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Impact of FET Research Initiatives (IFETRI)

How to apply the IA method to FET Research Initiatives

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1 How to apply the Impact Assessment methodology to FET Research Initiatives?

1.1 Introduction

FET clusters can be assessed on their scientific impact. A methodological framework and an empirical toolbox have been developed to support this assessment. In Part 1 of the full report the 12 Research Questions to perform a full-fledged assessment are presented. We will not repeat them here, but they deal with

- assessing quantity and quality of scientific output; network formation, and impact on scientific landscapes
- assessing human capital aspects, mobility of scientists, and impact on scientific careers
- assessing breakthroughs, influence on industrial and research agenda's, impact on national and international science policies.

1.2 Full or lite assessment?

The assessment can be performed in a full version or in a 'lite' version. The full version presumes having sufficient resources (time, money) for performing an in-depth assessment, including a full-fledged bibliometric analysis, extensive document analysis, extensive interviewing. The lite version presumes moderate availability of resources, 'lite' approach to bibliometrics (using tools which are directly available through the Web of Science), limiting the number of indicators (combined indicators are more difficult, network analysis is more difficult) and a limited set of interviews. The perspective resulting from a 'lite' assessment will necessarily be more limited in scope, and conclusions will be more contestable.

1.3 Generic constraints

In both cases, similar constraints have to be met:

- a mix of quantitative and qualitative approaches to be used (bibliometrics, interviews)
- use of expert feedback on delineation of FET cluster and on final results
- an appropriate mix of projects that fall under the FET cluster

1.4 Quantitative and qualitative tools

In order to achieve results on scientific impact one needs to use quantitative tools which offer a certain degree of objectivity (or at least are easily to be validated). To enrich these results with how the scientific community perceives and values the offered opportunities and the impact this has on the organization of research and their careers, one needs qualitative tools. By combining both, one also meets the constraint to include both on-going and finalized projects.

1.5 Expert feedback

Expert feedback is essential in at least two stages of the project:

- providing feedback on the delineation of the FET-cluster, this being a prerequisite step before starting the assessment itself;
- checking whether findings are in line with the perspective of experts, and if not checking where the differences come from.

1.6 Appropriate mix of projects

Delineation process and quantitative assessment are very much dependent on the richness of material provided. Even in the ‘lite’ approach one should be aware that sufficient critical mass is available in terms of research groups involved and available publications in order to enable a sensible assessment. Critical mass is dependent on the heterogeneity of the cluster: if the cluster combines a large range of different disciplines and scientific perspective, the sample of projects and research groups should be larger than when the cluster is relatively homogeneous in disciplinary backgrounds involved and scientific perspectives used. Number of involved research groups is dependent on whether projects are Integrated Projects or STREPS (when dealing with FPs). It is hard to give a golden rule. Experience in the test of the clusters is that having ten projects in case of Quantum Information Processing and Communication, nicely distributed over IPs and STREPS and over on-going and finalized projects offered sufficient scope and material for an in-depth and valid assessment (QIPC being relatively heterogeneous) while having six projects in case of Bio-ICT with three finalized and three on-going made the assessment less robust and introduced the need to be very precise over the demarcation of the cluster.

1.7 An ideal scheme

In Figure 1 the empirical roadmap is sketched for performing an assessment (either ‘lite’ or full). Bibliometric analyses are focused on different aspects (scientific output, network formation, time series). Interviews/surveys are with different stakeholder groups (researchers, policy makers, industrialists).

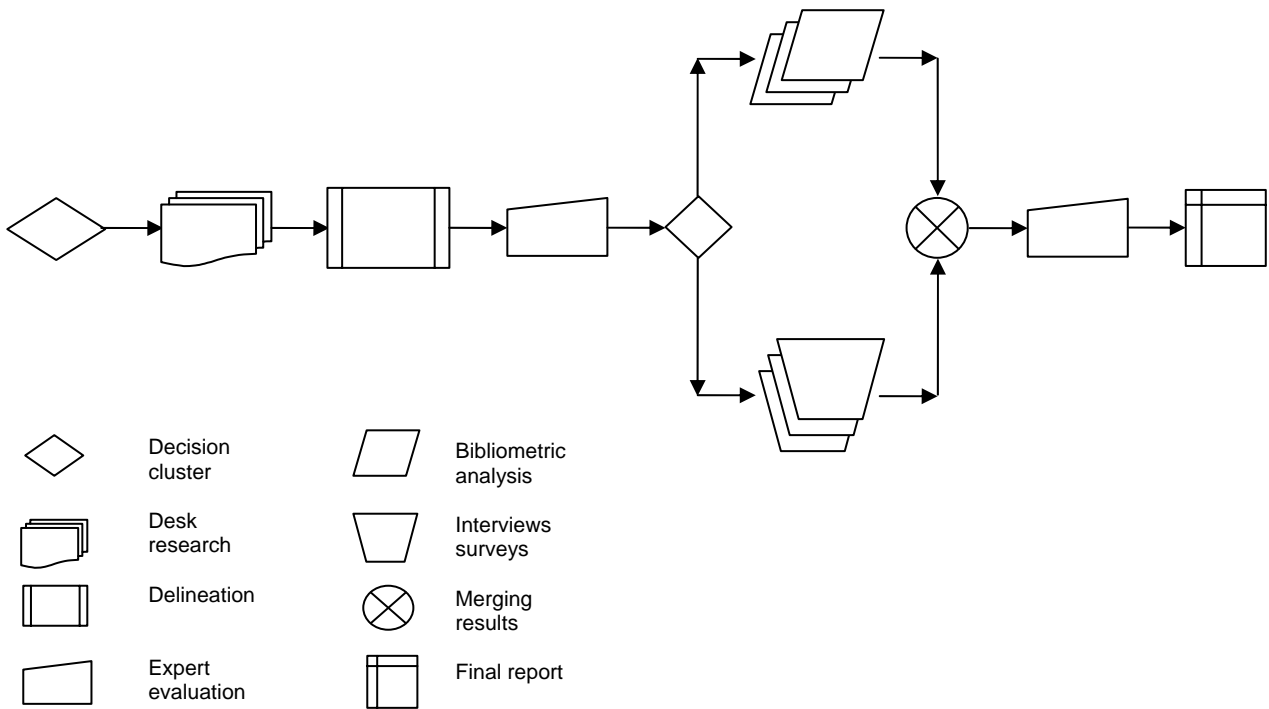


Figure 1: Flow diagram of 'lite' and full version of impact assessment of FET clusters