European Strategy Forum
on Research Infrastructures

ESFRI

Strategy Report on Research Infrastructures

ROADMAP 2021

ESFRI Roadmap update 2021 – scope and methodology

Gelsomina Pappalardo
ESFRI EB member, Italian Delegate

InfoDay
25th September 2019
Brussels

OVERVIEW

ESFRI Roadmap 2021 update

- **Scope**

- **Content**

- **Methodology**

- **Process and timeline**

SCOPE

With the Roadmap 2021 ESFRI will update the strategy on European RIs aimed at strengthening the competitiveness and value (excellence and impact) of European research.

ROADMAP 2021 UPDATE

The ESFRI Roadmap 2021 update will cover:

- landscape of RIs in Europe and globally;

- gaps in the European RI ecosystem;

- new pan-European RI Projects;

- synergies with regional, national, European and international RI and strategies for optimal use;

- links between and integration of RIs;

- e-Infrastructure needs and integration of RI in open e-networks;

- continuous upgrade (if necessary), long-term sustainability and end of life perspectives;

- innovation potential and socio-economic benefit analysis;

- global opportunities and science diplomacy aspects – where appropriate.

ESFRI

Strategy Report on Research Infrastructures
ROADMAP 2021

ROADMAP 2021

In order to realise the Roadmap 2021, ESFRI will:

- update the *Landscape Analysis*;

- monitor all *Projects 2010* and *Projects 2016*;

- evaluate *New Proposals* and decide upon **new *Projects 2021***;

- monitor and evaluate and the effectiveness and efficiency of its methods and procedures, including definitions and models

Strategy Report on Research Infrastructures

ROADMAP 2021

ESFRI

METHODOLOGY

- Based on the previous Roadmap 2018

- Considering the lessons learnt

> ➢ Iteration with the ESFRI Forum

> ➢ Feedback from the ESFRI WGs

> ➢ Feedback from the RIs community

LANDSCAPE ANALYSIS

The *Landscape Analysis* is a key ingredient of the Roadmap 2021.

It provides an overview of the European RI ecosystem by identifying the main RIs operating transnational access in Europe, in all fields of research, and major new or ongoing projects, as well as an outlook to the global landscape of relevance.

The *Landscape Analysis* is a reference document and does not imply a prioritisation by ESFRI nor any national financial and political commitments.

The SWG draft the *Landscape Analysis* broadening the view of ESFRI beyond the RIs in its Roadmap.

The thorough knowledge of the RI Landscape and of its dynamics is a prerequisite for developing optimal strategies in the field of RI aimed at strengthening the competitiveness and value (excellence and impact) of European research.

MONITORING OF ESFRI PROJECTS 2010 AND 2016

Monitoring is used to describe the evaluation of the SCIENTIFIC CASE and of the IMPLEMENTATION CASE of the *Projects* on the Roadmap.

ESFRI will monitor the ***Projects 2010*** and ***Projects 2016*** and will not monitor the six *Projects 2018*.

The goals of the monitoring of the *Projects 2010* and *Projects 2016* are to:

- check the overall progress towards implementation, i.e. to what degree they fulfil the minimal key requirements for the phases of lifecycle and what the plans are for reaching full implementation;

- check and report on whether and how the *Projects 2010* have addressed the conclusions and followed up on the recommendations from the 2018 evaluation of implementation and proposal evaluations for the *Projects 2016*;

- propose a status, conclusions and recommendations on the *Projects 2010* to the Plenary Forum, including the possible transition from Project to Landmark;

- update all public information on all Projects for the Roadmap 2021.

PERIODIC UPDATE OF ESFRI LANDMARKS

The Council Conclusions of 29th May 2018 on *Accelerating knowledge circulation in the EU* that "**Stresses the importance of human resources and training skills as key factors in the success for Research Infrastructures and ACKNOWLEDGES the need for Research Infrastructures to strengthen a service-driven approach; invites Members States and the Commission within the framework of ESFRI to develop a common approach for monitoring of their performance and INVITES the Pan-European Research Infrastructures, on a voluntary basis, to include it in their governance and explore options to support this through the use of Key Performance Indicators**".

In order to implement this mandate, ESFRI has set up an ad hoc **Working Group on Monitoring of Research Infrastructure Performance** – MONITORING WG – and organised two workshops in November 2018 and July 2019 to collect feedback from the ESFRI RIs and other stakeholders and to present the preliminary findings and recommendations of the WG MONITORING.

Based on the final report of the WG MONITORING, including a proposal on the methodology to be adopted for the ESFRI Landmark periodic update as well as a proposal on the monitoring methodology and set of KPIs to be adopted, on voluntary basis, by RIs and funding authorities, ESFRI will finalise its methodology on periodic review of Landmarks.

This methodology and its foreseen time line for implementation will then be communicated to the ESFRI Research Infrastructures.

InfoDay
25th September 2019, Brussels

ESFRI ROADMAP DYNAMICS
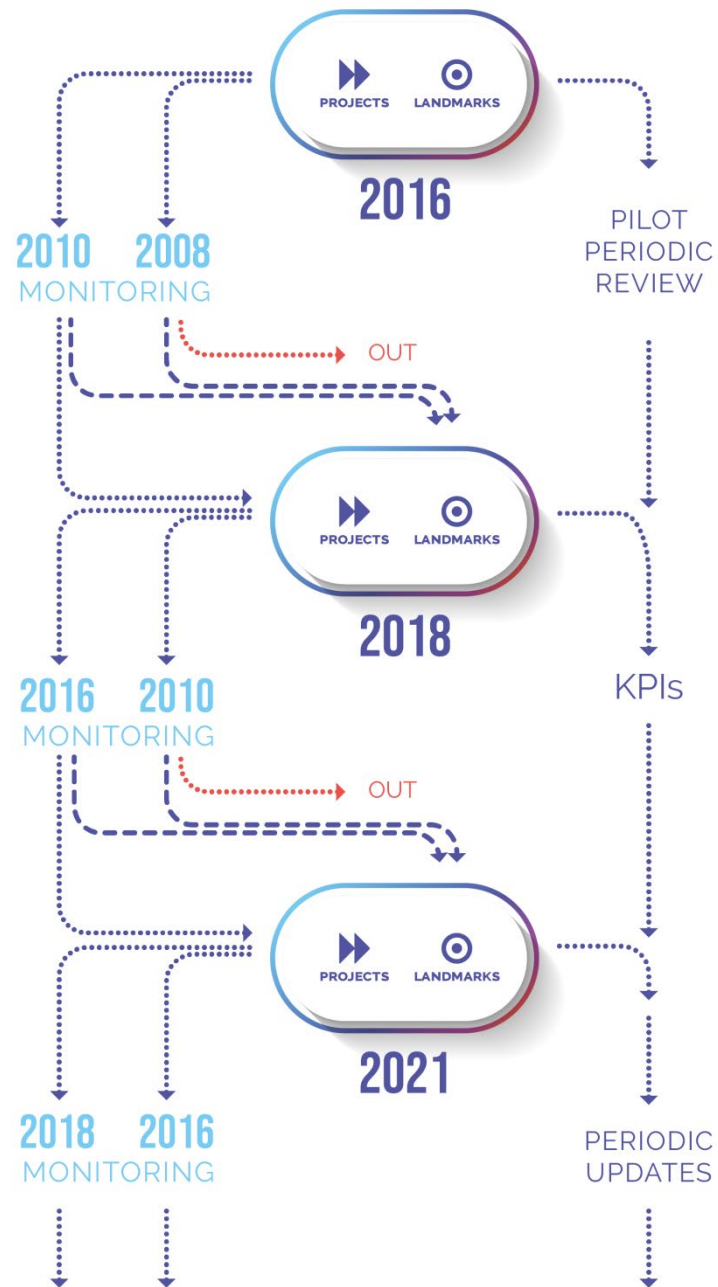
SCIENTIFIC CASE

Six reference scientific domains represented by the following SWGs:

ENE SWG - ENERGY

ENV SWG - ENVIRONMENT

H&F SWG – Health & Food

PSE SWG – PHYSICAL SCIENCES & ENGINEERING

SCI SWG – SOCIAL & CULTURAL INNOVATION

DIGIT SWG – DATA, COMPUTING AND DIGITAL RESEARCH INFRASTRUCTURES

The SWGs evaluate the SCIENTIFIC CASE along five dimensions:
- scientific excellence
- pan-European relevance
- socio-economic impact
- user strategy and access policy
- e-needs

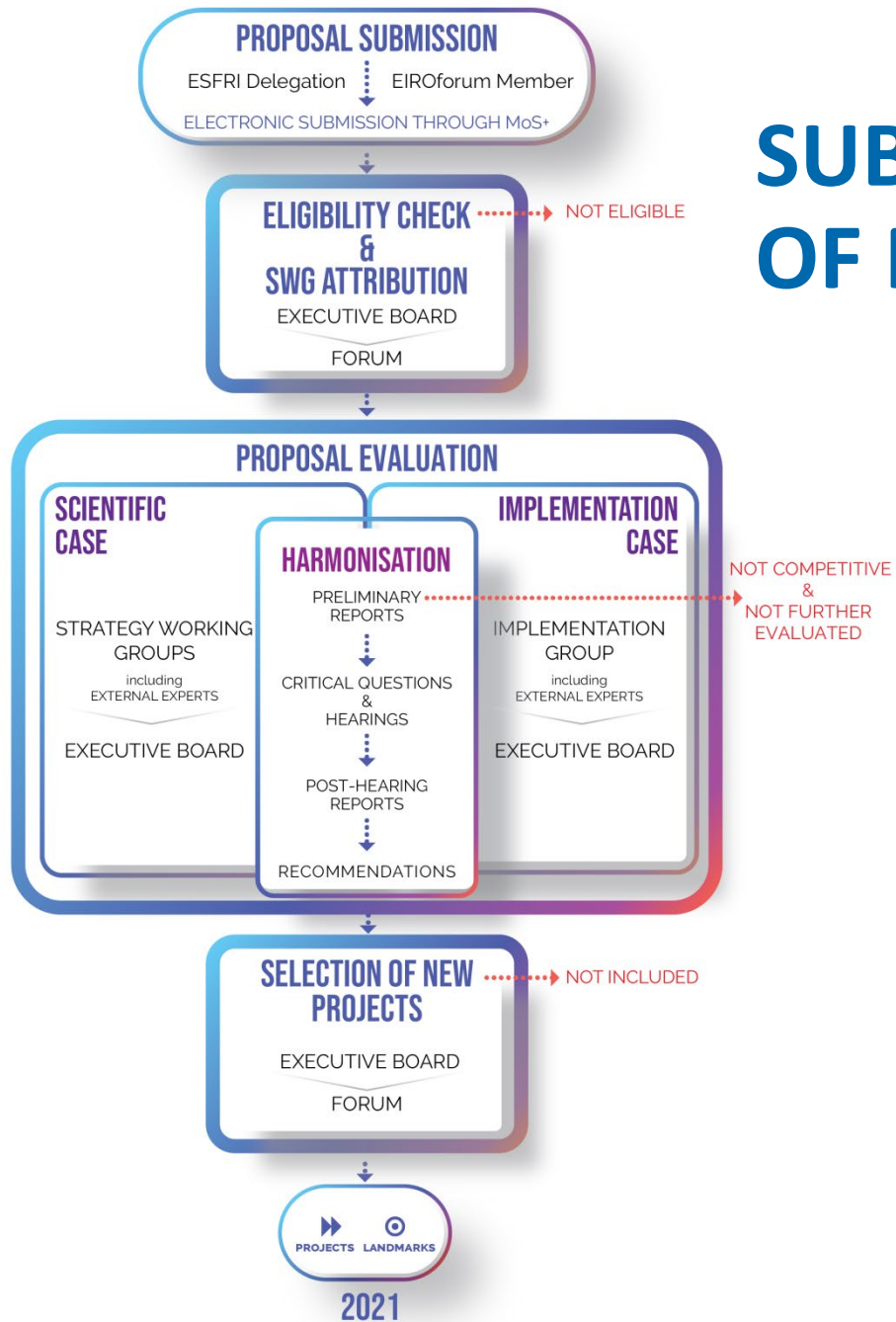When evaluating the SCIENTIFIC CASE, the SWGs take the dimensions of the IMPLEMENTATION CASE into account.

IMPLEMENTATION CASE

The Implementation Group (IG) evaluates the IMPLEMENTATION CASE along five dimensions:
- stakeholder commitment
- preparatory work and planning
- governance, management & human resources
- finances
- Risks

When evaluating the IMPLEMENTATION CASE , the IG takes the dimensions of the SCIENTIFIC CASE into account.

SUBMISSION AND EVALUATION OF NEW PROPOSALS

MKRs

ESFRI applies minimal key requirements on all the considered dimensions and along the RI life cycle.

For the **SCIENTIFIC CASE**, these are described in ANNEX II and for the **IMPLEMENTATION CASE** in ANNEX III.

These minimal key requirements serve as the basis for the scoring in the evaluations.

Meeting minimal key requirements is necessary, but not sufficient to be automatically listed in the Roadmap.
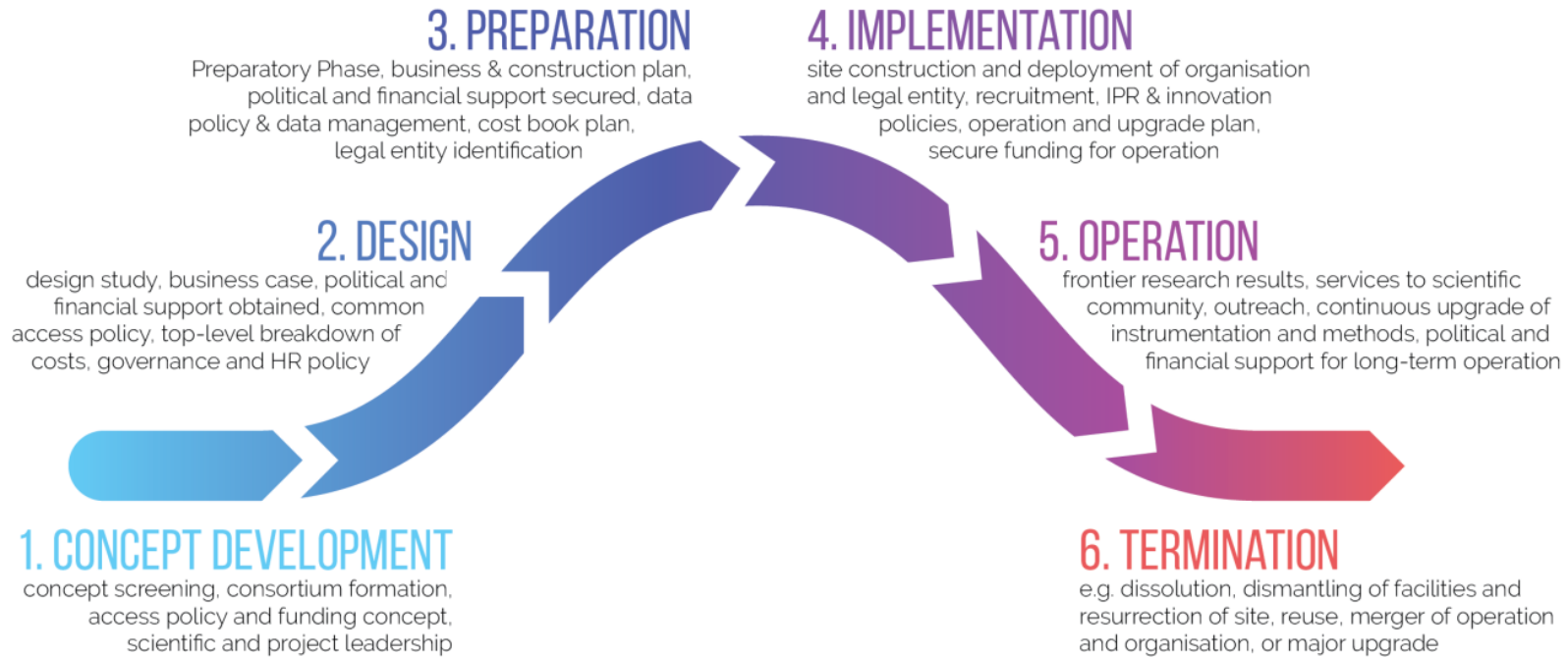
see Public Roadmap 2021 Guide

LIFECYCLE APPROACH

3. PREPARATION
Preparatory Phase, business & construction plan, political and financial support secured, data policy & data management, cost book plan, legal entity identification

4. IMPLEMENTATION
site construction and deployment of organisation and legal entity, recruitment, IPR & innovation policies, operation and upgrade plan, secure funding for operation

2. DESIGN
design study, business case, political and financial support obtained, common access policy, top-level breakdown of costs, governance and HR policy

5. OPERATION
frontier research results, services to scientific community, outreach, continuous upgrade of instrumentation and methods, political and financial support for long-term operation

1. CONCEPT DEVELOPMENT
concept screening, consortium formation, access policy and funding concept, scientific and project leadership

6. TERMINATION
e.g. dissolution, dismantling of facilities and resurrection of site, reuse, merger of operation and organisation, or major upgrade

Strategy Report on Research Infrastructures
ROADMAP 2021

ESFRI

ANNEX II: LIST OF MINIMAL KEY REQUIREMENTS FOR SCIENTIFIC CASE

The following table contains the **minimal key requirements** to a phase in the life cycle of RI on the five dimensions of the scientific case:

	PHASE				
	DESIGN	PREPARATION*	IMPLEMENTATION**	OPERATION	TERMINATION
SCIENTIFIC EXCELLENCE	– long term science programme defined – scientific community well-established – scientific leadership described – cutting edge science and technology outlined	– scientific vision and mission outlined – (multidisciplinary) scientific new frontier outlined – scientific leadership recruited – science concept tested and found feasible – services for the scientific community described – technical maturity and feasibility tested and achieved – cutting edge science and technology described – availability of scientific human resources proven	– vision, mission and identity fully defined – multidisciplinary scientific new frontier established – scientific leadership consolidated – services delivered to scientific community – cutting edge science and technology fully defined	– vision, mission and identity consolidated – leading RI landscape and multidisciplinary scientific new frontier achieved – scientific leadership and impact visible at global level – continuous upgrade planned and undertaken - if relevant – cutting edge science and technology consolidated	–
PAN-EUROPEAN RELEVANCE	– pan-European approach for scientific area outlined – targeted user community is pan-European – national/international facilities with complementary or synergistic potential	– positioning in the RI landscape defined – case for European added value defined – research capacity and current/potential geographical distribution defined – links to relevant RI and other large pan-European programmes identified	– positioning in the RI landscape fully described – case studies or other evidence of emerging European-added value achieved – research capacity and geographical distribution consolidated – joint strategies, common services with relevant RI and other large pan-European programmes being implemented	– European added value consistently being delivered – research capacity and geographical distribution consolidated/expanding – common services with relevant RI and other large pan-EU programmes in place	–

see Public Roadmap 2021 Guide

SOCIO-ECONOMIC IMPACT	– relevance to societal challenges identified and potential economic impact predicted including innovation aspects	– case for impact made:, supporting innovation,, other types of benefits such as services for society, cultural aspects and attraction of business, industry and public services etc.	– socio-economic impact cases emerging – capacity building impact proven – contributing to tackling the societal challenges – innovation oriented activities agreed – ability to develop an open innovation culture established	– impact demonstrated consistently – new communities involved – innovation oriented activities operational – private users involved – policies on key societal challenges, e.g. climate change, influenced	–
USER STRATEGY & ACCESS POLICY	– Vision about user community – Access modes described	– Identified user categories – survey executed demonstrating expected user community and description of it in terms of origin and size – Identified services based on a clear identification of user demands and needs – Single entry point for users outlined	– user community in terms of origin and size consolidated – Mechanism of exchange/engagement with users – Accommodation of user needs/feedbacks – Catalogue of initial services for users – User strategy consolidated (including training aspects) – common access policy –excellent driven access taken into account / transparent process, international research programmes, etc. – organisational structure and procedure for regulating access – including single entry point for users - decided and approved	Common Access management plan including: – Solid mechanism of exchange with users – Established catalogue of services for users – operational single entry point for access established – Assistance to users for the entire process (from the proposal till after the access) – IPR policies fully established – dissemination programmes in place, including innovation actions	– deployed IPR beyond decommissioning
E-NEEDS	– vision on e-infrastructure requirements, including access policy and security measures ready – interfacing with communication networks or distributed calculation or HPC/HTC	– conceptual design of e-infrastructure ready – contributions of e-infrastructure resources at all levels (institutional, regional, national, international) described – access policy and Data Management Plan (DMP) outlined – compliance with FAIR principles	– technical design of e-infrastructure ready and approved – draft operational planning for e-infrastructure service delivery – agreements with parties delivering core e-infrastructure services (Central Hub) drafted – access policy and DMP approved, including plan for sustainability of data – security policy defined and approved – implementing FAIR	– operational plan ready and approved – agreements with service provisioning parties signed – DMP implemented and security policy deployed – Operational application of FAIR	– deployed sustainability of data beyond decommissioning

Texts in blue only apply to single-site RI.

Texts in green only apply to distributed RI.

* Proposals that meet the minimal key requirements for the 'preparation' phase may be considered as Projects.

** Projects that meet the minimal key requirements for the 'implementation' phase may be considered as Landmarks.

see Public Roadmap 2021 Guide

Strategy Report on Research Infrastructures
ROADMAP 2021

ESFRI

ANNEX III: LIST OF MINIMAL KEY REQUIREMENTS FOR THE IMPLEMENTATION CASE

The following table contains the **minimal key requirements** to a phase in the life cycle of RI on the five dimensions of the evaluation of the implementation case:

	PHASE				
	DESIGN	PREPARATION*	IMPLEMENTATION	OPERATION	TERMINATION
STAKEHOLDER COMMITMENT	– institutional Letters of Intent (LoI) signed – formal agreement amongst partners for design study agreed upon (e.g. Consortium Agreement)	– political support provided by a satisfactory number of prospective members – satisfactory inter-institutional and multi-lateral agreement, e.g. a Memorandum of Understanding (MoU) signed by all core partners - being research institutions - formally involved in the consortium – clear strategy about how to gather necessary commitments at institutional and governmental level	– RI included in all relevant national RI roadmaps or similar political documents – commitment of a) MS and AC and b) core institutes and partners secured through signed legally binding document (e.g. statutes) – role and funding of Central office (Central Hub) agreed in legally binding document (e.g. statutes)	– budget to financially support operation and use for at least five years by all countries involved agreed – break-down of budget of nodes and relative resources with respect to their (potential) double accounting as national RI and nodes of international RI	– institutional, political and financial commitment on major upgrade/decommi ssion/merger obtained
PREPARATORY WORK & PLANNING	– concept screening successfully completed and described in a conceptual design – overall project plan for design study with major milestones and deliverables approved	– design/feasibility study successfully completed – clear business case developed – clear strategy about how to tackle technological and construction issues – detailed plan for preparation and implementation agreed, including relevant investment decisions – overall plan for operation and decommission defined	– preparatory phase successfully completed – sound and reviewed business plan agreed – all investment decisions for implementation have been effectively taken and those for operation are clearly planned – communication programmes are in place – decision on site taken – building licence obtained – procurement strategy clearly identified and procurement task force in place – tenders and commitments to fund construction approved – decision on hosting of central hub taken – services to users at national level and services from Central Hub to National Nodes delivered – detailed plan for scientific, technical and organisational implementation validated	– achieving research results delivering relevant services to scientific community – utilisation of RI monitored and reported – construction effectively completed – medium term operations and upgrade plan approved and secured – procedure to winding up established	– detailed and validated plan for decommission, major upgrade or merger approved

GOVERNANCE, MANAGEMENT & HUMAN RESOURCES	– project organisation approved – scientific leadership, project manager and required staff identified	– satisfactory project organisation and management for preparation and implementation with clearly defined skills and staffing plans, responsibilities and reporting lines approved – measurable and satisfactory Key Performance Indicators identified – governance for operation with clearly defined responsibilities and reporting lines outlined, including Supervisory and other Advisory Boards – Human resources policy for implementation and operation to gather necessary competences, hiring, equal opportunities (including gender balance and diversity), secondments, education and training outlined	– legal entity established – organisation for implementation in place – robust Key Performance Indicators for operation, management, administration and facilitation agreed – key managers and staff for implementation recruited and necessary skills trained – viable organisation for operation with adequate staffing and independent monitoring approved – human resources policy to gather necessary competences for operation, hiring, equal opportunities (including gender balance and diversity), secondments, education and training approved	– planning and reporting mechanisms in place – staff for operation and management recruited and necessary skills trained – all human resources policies and instruments in place	– organisation of decommission/merger/upgrade approved – organisation and social plan for decommission approved
FINANCES	– funding concept and potential partners (e.g. nature of partnership, in-kind versus cash) contributions outlined – budget for design study approved	– financial commitment by lead country or EIROforum member and possible other entities satisfactorily covering the preparation and implementation phases. – top-level breakdown of cost elements with overall order of magnitude estimates (including for Central Hub, National Nodes and main upgrades) – estimates and confidence levels available for each element – funding opportunities identified for the whole lifecycle – in-kind contribution policy outlined	– formal commitment for funding of implementation obtained – cost book with costs based on supplier discussions or quotes and accounting principles approved – financial reporting set up – Work Packages and in-kind contributions fully detailed and centrally budgeted – validated projection on operation costs for at least five years and agreement on how to cover them – costs for decommission identified – funding for Central Hub and firm projection on operation costs for at least five years	– funding for operation secured – auditing of accounting and budget systems in place	– budget and liability for decommission/merger/major upgrade approved and covered
RISKS	– conceptual ideas about scientific, technological, political and financial risks	– clear identification of major risks involved and appropriate mitigation strategies described	– detailed risk inventory established and appropriate mitigation measures for implementation in place	– appropriate risk management and mitigation policies for operation in place	– risks involved in decommission/upgrade/merger described and mitigation strategies in place

Texts in blue only apply to single-site RI.
Texts in green only apply to distributed RI.
* Proposals that meet the minimal key requirements for the `preparation' phase may be considered as Projects.
** Projects that meet the minimal key requirements for the `implementation' phase may be considered as Landmarks.

see Public Roadmap 2021 Guide

ESFRI

Strategy Report on Research Infrastructures
ROADMAP 2021

Scoring

- **<u>VERY HIGH</u> =** key requirements are outstandingly met

- **<u>HIGH</u> =** key requirements are comprehensively met

- **<u>MEDIUM</u> =** key requirements are partly met, but the proposal/Project/Landmark shows weaknesses with regard to specific requirements. Enhancing the RI's future success requires (significant) changes to (specific parts of) the proposal/plans.

- **<u>LOW</u> =** key requirements are insufficiently met and the evidence for future success of the RI is not convincing

In order to be considered as a **Project, a proposal must meet the key requirements for the Preparation Phase and score a grading of at least 'High' for both the** SCIENTIFIC CASE **and the** IMPLEMENTATION CASE.

In order to be considered as a **Landmark, a Project must meet the key requirements for at least Implementation Phase and score a grading of at least 'High' for both the** SCIENTIFIC CASE **and the** IMPLEMENTATION CASE.

The status of each RI on the Roadmap is a strategic decision of the Plenary Forum that takes into account the outcomes of the evaluations.

ESFRI

Strategy Report on Research Infrastructures
ROADMAP 2021

Principles

All evaluations must comply with the following four principles:

- **INDEPENDENCE:** involved persons carry out the evaluations in a personal capacity and they represent neither their employer nor their country.

- **IMPARTIALITY:** persons must treat all proposals, Projects and Landmarks equally and evaluate them impartially on their merits, irrespective of their origin or the identity of the applicants and coordinators.

- **OBJECTIVITY:** involved persons evaluate each proposal or questionnaire as submitted; meaning on its own merit, not its potential if certain changes were to be made.

- **ACCURACY:** involved persons make their judgment solely against the formal evaluation criteria and the relevant ESFRI documentation.

ESFRI checks any **CoI** with all SWG and IG Members and with all external experts, which must declare **non-conflict of interest and confidentiality** on the proposals, Projects or Landmarks they are evaluating. Strict rules for confidentiality apply.

Timeline

NEW PROPOSALS

STEPS	DATE (RANGE)
INFODAY	25 September 2019
Open Call for proposals	25 September 2019
SUBMISSION OF PROPOSALS	5 May 2020
CRITICAL QUESTIONS & INVITATION TO HEARINGS	October 2020
HEARINGS	November – December 2020
ESFRI FORUM DECISION	June-September 2021
ESFRI ROADMAP Launch	October-November 2021

Timeline

MONITORING OF PROJECTS 2016

STEPS	DATE (RANGE)
INFODAY	25 September 2019
CUSTOMIZED QUESTIONNAIRE SENT TO THE PROJECTS	November 2019
SUBMISSION OF QUESTIONNAIRE	February 2020
ESFRI FORUM DECISION	June 2020
ESFRI ROADMAP Launch	October-November 2021

Timeline

MONITORING OF PROJECTS 2010

STEPS	DATE (RANGE)
INFODAY	25 September 2019
CUSTOMIZED QUESTIONNAIRE SENT TO THE PROJECTS	January 2020
SUBMISSION OF QUESTIONNAIRE	June 2020
CRITICAL QUESTIONS & INVITATION TO HEARINGS	January 2021
HEARINGS	February - March 2021
ESFRI FORUM DECISION	June 2021
ESFRI ROADMAP Launch	October-November 2021

Strategy Report on Research Infrastructures
ROADMAP 2021

ESFRI

European Strategy Forum
on Research Infrastructures

ESFRI

Strategy Report on Research Infrastructures
ROADMAP 2021

Thank you for the attention!