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# **Horizon 2020 Research Infrastructures and the implementation of ESFRI 2010 Roadmap**

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# Overview

- **Policy context:**
  - **Horizon 2020**
  - **Innovation Union**
  - **European Research Area**
- **ESFRI:**
  - **Implementation Group**
  - **Expert Assessment Group**
- **Future perspectives**

# Why an EU Approach for Research Infrastructures?

- To **open access** to the research infrastructures existing in the individual Member State to all European researchers
- To **avoid duplication of efforts** and to coordinate and **rationalise the use** of these research infrastructures
- To trigger the **exchange of best practice**, develop **interoperability** of facilities and resources, develop the **training** of the next generation of researchers
- To connect national research communities and **increase the overall quality of the research and innovation**
- To help **pooling resources** so that the Union can also acquire and operate research infrastructures **globally**

# Research Infrastructures under H2020

## 4.1. Developing the European RIs for 2020 and beyond

- 4.1.1 Developing new world-class RIs
- 4.1.2 Integrating and opening national RIs of pan-European interest
- 4.1.3 Development, deployment and operation of ICT based e-Infrastructures

## 4.2. Fostering the **innovation** potential of RIs & their **human capital**

## 4.3. Reinforcing European RI **policy** and **international cooperation**

# Developing new world-class RIs

- Objective: To ensure the implementation, long-term sustainability and operation of the ESFRI and other world-class RIs
- EU funding will support:
  - ✓ the **preparatory phase** of future RIs (e.g. detailed construction plans, legal arrangements, multiannual planning, etc.)
  - ✓ the **implementation phase** (e.g. R&D and engineering work, development of regional partner facilities, etc.)
  - ✓ the **operation phase** (e.g. access, data handling, outreach, training and international cooperation activities)
  - ✓ **design studies** for new RIs through a bottom-up approach

# Integrating and opening existing national RIs of pan-European interest

- Objective: To open up key national RIs to all European researchers and to ensure their optimal use and joint development
- EU funding will support “European Research Infrastructures Networks” bringing together RIs in a given field covering:
  - ✓ **Transnational** and **virtual access** activities
  - ✓ **Networking** activities to foster a culture of cooperation
  - ✓ **Joint research** activities to **improve the services** provided by the infrastructures

# Fostering the **innovation** potential of RIs and their **human capital**

- To stimulate **innovation** both in the RIs themselves and in their supplier and user industries
  - ✓ R&D partnerships with industries to develop Union capacities in high-tech areas such as scientific instrumentation
  - ✓ pre-commercial procurement by RI actors
  - ✓ stimulate the use of RIs by industry
  - ✓ Encourage the integration of RIs into local, regional and global innovation ecosystems
- To strengthen the **human capital** of RIs
  - ✓ Support for the training of staff managing and operating RIs, exchanges of staff and best practices between facilities

# Reinforcing European **RI** policy and international cooperation

- Reinforcing **European policy** for RIs
  - ✓ Partnerships between relevant policymakers and funding bodies
  - ✓ Surveys, monitoring and assessments of RIs at Union level
  - ✓ Policy studies and communication tasks
- Facilitating strategic **international cooperation**
  - ✓ Cooperation for global RIs
  - ✓ Cooperation of European RIs with their non-European counterparts:
  - ✓ Ensuring their global interoperability and reach
  - ✓ Pursuing international agreements on the reciprocal use, openness or co-financing of RIs



# Commitments within Innovation Union Flagship initiative

- « ... **opening** of Member State operated research infrastructures to the full European user community...»
- « By 2015 (...) have completed or launched the construction of 60% of the priority European research infrastructures currently identified by the **ESFRI** (...) facilitate the use of cohesion policy money for this purpose.
- « The European Union should step up its **cooperation** on the roll-out of the **global** research infrastructures. »

# European Research Area (ERA)

- ERA Communication adopted on 17/07/2012
- Framework proposal to create a single market for knowledge research and innovation
- ERA priorities:
  - More effective national research systems;
  - Optimal transnational co-operation and competition;
  - An open labour market for researchers;
  - Gender equality and gender mainstreaming in research;
  - Optimal circulation, access to and transfer of scientific knowledge including via digital ERA
- To be completed by 2014
- Section on Research Infrastructures under "transnational co-operation and competition"



# RI in the ERA Communication

*COM(2012) 392 final, adopted on 17/07/2012*

Actions targeted to **Member States**:

- Confirm financial commitments for the construction and operation of ESFRI projects;
- Remove legal and other barriers to cross-border access to RIs

Actions targeted to **European Commission**:

- Support through Horizon 2020 access to RIs as well as the on-going overall integration of EU RIs particularly those awarded ERIC status
- Encourage Member States to link RI roadmaps to the ESFRI roadmap and smart specialisation strategies in Structural Funds,
- Develop in cooperation with ESFRI, e-IRG and other stakeholders:
- a Charter of Access setting out common standards and harmonised access rules and conditions for the use of RIs
- common evaluation principles, impact-assessment criteria and monitoring tools to help combine funds from different sources



# ESFRI – European Strategy Forum on Research Infrastructures

- Set up by the **EU Council of Research Ministers** in 2002
- Brings together representatives of Ministers of the 27 Member States, 10 Associated States, and of the European Commission
- To support the development of a **European policy** for Research Infrastructure and discuss a long term vision at European level
- To facilitate **multilateral initiatives** leading to the better use and development of Research Infrastructures, at EU and international level

# ESFRI – The Roadmap mandate



- Mandated by the EU Council of Research Ministers of November 2004 to develop a strategic roadmap in the field of Research Infrastructures for Europe
- The ESFRI roadmap identifies new pan-European Research Infrastructures or major up-upgrades to existing ones, corresponding to the needs of European research communities in the next 10 to 20 years, in all fields of Sciences and Technologies, regardless of possible location
- First Roadmap published in 2006, followed by two updates in 2008 and 2010:
  - - Now contains 48 projects
  - - Requiring major financial investment (~20 b€) and long term commitment for operation (~2 b€/year)

# ESFRI Implementation Group (IG)

- ESFRI IG concludes in 2012 that 17 RIs on the 2010 ESFRI roadmap are currently under implementation.
- Moreover, 10 RIs were already defined as being under implementation on the ESFRI Roadmap 2006.
- The total of 27 projects that are currently under implementation makes up 56 % of the 48 ESFRI projects



# ESFRI Expert Assessment Group

- To assist further the implementation of the ESFRI projects, the European Commission has set up an Expert Group on Assessment which is evaluating the financial and managerial maturity of the projects of the ESFRI Roadmap 2010 and give specific advice how to reach implementation. The results of this assessment will be integrated in a second Implementation Report which will be provided by Summer 2013

- Terms of Reference:
- Evaluate the financial and managerial maturity of the Ris
- Identify funding bottlenecks for each project
- Make recommendations on how to address them
- Indicate feasibility of the implementation phase each RIs by 2015
- Suggest further actions to reinforce coherence and synergies
- Assess the type and level of EU support



# ESFRI New Mandate

- On 11th December 2012 the Competitiveness Council confirmed the need to renew and adapt the ESFRI mandate "to adequately address the existing challenges and also to ensure the follow-up of implementation of already on-going ESFRI projects after a comprehensive assessment, as well as the prioritisation of the infrastructure projects listed in the ESFRI roadmap"
- The work of the Implementation Group and the results of the Expert Group will give the Commission and the Member States a clear indication of the progress made towards the implementation of the Roadmap and the achievement of the IU Commitment and will provide MS and the Commission important recommendations on how to accelerate the implementation

# ESFRI roadmap 2010

**10**+38 new - or major upgrade of - Research Infrastructures of pan-European interest  
(+ 3 additional projects from the CERN Council strategic roadmap for particle physics\*)

Social Sc. & Hum. ( 5 )	Life Sciences ( 13 )		Environmental Sciences ( 9 )		Energy ( 7 )	Material and Analytical Facilities ( 6 )	Physics and Astronomy ( 10 )		e-Infra-structures ( 1 )
<b>SHARE</b>	<b>BBMRI</b>	<b>ELIXIR</b>	<b>ICOS</b>	<b>EURO-ARGO</b>	<b>ECCSEL</b>	<b>EUROFEL</b>	<b>ELI</b>	<b>TIARA*</b>	<b>PRACE</b>
<b>E SS Survey</b>	<b>ECRIN</b>	<b>INFRA FRONTIER</b>	<b>LIFEWATCH</b>	<b>IAGOS</b>	<b>Windscanner</b>	<b>EMFL</b>	<b>KM3NeT</b>	<b>CTA</b>	
<b>CESSDA</b>	<b>INSTRUCT</b>	<b>EATRIS</b>	<b>EMSO</b>	<b>EPOS</b>	<b>EU-SOLARIS</b>	<b>European XFEL</b>	<b>E-ELT</b>	<b>SKA</b>	
<b>CLARIN</b>	<b>EU-OPENSREEN</b>	<b>EMBRC</b>	<b>SIAEOS</b>	<b>EISCAT_3 D</b>	<b>JHR</b>	<b>ESRF Upgrade</b>	<b>SPIRAL2</b>	<b>FAIR</b>	
<b>DARIAH</b>	<b>Euro BioImaging</b>	<b>ERINHA BSL4 Lab</b>		<b>COPAL</b>	<b>IFMIF</b>	<b>NEUTRON ESS</b>	<b>SLHC-PP*</b>	<b>ILC-HIGRADE*</b>	
	<b>ISBE</b>	<b>MIRRI</b>			<b>HiPER</b>	<b>ILL20/20 Upgrade</b>			
	<b>ANAE</b>				<b>MYRRHA</b>				

**ERIC established**

**ERIC in preparation**

**Research & Innovation**

**RI's in the implementation phase**

**Distributed research infrastructures**

**Single sited research infrastructures**