Tecnologia para o conhecimento

Portuguese contribution to EOSC and to the ESFRI landscape

João Mendes Moreira   2E13-6710-9928   0000-0002-9081-2728

Filipa Pereira   8A13-4EA4-A512   0000-0002-5732-9996

Outline

- Context

- FCT|FCCN & EOSC

- Governance structure

- National Open Science and Open Research Data Programme

Context

Tecnologia para o conhecimento

- National public agency supporting research in science, technology and innovation.

VISION

- To establish Portugal as a global reference in science, technology and innovation.

- To ensure that knowledge generated by scientific research is used fully for social and economic growth.

- Provide shared digital services to support the development of education and science.

Technological Areas

Connectivity

Security

Knowledge

Computing

Collaboration

Innovation

Open Science and Science Management

Publications			Data	Directory
Golden Access *Read & Publish Publish & Read*	**Diamond Access** *Community Owned*	**Green Access** *Community Owned*	Research Data	Journals and Repositories

Science Management Information System

COMPUTING

DATA

NETWORK

• Services provided by FCT FCCN

FCT|FCCN & EOSC

FCT's action within the EOSC partnership

FCT representation in the EOSC partnership

- Focus on representation functions.

- FCT represents the interests of the Portuguese Republic in EOSC-A, through FCCN.

- Coordination with national stakeholders.

- Reporting activities.

FCCN Serviços digitais fct

fct Fundação para a Ciência e a Tecnologia

FCT's action within the EOSC partnership

FCT as National Contact Point

- FCT ensures the role of the National Contact Point

- It aggregates information from the EOSC-A and from the European Commission to serve the national community.

FCCN Serviços digitais fct

fct Fundação para a Ciência e a Tecnologia

FCT's action within the EOSC partnership

FCT's role in the implementation of the EOSC partnership

- Coordination of existing resources in national structures and networks.

- Establishing a liaison with competence centers.

- Supporting the implementation of activities.

Governance Structure

FCCN Serviços
digitais
fct

fct Fundação
para a Ciência
e a Tecnologia

Stakeholders' Engagement (draft)

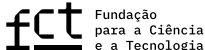# National Open Science and Open Research Data Programme

Research Data @ FCT|FCCN

Support the scientific community

Promote the Open Science principles (FAIR DATA)

Contribute to the reuse of the results

Dissemination of the scientific knowledge

Objective:

- Investment aimed at promoting the **digital transition** in **science and technology**.

Entity responsible for operationalizing the investment:

Fundação para a Ciência e a Tecnologia.

RE-C05-i08

More Digital Science

RESILIENCE

The objective of this measure is **to accelerate the process of digital transformation and digitalization of science and support services for the national science and technology system.**

To this end, the investment must:

- Complete the **"Campus Ciência XXI" and the "Balcão de Ciência"** (physical and online), which aim to make the **main services and funding mechanisms** available to researchers, Research and Development entities and higher education institutions in a single location;
- Create the **National Center for Advanced Computing** (CNCA), covering the Portuguese national contribution to the new supercomputer «Deucalion» and completing the data center/infrastructure supporting the operation of the two supercomputers «Deucalion» and «Mare Nostrum 5»;
- Support the launch of **a Research and Development projects program aimed at the development and implementation of advanced cybersecurity, artificial intelligence and data science systems in public administration**, as well as a scientific training program;
- Increase the number of courses offered through the **national platform for massive online courses (NAU)**;
- Implement the **National Open Science and Open Research Data Program** (PNCADAI).

National Programme

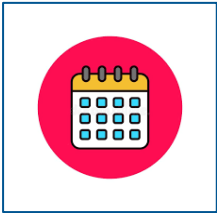Alignment with the principles of Open Science and FAIR Data

Providing tools, services and infrastructures to the scientific community

Technical support, consultancy and training in best practices

Convergence with the referential and good practices of the European Open Science Cloud
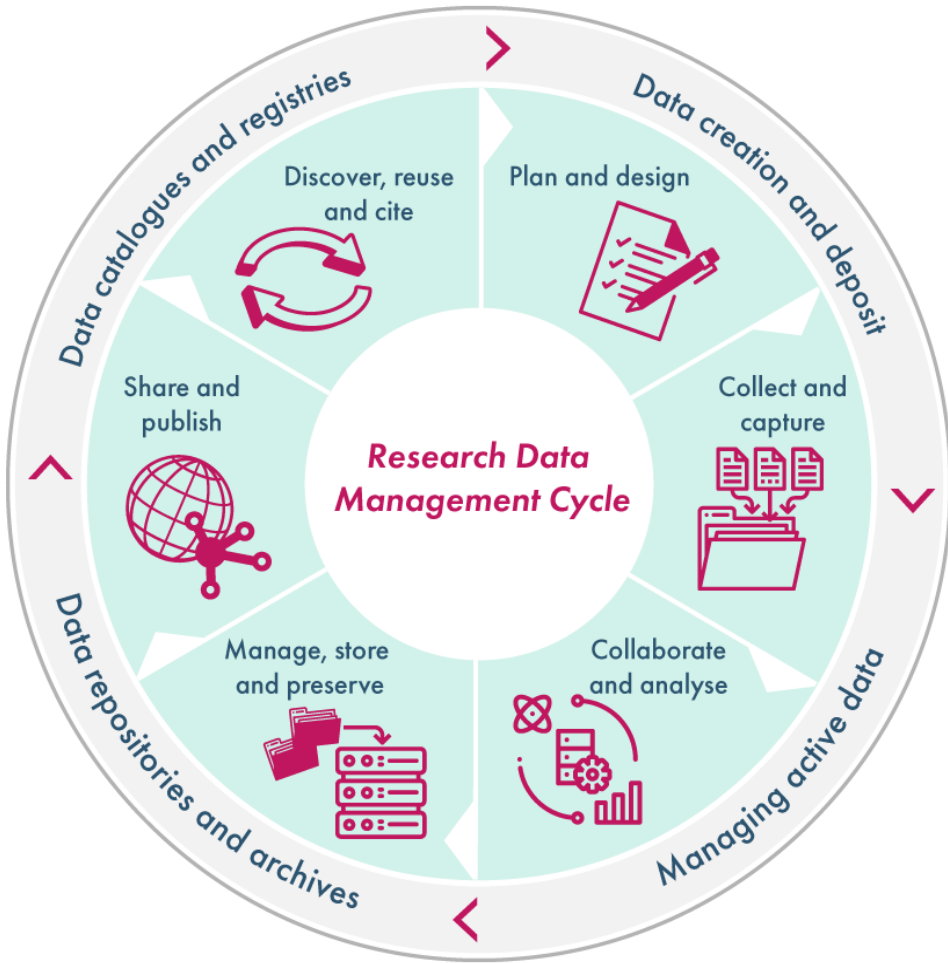
National Programme

Oct 2023 a Dec 2025

8,6 M €

7 Digital Services

National Programme – Main Activities

Involvement from the Community

COMPETENCE CENTERS

- **Consortium**

- **Research Data Management Centers**

Promote the creation of a support network for FAIR data management in Portugal

Expected Impact

- Contributing to the **national development** in terms of **Open Science and Open Research Data.**

- Promoting **a national network of competence centers** for Research Data Management.

- Adapting **strategies and *roadmaps*** for services and infrastructures.

- Strengthening and continuing the **work carried out with the Community!**

Thank you for your attention

Portuguese contribution to the ESFRI landscape
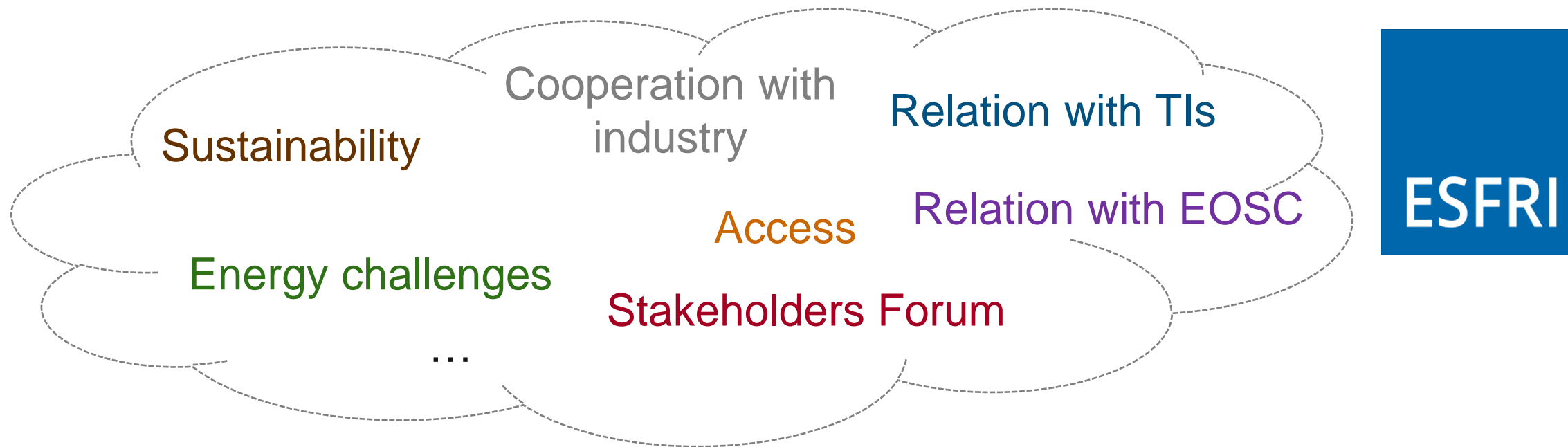
Marta Abrantes, ESFRI PT delegate

The **European Strategy Forum on Research Infrastructures (ESFRI)** was established in 2002 with a mandate from the Council of the European Union to:

• support a coherent and strategy-led approach to policy-making on research infrastructures in Europe

• facilitate multilateral initiatives leading to the better use and development of research infrastructures

ESFRI brings together representatives of Ministers of the 27 Member States, 12 Associated States, and of the European Commission that are the decision makers and financers of the ESFRI Research Infrastructures.

ESFRI is mandated by the Council of the European Union to update the ESFRI Roadmap regularly.

Cooperation with industry

Relation with TIs

Sustainability

Relation with EOSC

ESFRI

Access

Energy challenges

Stakeholders Forum

…

ESFRI's key activities:

Monitoring of the ESFRI Landmarks

Development of the Landscape Analysis

Revision of the ESFRI Roadmap

ESFRI landmarks:
- Mature research infrastructures in operation phase
- 10+ years on the ESFRI Roadmap
- Legal entities

Landmark monitoring by ESFRI has the following objectives:

- enabling regular exchange between ESFRI and Landmarks on their long-term development;
- assessing the quality of each individual Landmark;
- identification of possible problems and supporting the Landmarks to take appropriate actions;
- gathering information on the performance, outputs and impacts of the Landmarks.
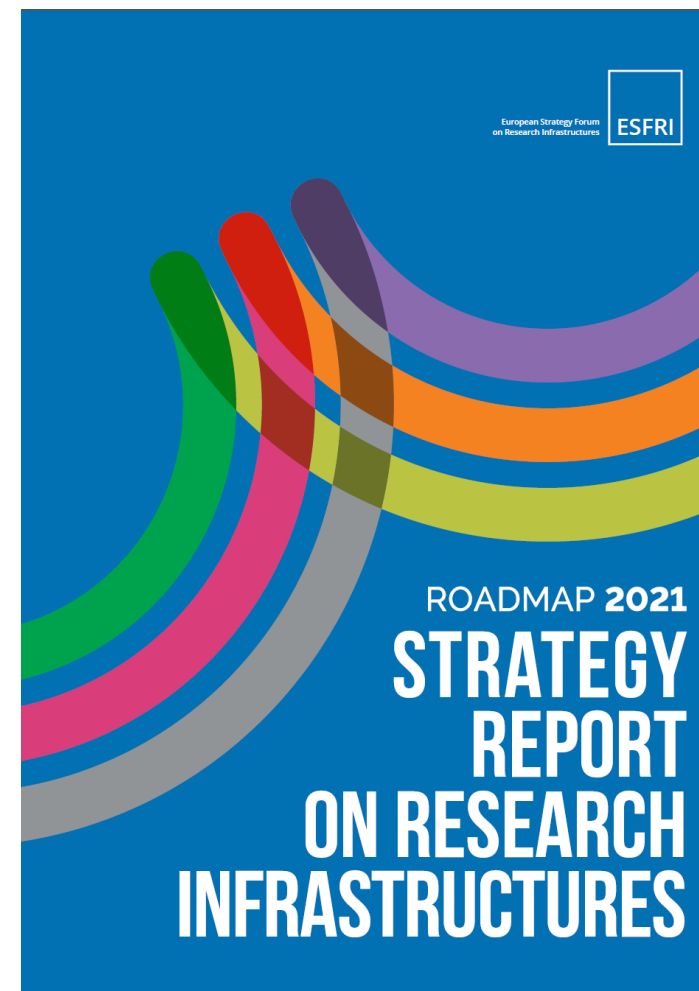
Landscape analysis

- Survey and analysis of the context, in each domain, of the operational national or international research infrastructures open internationally to the scientific community through peer-review of competitive proposals

- Identifies gaps and potential evolution of each field in the foreseeable future

- ESFRI in no case acts as an advocate of specific potential future projects.

ESFRI Roadmap

- The Roadmap identifies new pan-European Research Infrastructures or major upgrades to existing ones, responding to the needs of European research communities in the next 10 to 20 years in all fields of research.

- The Roadmap was produced in 2006 and revised in 2008, 2010, 2016, 2018 and 2021.

- The last revision, in 2021, included 22 projects and 41 landmarks

ESFRI PROJECTS

	NAME	FULL NAME	TYPE	LEGAL STATUS (Y)	ROADMAP ENTRY (Y)	OPERATION START (Y)	INVESTMENT COST (M €)	OPERATION COST (M€/Y)
DIGIT	EBRAINS	European Brain ReseArch INfrastructureS	distributed	AISBL, 2019	2021	2026*	323.8	19.8
	SLICES	Scientific Large-scale Infrastructure for Computing/ Communication Experimental Studies	distributed		2021	2024*	137.7	6.5
	SoBigData++ RI	European Integrated Infrastructure for Social Mining and Big Data Analytics	distributed		2021	2030*	130.5	5.0
ENERGY	IFMIF-DONES	International Fusion Materials Irradiation Facility - DEMO Oriented NEutron Source	single-sited		2018	2033*	884.0	56.0
	MARINERG-i	Marine Renewable Energy Research Infrastructure	distributed		2021	2030*	8.9	0.9
ENVIRONMENT	DANUBIUS-RI	International Centre for Advanced Studies on River-Sea Systems	distributed	ERIC Step1	2016	2024*	202.5	23.9
	DiSSCo	Distributed System of Scientific Collections	distributed		2018	2025*	420.3	12.1
	eLTER RI	Integrated European Long-Term Ecosystem, critical zone and socio-ecological system Research Infrastructure	distributed		2018	2026*	150.0	50.0
HEALTH & FOOD	EIRENE RI	Research Infrastructure for EnviRonmental Exposure assessmeNt in Europe	distributed		2021	2031*	202.0	42.2
	EMPHASIS	European Infrastructure for Multi-scale Plant Phenomics and Simulation	distributed		2016	2021*	160.0	3.6
	EU-IBISBA	Industrial Biotechnology Innovation and Synthetic Biology Accelerator	distributed		2018	2025*	52.6	65.1
	METROFOOD-RI	Infrastructure for promoting Metrology in Food and Nutrition	distributed		2018	2020	102.4	31.0
PHYSICAL SCIENCES & ENGINEERING	EST	European Solar Telescope	single-sited		2016	2029*	200.0	12.0
	ET	Einstein Telescope	single-sited		2021	2035*	1,912.0	37.0
	EuPRAXIA	European Plasma Research Accelerator with Excellence in Applications	distributed		2021	2028*	569.0	30.0
	KM3NeT 2.0	KM3 Neutrino Telescope 2.0	distributed		2016	2020	196.0	3.0
SOCIAL & CULTURAL INNOVATION	E-RIHS	European Research Infrastructure for Heritage Science	distributed		2016	2025*	54.0	5.0
	EHRI	European Holocaust Research Infrastructure	distributed		2018	2025*	15.0	2.0
	GGP	The Generations and Gender Programme	distributed		2021	2022*	18.2	1.1
	GUIDE	Growing Up In Digital Europe (GUIDE): EuroCohort	distributed		2021	2032*	580.6	17.8
	OPERAS	Open Scholarly Communication in the European Research Area for Social sciences and humanities	distributed	AISBL, 2019	2021	2029*	15.0	0.9
	RESILIENCE	Religious Studies Infrastructure: Tools, Innovation, Experts, Connections and Centers	distributed		2021	2034*	318.4	9.5

ESFRI LANDMARKS

	NAME	FULL NAME	TYPE	LEGAL STATUS (Y)	ROADMAP ENTRY (Y)	OPERATION START (Y)	INVESTMENT COST (M €)	OPERATION COST (M€/Y)
	PRACE	Partnership for Advanced Computing in Europe	distributed	AISBL, 2010	2006	2010	712.8	NA
	ECCSEL ERIC	European Carbon Dioxide Capture and Storage Laboratory Infrastructure	distributed	ERIC, 2017	2008	2016	1,000.0	0.9
	EU-SOLARIS	European Solar Research Infrastructure for Concentrated Solar Power	distributed	ERIC Step2	2010	2021*	7.0	0.1
	JHR	Jules Horowitz Reactor	single-sited		2006	2022*	1,800.0	NA
	ACTRIS	Aerosol, Clouds and Trace Gases Research Infrastructure	distributed		2016	2025*	698.0	93.0
	EISCAT_3D	Next generation European Incoherent Scatter radar system	single-sited	EISCAT Scientific Association, 1975	2008	2023*	79.3	4.9
	EMSO ERIC	European Multidisciplinary Seafloor and water-column Observatory	distributed	ERIC, 2016	2006	2016	100.0	20.0
	EPOS	European Plate Observing System	distributed	ERIC, 2020	2008	2023*	500.0	18.0
	EURO-ARGO ERIC	European contribution to the international Argo Programme	distributed	ERIC, 2014	2006	2014	10.0	8.0
	IAGOS	In-service Aircraft for a Global Observing System	distributed	AISBL, 2014	2006	2014	9.2	7.0
	ICOS ERIC	Integrated Carbon Observation System	distributed	ERIC, 2015	2006	2016	116.0	24.2
	LifeWatch ERIC	e-Infrastructure for Biodiversity and Ecosystem Research	distributed	ERIC, 2017	2006	2017	150.0	12.0
	AnaEE	Analysis and Experimentation on Ecosystems	distributed	ERIC Step2	2010	2021*	41.9	1.1
	BBMRI ERIC	Biobanking and BioMolecular Resources Research Infrastructure	distributed	ERIC, 2013	2006	2014	195.0	3.5
	EATRIS ERIC	European Advanced Translational Research Infrastructure in Medicine	distributed	ERIC, 2013	2006	2013	500.0	2.5
	ECRIN ERIC	European Clinical Research Infrastructure Network	distributed	ERIC, 2013	2006	2014	5.0	5.0
	ELIXIR	A distributed infrastructure for life-science information	distributed	ELIXIR Consortium Agreement, 2013	2006	2014	47.6	5.4
	EMBRC ERIC	European Marine Biological Resource Centre	distributed	ERIC, 2018	2008	2017	164.4	11.2
	ERINHA	European Research Infrastructure on Highly Pathogenic Agents	distributed	AISBL, 2017	2008	2018	5.8	0.7
	EU-OPENSCREEN ERIC	European Infrastructure of Open Screening Platforms for Chemical Biology	distributed	ERIC, 2018	2008	2021*	82.3	1.2
	Euro-BioImaging	European Research Infrastructure for Imaging Technologies in Biological and Biomedical Sciences	distributed	ERIC 2019	2008	2016	270.0	1.6
	INFRAFRONTIER	European Research Infrastructure for the generation, phenotyping, archiving and distribution of mouse disease models	distributed	GmbH, 2013	2006	2013	180.0	80.0
	INSTRUCT ERIC	Integrated Structural Biology Infrastructure	distributed	ERIC, 2017	2006	2017	450.0	30.0
	MIRRI	Microbial Resource Research Infrastructure	distributed	ERIC Step2	2010	2021*	NA	0.7
	CTA	Cherenkov Telescope Array	single-sited	gGmbH, 2014	2008	2024*	400.0	20.0
	ELI ERIC	Extreme Light Infrastructure	single-sited	ERIC, 2021	2006	2018	850.0	80.0
	ELT	Extremely Large Telescope	single-sited	ESO#	2006	2027*	1,309.0	48.0
	EMFL	European Magnetic Field Laboratory	distributed	AISBL, 2015	2008	2014	170.0	20.0
	ESRF EBS	European Synchrotron Radiation Facility Extremely Brilliant Source	single-sited	ESRF#	2016	2020	128.0	82.0
	European Spallation Source ERIC	European Spallation Source	single-sited	ERIC, 2015	2006	2026*	3,009.0	140.0
	European XFEL	European X-Ray Free-Electron Laser Facility	single-sited	European XFEL#	2006	2017	1,540.0	137.0
	FAIR	Facility for Antiproton and Ion Research	single-sited	GmbH, 2010	2006	2025*	NA	NA
	HL-LHC	High-Luminosity Large Hadron Collider	single-sited	CERN#	2016	2027*	1,408.0	136.0
	ILL	Institut Max von Laue-Paul Langevin	single-sited	ILL#	2006	NA	188.0	100.0
	SKAO	Square Kilometre Array Observatory	single-sited	IGO'	2006	2027*	1,986.0	77.0
	SPIRAL2	Système de Production d'Ions Radioactifs en Ligne de 2e génération	single-sited	GANIL	2006	2019	307.3	5.2
	CESSDA ERIC	Consortium of European Social Science Data Archives	distributed	ERIC, 2017	2006	2013	117.0	39.0
	CLARIN ERIC	Common Language Resources and Technology Infrastructure	distributed	ERIC, 2012	2006	2012	NA	14.0
	DARIAH ERIC	Digital Research Infrastructure for the Arts and Humanities	distributed	ERIC, 2014	2006	2019	NA	0.7
	ESS ERIC	European Social Survey	distributed	ERIC, 2013	2006	2013	117.5	6.4
	SHARE ERIC	Survey of Health, Ageing and Retirement in Europe	distributed	ERIC, 2011	2006	2011	NA	17.0

ESFRI Projects

- Preparatory and implementation phases
- < 10 years on the Roadmap

ESFRI Landmarks

- Operation phase
- 10+ years on the ESFRI Roadmap
- Legal entities

Revision of the ESFRI Roadmap 2026

ESFRI calendar	New Proposals	ESFRI Projects 2016 (5)	ESFRI Projects 2018 (6)	ESFRI Projects 2021 (11)
October 2024 **Infoday & Launch of the call**	Open call for proposals Questionnaires			
November 2024			Customized questionnaires	
December 2024 **90th Forum Meeting** No session for country exchange				
January 2025				Customized questionnaires
March 2025 **91st Forum Meeting**			Deadline questionnaires	
April 2025	Deadline for New Proposals 8 April			Deadline questionnaires
May 2025	Eligibility check & SWG Assignment			
June 2025 **92nd Forum Meeting**	FORUM APPROVAL	Customized questionnaires	Recommendations FORUM APPROVAL	Recommendations FORUM APPROVAL
July 2025			Send raccomendations to the Projects	Send raccomendation to the Project
September 2025 **93rd Forum Meeting**	External reviewers assigned			Recommendations FORUM APPROVAL (back up)
October 2025		External experts assigned		Send raccomendation to the project (back up)
December 2025 **94th Forum Meeting**	Critical questions& invitation to the hearings	Deadline questionnaires		
February 2026	Hearings			
March 2026 **95th Forum Meeting**	EB+Chairs harmonization			
April 2026	EB+Chairs harmonization	Critical questions & invitation to the hearings		
May 2026	EB proposal for the Forum	Hearings		
June 2026 **96th Forum Meeting**	FORUM APPROVAL	EB+Chairs harmonization		
August 2026		EB proposal for the Forum		
September 2026 **97th Forum Meeting**	FORUM APPROVAL (back up)	FORUM DECISION		
December 2026 - 98th Forum Meeting - ROADMAP LAUNCH				

Advantages and challenges of participating in European research infrastrutures

Advantages:

• Easy access to:
      o top-level infrastructures/equipment/resources, existing in other member countries of the European RI.
      o training courses, internships and summer schools in infrastructures/institutions of other member countries.
      o funding opportunities for national Nodes, within the European infrastructure, for the development of services together with communities of that infrastructure and/or for small scientific projects in collaboration with communities of that infrastructure.
• International projection of the PT infrastructures that make up the national Nodes.

Challenges:

• The growing interest from the Portuguese community in collaborating and being a part of European RIs.
• The growing number of European RIs.
• Limited resources require a careful analysis of requests for endorsement of PT participation in European RIs to ensure conditions are met for successful participation.

PORTUGAL

Leader

◎ Landmarks: MIRRI-ERIC

Member

▶▶ Projects: OPERAS

◎ Landmarks: PRACE, EMSO ERIC, EPOS ERIC, LifeWatch ERIC, EATRIS ERIC, ECRIN ERIC, ELIXIR, ERINHA, EU-OPENSCREEN ERIC, Euro-BioImaging ERIC, EMBRC ERIC, Instruct-ERIC, SKAO, CESSDA ERIC, CLARIN ERIC, DARIAH ERIC, ESS ERIC

Observer

◎ Landmarks: EU-SOLARIS

Prospective

▶▶ Projects: EBRAINS, MARINERG-i, DANUBIUS-RI, eLTER RI, DiSSCo, METROFOOD-RI, EST, EuPRAXIA, E-RIHS, GUIDE

Portugal's participation in ESFRI's research infrastructures

Portugal hosts one ERIC – MIRRI-ERIC (Microbial Resources Research Infrastructure ERIC)

Observer of 1 and Member of 18 landmark research infrastructures

The portuguese community is collaborating with 11 of the 22 ESFRI RI projects

Thank you for your attention!

EOSC national representation

João Mendes Moreira jmm@fct.pt

Filipa Pereira filipa.pereira@fccn.pt

ESFRI national representation

Marta Abrantes marta.abrantes@fct.pt