| 1. Ex-ante Impact Assessment |
1.1. Methodology and procedures conducted (if applicable)
See point 2.2 and 2.4.

| 2. Procedure for selection of the research infrastructures to be included in the roadmap |
2.1. Objectives of the evaluation
For the roadmap 2016 a questionnaire containing some generic questions on budget was used. The main objective of that exercise was to see if the infrastructures were able to measure the investment costs, the operational costs and the personnel. The update which is now underway is a more in-depth exercise aimed at having a better knowledge on criteria related to scientific production and openness to the users, data policy, socio-economic impact and full costs of RI.
2.2. Eligibility conditions
The research infrastructures which candidate for the national roadmap should be able to show that they complete a certain number of criteria such as national character of the infrastructure, identified governance, openness to the research community, offering of services to the users, existence of data management plan and availability of data, production of multi-annual budget. For more information, see the National strategy on research infrastructures 2016.
2.3. Evaluation criteria for the selection of the RI to be included in the RI national roadmap
The main criteria for evaluating those RI applications willing to be included in the roadmap are: • Identification and nature of infrastructure, governance • European / international dimension of infrastructure • Scientific and technological design of research infrastructure • Data and data management • Elements concerning scientific production and training • Elements of openness and efficiency for existing infrastructure • Industrial relations, innovation and socio-economic impact Consolidated budget presentation and full cost calculation
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 lists of the infrastructures candidates to the national roadmap are provided by the research Alliances in each scientific domain (Social sciences and humanities, Biology and Health, Energy, Environment, Digital and mathematics).   In case where there is no research Alliance (Astronomy/Astrophysics, Nuclear physics and engineering, scientific and technical information) the main research organizations are discussing the proposals of infrastructures in the fields and represent the ideas of all the research institutions of the field. The researches Alliances involve all the research institutions of the field + the universities. 1. Thus the first selection of the candidates for the national roadmap is done at the level of the research organizations, which are hosting and financing the research infrastructures and the research Alliances. As soon as the Alliances together with the research organizations select and approve the candidates, the candidates fill in the ministry form (questionnaire), which includes the criteria applied for the research infrastructures. 2. The completed documents are then discussed within the thematic coordination groups including the Alliance and ministry representatives as described in point 3.3 3. Then the proposals are discussed within the project committee (see point 3.3), which is an internal ministry committee 4. As soon as the project committee validates all the lists of candidates from all the research domains, as well as the completed forms of the candidates, all the documents are transferred to

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the High Council on research infrastructures (see 3.3).

5. After the High Council gives its opinion on the coherence of the national infrastructure landscape and the candidates for the national roadmap, the Steering Committee takes the final decision and validates the inscription of the infrastructures on the national roadmap. The members of this committee are the Director General for research and innovation from the Ministry for research and innovation (he is the chair of the Committee), the presidents of all the research alliances, the presidents of the two major research organizations (CNRS and CEA), the president of the Conference of University presidents (this conference is a kind of union of all the presidents of French universities).

The whole process of selection and evaluation takes about 1.5 years.

2.5. Proposals evaluated and selected (available statistics)

Not applicable or no information presently available.

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

The objective of the whole procedure is to rationalize the national landscape of research infrastructures, to optimize the functioning of the research infrastructures as well as the services provided, to make them complementary, more coherent and visible at the national level. This work is naturally done in articulation with the European orientations, as many of the national research infrastructures are French mirrors or national nodes of the European research infrastructures.

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

The national roadmap is regularly updated, more concretely every two years. Since 2012, an update of the roadmap (in parallel to ESFRI) was conducted in 2016. Now the roadmap is again being updated in order to have a new version in 2018 in articulation with ESFRI.

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

The National Research Infrastructure Strategy is an indispensable framework for the management and management of this component of the research activity. It identifies in a concrete manner the priority infrastructures, existing or planned, in all fields of research, whether national or international. The Research Infrastructure Roadmap must be updated regularly.

All the data presented in the national roadmap 2016 will be updated in 2018 according to the state of progress of each infrastructure in relation to the principles defined. Certain aspects, such as the ability to produce a consolidated budget integrating full costs and to present a data management plan for the infrastructure, will be examined systematically.

This national updating will be carried out in parallel with the next update of the ESFRI roadmap planned for 2018. This harmonization, already carried out for the financial year 2016, is important to harmonize the national landscape and the European guidelines by taking into account the fact that some of the national infrastructures are planned to become the French nodes of the European infrastructure labelled by ESFRI.

Two levels of monitoring of research infrastructures will be conducted by the *Direction Générale de la Recherche et de l'innovation* (DGRI):

- o At national level, infrastructures will be required to integrate the following criteria in their approach:
    - The evaluation of a consolidated budget integrating the full costs.
    - Provision of the data produced either immediately or after an embargo period in relation to the international practices of their specific fields.
- o At the European level, infrastructures willing to register on the ESFRI 2018 roadmap will be studied according to the method set up to update the ESFRI 2016 roadmap.

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Work Methodology

1. Coordination

The follow-up of the development of the infrastructures selected in the roadmap 2016 will be carried out according to a project method.

The project will be coordinated by a scientific coordinator (DRGI - *Service de stratégie de la recherche et de l'innovation* (SSRI)) "member delegate" of ESFRI, and project management will be entrusted to the project manager (*Département des Grandes Infrastructures de Recherche* (DGRI) – SPFCO B4). They will lead and coordinate the actions of the monitoring of research infrastructures by the DGRI with the objective of consolidating the national roadmap in 2018.

2. The Project Committee
A project committee from DGRI specifically set up to work on the national RI roadmap 2016 will continue with the process. This project committee supervises the project, specifying as much as possible the framework of the work of the working groups, and analyzing the returns of these groups at each meeting of progress. It ensures the permanent monitoring of the project and the "reporting" to the *Très Grand Instrument de Recherche* (TGIR) Steering Committee.

This committee consists of:
- Scientific coordinator member of ESFRI
- Project Manager
- Representatives of the scientific domains DGRI SSRI present at the Strategic Working Group (SWG) of the ESFRI
- Coordinators of the working groups for the monitoring of research infrastructure indicators

The Department of Major Research Infrastructures (DGRI SPFCO B4), the Head of the DGRI SSRI Service and the Heads of DGRI SSRI Thematic Sectors will attend Project Committee meetings as a standing guest.

3. Work organization:
A reflection will be set up around certain subjects that deserve to be deepened and consolidated for 2018:

For monitoring at the national level, research organizations and infrastructures will be actively involved in this collective action, and will participate in reflections (see supplementary sheets):

- on the establishment of the consolidated budget and the method for calculating the full cost of research infrastructures
- on some key indicators
- on the management of data generated by research infrastructures

For monitoring at European level, the coordination groups set up to update the ESFRI 2016 roadmap will continue operating. These thematic groups include the representatives of the Research Alliances and research organizations in the non-Alliances scientific domains and are supported by the scientific representatives DGRI SSRI present at the ESFRI Strategic Working Group (SWG).

3.4. Role of the TGIR High Council and the TGIR Steering Committee:

The TGIR High Council will give a strategic scientific opinion on the maturity of the projects and on the evolution of the research infrastructures included in the national roadmap. The opinion of the TGIR High Council will also be requested concerning the candidate projects for the ESFRI 2018 roadmap.

The work carried out within the framework of this monitoring of the national research infrastructures will be presented regularly to the TGIR Steering Committee for information, validation and final

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assessment.

3.5. deliverables:

- Beginning 2017: list of projects approved by the TGIR Steering Committee and supported by the State for the ESFRI 2018 roadmap registration
- Mid 2018: national road map Updated with consolidated research infrastructures

It should be also mentioned here that there are several types of the infrastructures on French national roadmap:

- Those being directly financed by the ministry through the corresponding budget lines in the state budget (the so-called Very Large Research Infrastructures - VLRI) and the international organisations (IO)

The Research Infrastructures (RI) and Projects which are financed by the research organisations with no direct budget lines in the state budget.

3.4. Methodology and procedures conducted (timing, approach, indicators, etc.) for monitoring the individual RI included in the RI national roadmap
The indicators are in the ministry form (questionnaire) that all the candidates have to fill in. The ministry of research is participating in the preparatory meetings of the Councils of the VLRI and the OI and also in some Council meetings. Thus, the monitoring of the VLRI and the OI is done regularly thanks to these close interactions with these infrastructures. Concerning the RI and Projects, the ministry is quite regularly informed about the development of these infrastructures because the scientific questions of these infrastructures are followed up closely by the service for strategy of research and innovation of the ministry. Thus, the ministry has a general overview of the infrastructures and hasn't established any additional monitoring instruments.
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
See point 3.4.

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