



## Germany – Evaluation and monitoring procedure

<p><b>1. Ex-ante Impact Assessment</b></p> <p><b>1.1. Methodology and procedures conducted (if applicable)</b></p> <p>Not applicable or no information presently available.</p>
<p><b>2. Procedure for selection of the research infrastructures to be included in the roadmap</b></p> <p><b>2.1. Objectives of the evaluation</b></p> <p>The science-driven, economic driven evaluation and the societal relevance and research policy driven prioritization shall serve as the basis for the national roadmap.</p>
<p><b>2.2. Eligibility conditions</b></p> <p>RI to be included in the roadmap have to comply with the following conditions:</p> <ul style="list-style-type: none"> <li>• Being of national strategic importance.</li> <li>• Being characterized by a long lifespan.</li> <li>• They are required more than EUR 50 million of investment and operating costs during the first ten years.</li> <li>• Their access and hence their use is regulated via an evaluation of the scientific quality.</li> </ul>
<p><b>2.3. Evaluation criteria for the selection of the RI to be included in the RI national roadmap</b></p> <p>The Federal Ministry of Education and Research has divided the evaluation of concepts for RI into three clearly defined processes: The scientific evaluation, the economic evaluation, and the research policy and evaluation of societal relevance (BMBF, 2016).</p> <p><b>Scientific evaluation process</b></p> <p>The science-driven evaluation of research infrastructure projects takes place in two successive steps: a qualitative <b>individual evaluation</b> of each project, and a <b>comparative overall evaluation</b>. Both evaluations comprise four dimensions of evaluation.</p> <ul style="list-style-type: none"> <li>▪ <i>Scientific potential:</i> Considering relevant specialised and interdisciplinary aspects, the scientific potential of the planned RI is assessed in terms of its significance for the future, bearing in mind the current state of research in the respective research fields, and any rival or complementary projects. <ul style="list-style-type: none"> <li>➢ Scientific prospects</li> <li>➢ Potential modes of operation during life-time</li> <li>➢ Competing and complementary research infrastructures</li> </ul> </li> <li>▪ <i>Utilisation:</i> The use of research infrastructures is appraised in terms of structure, size and the internationality of the user group. Furthermore, access regulations are reviewed to evaluate the degree of open accessibility for external use and their orientation towards scientific quality. <ul style="list-style-type: none"> <li>➢ Expected user groups</li> <li>➢ Access management and service</li> <li>➢ Data concept</li> <li>➢ Process integrity</li> </ul> </li> <li>▪ <i>Feasibility:</i> The evaluation of this dimension includes questions regarding technical feasibility, and the institutional and staffing conditions at the host institution(s). <ul style="list-style-type: none"> <li>➢ Technical requirements and risks</li> <li>➢ Institutional requirements</li> <li>➢ Personnel requirements</li> <li>➢ State of realisation</li> </ul> </li> <li>▪ <i>Significance for Germany as a location of scientific and technological developments:</i> The significance of the planned infrastructure project is assessed, both in the context of Germany's standing as a scientific location and in terms of its European and international degree of visibility and attractiveness. <ul style="list-style-type: none"> <li>➢ Visibility</li> </ul> </li> </ul>



- Attractiveness
- Transfer and impact

### **Economic evaluation process**

- *Financing concept*
  - Costs of the development phase
  - Description of the financing structure
  - Costs of the utilisation and closure phases
  - Economic risk assessment
- *Implementation and realisation concept*
  - Project plans
  - Management concepts
  - Governance
  - Implementation phase risk analysis
- *Utilisation concept*
  - Target group analysis
  - Access management and service
  - Business plan
  - Data utilisation and data management concept

External experts from industry and science were involved in the economic evaluation process to the extent that several (up to seven) persons were consulted for each planned research infrastructure project. All concepts submitted for the planned research infrastructures were assessed with regard to the estimated costs. In so doing, a distinction was made between the amount of the investment costs and the operating costs for each research infrastructure.

For each project, the cost estimate was calculated in two steps:

1. an individual cost estimate by the respective experts
2. a joint cost estimate by all experts allocated to each research infrastructure project

No comparison was drawn between the various projects in the course of the economic evaluation process.

### **Research policy and evaluation process of societal relevance**

The research policy and societal evaluation takes place in the Federal Ministry of Education and Research.

### **2.4. Evaluation method and procedures conducted (organisation in charge, timing, selection of reviewers, configuration of panels, indicators, etc.) for the selection of the RI to be included in the RI national roadmap**

The **scientifically supported evaluation process** took place in two consecutive phases, an individual qualitative assessment of each project and a comparative overall assessment:

1. The individual evaluation of each project was carried out in three steps according to the evaluation dimensions:
  - For each project, a written report was prepared by three different experts, the vast majority from abroad
  - The concept was discussed by the scientists in charge of the research infrastructure project and the external experts
  - An individual qualitative evaluation and recommendations on the further development of the research infrastructure concept were drawn up
2. Then followed the comparative overall evaluation of all projects, divided up according to the four dimensions. In each dimension, the concepts were given a classification in one of five quality levels.

For the science-driven evaluation the German Council of Science and Humanities established a mandated Committee in July 2011. The committee should include representatives from all major areas of science, including:



- engineering and natural sciences
- environmental sciences
- biological and medical sciences
- humanities, social sciences, law and economic sciences
- IT infrastructures.

This Committee consisted of 17 members:

- 6 of these members are currently also members of the Council
- 3 external experts working in Germany
- 8 external experts from Switzerland (3), Austria (1), Great Britain (2) and the US (2)

In addition, 3 reviewers (high-ranking scientists with international experience in the specific areas) for each RI project were consulted.

Each RI proposal was assigned to one Committee member who was close to the subject to function as *rapporteur*. The federal government and the state governments were not part of the Committee.

**2.5. Proposals evaluated and selected (available statistics)**

In the pilot phase of the roadmap process the Federal Ministry of Education and Research (BMBF) nominated nine research infrastructure projects, on whose funding had to be decided. From the pilot phase three projects were selected for implementation.

**3. Update / Monitoring and ex-post Evaluation of RI Roadmap**  
**3.1. Objective of the monitoring of the RI national roadmap as a whole**

Not applicable or no information presently available.

**3.2. Periodicity of the RI national roadmap monitoring actions (if applicable)**

Not applicable or no information presently available.

**3.3. Methodology and procedures conducted (timing, approach, indicators, etc.) for monitoring the RI national roadmap**

Not applicable or no information presently available.

**3.4. Methodology and procedures conducted (timing, approach, indicators, etc.) for monitoring the individual RI included in the RI national roadmap**

All RI independent of their costs underlie a specific "BMBF Controlling" process. This process is called "MAP" which means "minimal requirements for projects". It is a phase-model for planning and implementation of (large) projects to make an efficient project management possible. The different projects phases are: initialisation, definition, planning, steering, decommissioning.

All RI which cost more than 50 Mio. € need an external project controller; RI have to deliver structured quarterly reports. Key figures are important for the reports.

**3.5. Methodology and procedures conducted in the case that an ex-post evaluation of the RI national roadmap is planned or has been implemented**

Not applicable or no information presently available.

