure for this purpose?
- Do we have the required database?
- Approach 2: do we find the best research group in a field among FP participants?
 - Can be done rather easily by picking the best groups in WoS subject domains
 - Relevant only if we get a negative answer
 - But is this right?
 - Which would deserve careful discussion and additional evidence

Why use indicators in programme evaluation?

- Support the analysis of large research programs
 - with some basic descriptors helping evaluation panels to have a picture of the whole situation
 - Enriching available evidence
 - But be aware that public research programs are fuzzy constructs with rather unclear objectives and intervention logics...indicators are no substitute for them
- Focus on structural impacts rather than on individual project results
 - Most impacts through changes in participants profiles
 - Project results are not good indicators of long-term impacts
 - Indicators are well suited to this task
- Improve future programme design
 - Targeting the right fields, objectives, etc.
 - Rather than looking backwards to results

A framework for use of indicators (1)

- Indicators as an integral part of the evaluation process
 - Carefully link the two process at different stages
 - Discuss indicators requirements at the beginning of the evaluation
 - Come back with feedback during the process
- Integrate culture and people
 - Two different professions, but need to dialogue
 - Include in evaluation panels an indicators expert explicitly charged of this task
 - Indicators support has to be in-house (no place for external contracts)

A framework for use of indicators (2)

- Make an effort to specify questions and programme logics
 - Indicators cannot be developed if they are too vague
 - A critical task of evaluation panels in the early stage of their work
- Focus on (clever) design
 - Evaluation questions require specific indicators (not off-the-shelf)
 - Clever combination of existing data as a key (limited time for new data collection)

Creating the conditions (1)

- ❑ What can be done in advance?
 - Indicators are specific, but some requirements are more general and can be planned at programme level
 - Which would spare a lot of effort later on
- ❑ Create and manage a good participants database
 - At the research group level (legal organisation is not the right level)
 - Required for almost all indicators
- ❑ Develop the required support competences
- ❑ Plan the basic indicators for the characterization of a programme

Creating the conditions (2)

- Develop the required support competences
 - Develop specific competences on indicators for programme evaluation (different from other indicators domains)
 - Promote accumulation of practices
- Plan the basic indicators for the characterization of a programme
 - Operational data to be collected from the beginning
 - As well as some monitoring and survey instruments (standardised)
- Background studies to prepare for evaluation

Conclusion

- ❑ Indicators are not the solution to all issues of evaluation
 - But a useful integration
 - Complementary to existing approaches
- ❑ Indicators will not do evaluation simpler
 - Raise more debates
 - Require additional effort and investment
 - But hopefully led a more informed debate
 - Some (political) willingness needed
- ❑ Indicators are useful to look forward
 - Helping to better design future research programmes and to target them to the social needs