

Οδικός Χάρτης ESFRI και Ελληνικές Ερευνητικές Υποδομές

Ενημερωτική εκδήλωση για τις Ερευνητικές Υποδομές

26-04-2013

Γιάννης Ιωαννίδης

Γενικός Διευθυντής Ε.Κ. «Αθηνά»

Καθηγητής Πληροφορικής & Τηλ/νιών ΕΚΠΑ

Research Infrastructures are facilities, resources and related services **offered to the scientific community** to conduct (**basic and applied**) research to generate innovations for our daily life

This includes:

- major scientific equipment (or sets of instruments);
- knowledge resources: collections, archives, scientific data;
- e-infrastructure: data, computing and software systems;
- any other infrastructure of a unique nature essential to achieve excellence in research and innovation



ESFRI

European Strategy Forum on Research Infrastructures

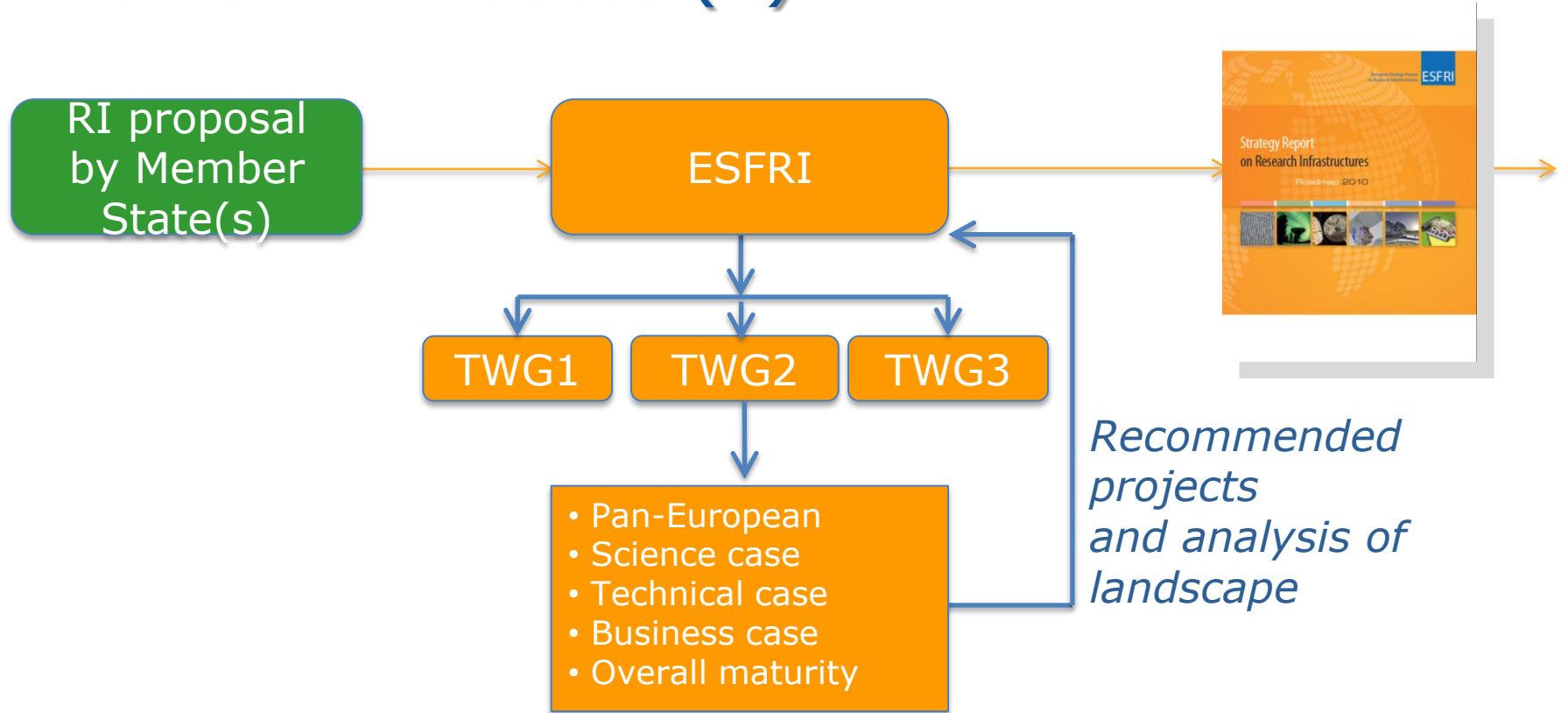
- Set up by the EU Council of Research Ministers in 2002
- Brings together representatives of Ministers of the 27 Member States, 10 Associated States, and of the European Commission
- Supports a coherent and strategy-led approach to policy making on Research Infrastructures
- Mandate to develop a Roadmap (2006) and its updates (2008, 2010)

ESFRI – The Roadmap

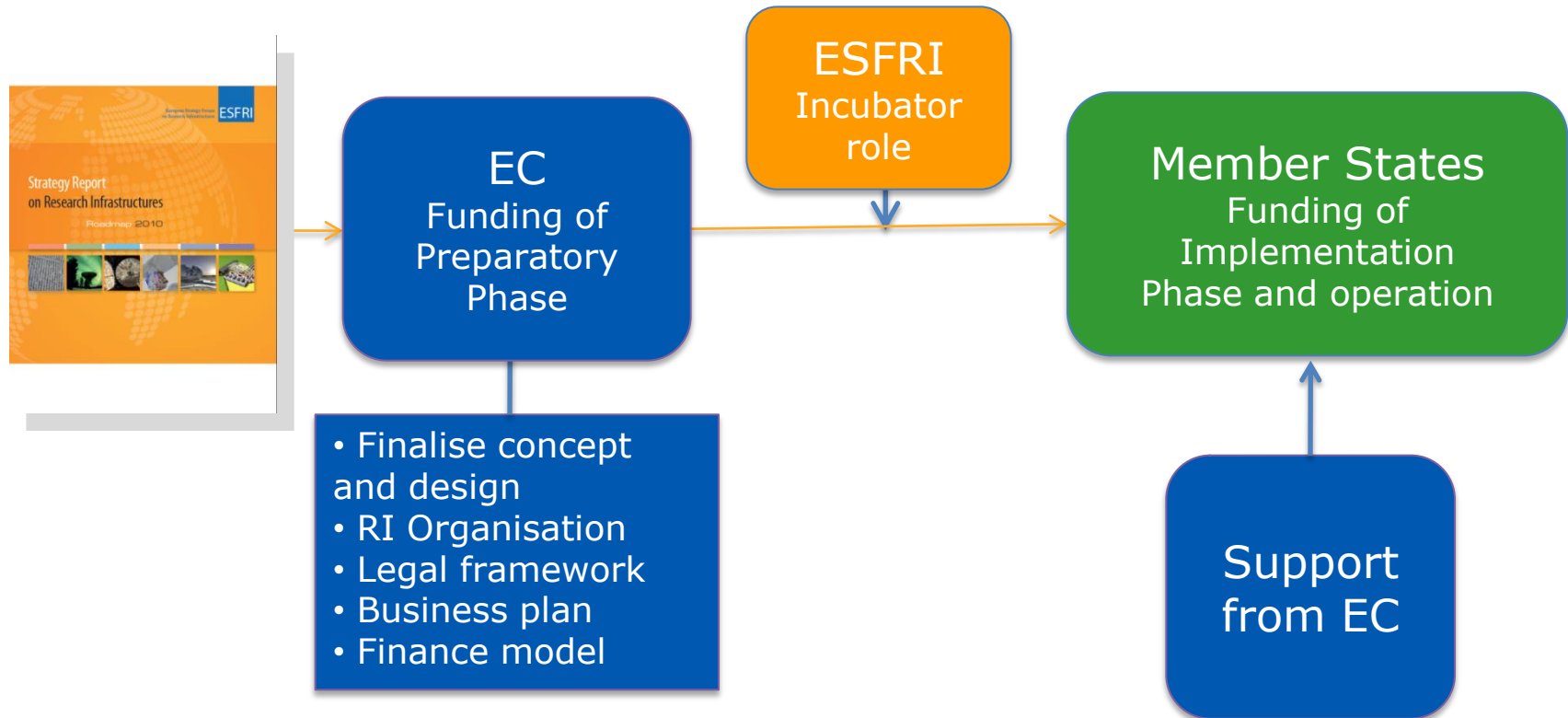


- The ESFRI roadmap identifies new pan-European Research Infrastructures or major up-grades to existing ones, corresponding to the needs of European research communities in the next 10 to 20 years, in all fields of Sciences and Technologies, regardless of possible location
- First Roadmap published in 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)

The ESFRI Process (1)



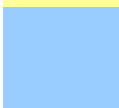


The ESFRI Process (2)



ESFRI Roadmap 2010

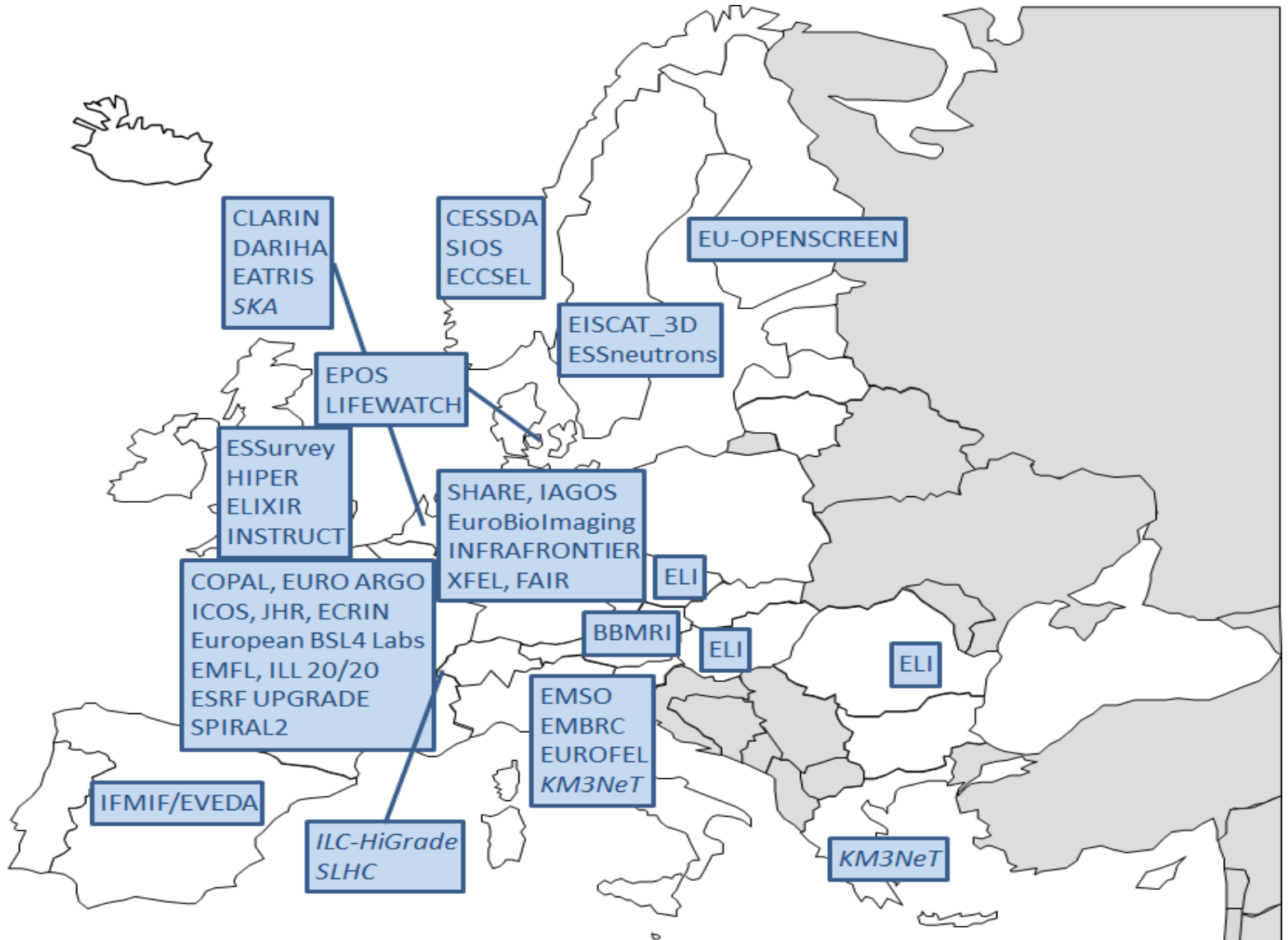
Social Sc. & Hum. (5)	Life Sciences (13)		Environmental Sciences (9)		Energy (7)	Material and Analytical Facilities (6)	Physics and Astronomy (10)		e-Infrastructures (1)
SHARE	BBMRI	ELIXIR	ICOS	EURO-ARGO	ECCSEL	EUROFEL	ELI	TIARA	PRACE
European Social Survey	ECRIN	INFRA FRONTIER	LIFEWATCH	IAGOS	Windscanner	EMFL	SPIRAL2	CTA	
CESSDA	INSTRUCT	EATRIS	EMSO	EPOS	EU-SOLARIS	European XFEL	E-ELT	SKA	
CLARIN	EU-OPENSREEN	EMBRC	SIAEOS	EISCAT_3D	JHR	ESRF Upgrade	KM3NeT	FAIR	
DARIAH	Euro BioImaging	ERINHA BSL4 Lab		COPAL	IFMIF	NEUTRON ESS	SLHC-PP	ILC-HIGRADE	
	ISBE	MIRRI			HiPER	ILL20/20 Upgrade			
	ANAEE				MYRRHA				

 Greek Participation and funding commitments
  Distributed research infrastructures
  Single sited research infrastructures

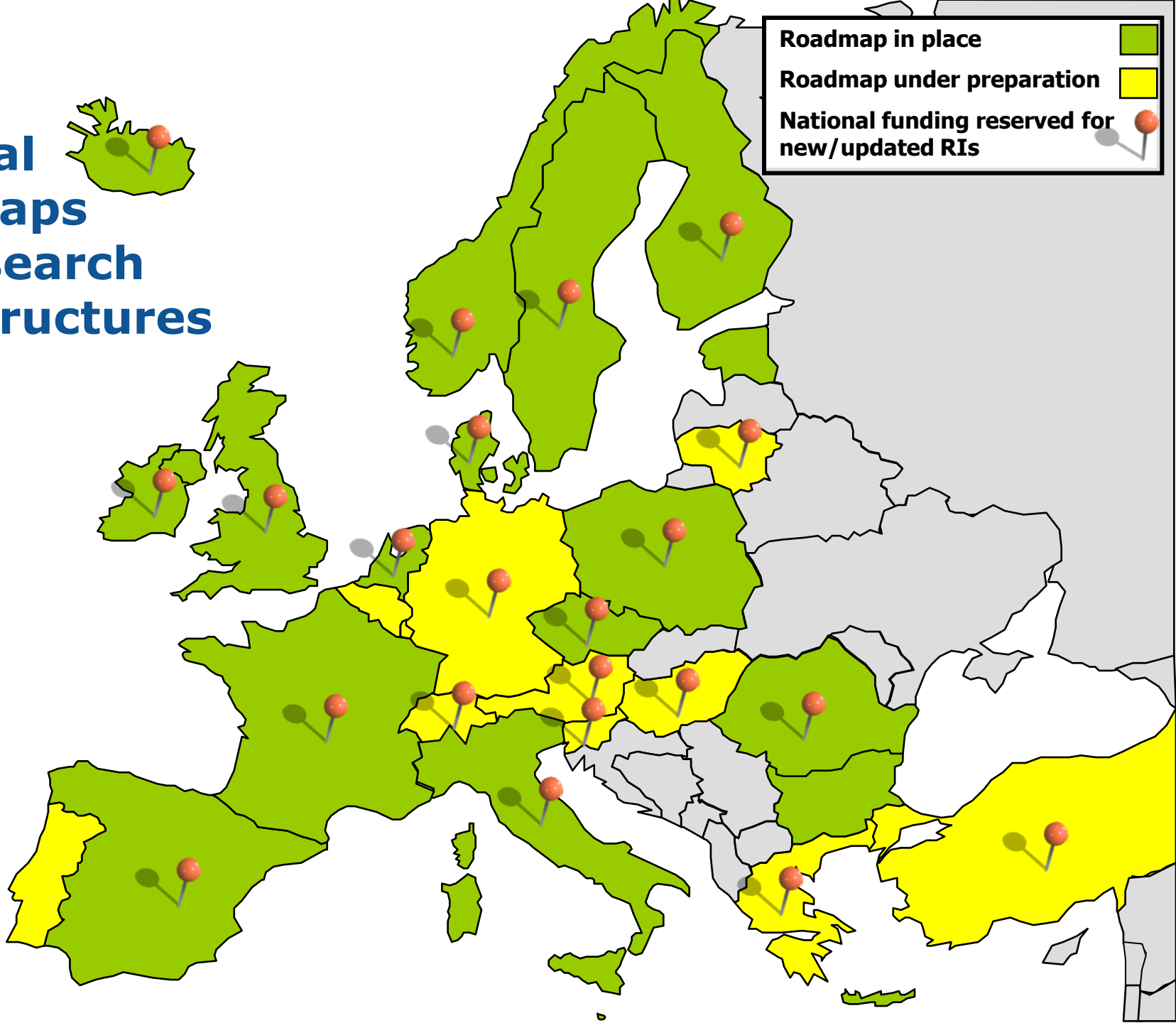
ESFRI

Scientific Area (ESFRI)	Greek Involvement ESFRI
Biological & Medical Sciences	BBMRI, EATRIS, ELIXIR, Infrafrontier, EMBRC, EURO-Biolmaging, ERINHA, ISBE
Energy	HiPER, ECCSEL, EU-SOLARIS, WindSCANNER
Physical Sciences & Engineering	ELI, KM3NeT
Material, Analytical Facilities	European XFEL
Environmental Sciences	COPAL, EMSO, EPOS, EURO-ARGO, LIFEWATCH
Social Sciences & Humanities	CESSDA, SHARE, CLARIN, DARIAH
e-infrastructures	PRACE

PRACE



National Roadmaps for Research Infrastructures



Projects expected to be implemented by 2013

- **Social Sciences and Humanities:** *CLARIN, DARIAH*
- **Environmental Sciences:** *EISCAT, EURO ARGO, IAGOS, ICOS, LIFEWATCH*
- **Health & Food:** *BBMRI, EATRIS, ECRIN, ELIXIR, INFRAFRONTIER, INSTRUCT*
- **Material Sciences:** *European Spallation Source*
- **Physical Sciences:** *E-ELT, ELI*

Projects officially under implementation (Roadmap 2010):

CESSDA, ESRF Upgrade, European Social Survey, SHARE, XFEL, ILL 20/20, FAIR, SPIRAL2, PRACE, JHR

Current ESFRI Working Groups

- **Strategy Working Groups:**
 - *Energy*
 - *Social & Cultural Innovation*
 - *Environment and Climate change*
 - *Health & Food*
 - *Physics & Engineering*
- **Implementation Working Group**
- **Regional Issues Working Group**
- **Innovation Working Group**
- **Ad-hoc Expert Group on indicators**

Recommendations by IG

- ❑ Roadmap projects should involve all stakeholders (MS, AC, non-EU countries) from an early stage
- ❑ **MS/ACs should examine how they can better fit ESFRI projects into their national roadmaps**
- ❑ Projects and Member States should explore the use of structural funds to finance national nodes of distributed pan-European RIs
- ❑ ESFRI should politically support the roadmap projects by raising awareness among the Member States

Regional Partner Facility

*"A RPF to a Research Infrastructure of pan-European interest must itself be a facility of **national or regional importance** in terms of socio-economic returns, training and attracting researchers and technicians. The quality of the facility including the level of its scientific service, management and open access policy must meet the **same standards required for pan-European** Research Infrastructures. The recognition as an RPF should be under the responsibility of the pan-European single sited or distributed **ESFRI Research Infrastructure** itself, based on regular peer-review".*

- The RPFs contribute to a more balanced development of the European Research Area, and to the "circulation of knowledge" throughout Europe***
- Building up the regional RI capacity by using the Structural Funds***

Next steps

- **The EC has set up an Expert Group on Assessment of the ESFRI projects.**
- **The members of the Expert Group are high level managers expert in setting up and managing RIs**
- **This group will assess the financial and managerial maturity of the projects of the ESFRI roadmap.**
- **Strategy WGs monitor and report on the scientific development of projects**
- **The IG will work together with the this Expert Group and the Strategy Working Groups to assist the implementation of the projects.**

**Innovation
Union
EU 2020**

**Regional
Policy in
EU 2020**

Development of World-Class RIs & RPFs

- ❖ Develop world-class **research** and **ICT** infrastructures building on existing regional scientific excellence through Structural Funds support
- ❖ Develop **Regional Partner Facilities** (RPF)
- ❖ Increased investments in research infrastructures, including those of ESFRI roadmap, by achieving synergies between Horizon 2020 and the Structural Funds
- ❖ “By 2015, EC and the Member States should have completed or launched the construction of 60% of the ESFRI projects”

Horizon 2020

Excellent science

- European Research Council
- Future and Emerging Technologies
- Marie Curie actions
- **Research infrastructures (including e-infrastructures)**

Societal challenges

- Health, demographic change and wellbeing
- Food security, sustainable agriculture, marine -maritime research, bio-economy
- Secure, clean and efficient energy
- Smart, green, integrated transport
- Climate action, resource efficiency, raw materials
- Inclusive, innovative and secure societies

EIT

Industrial leadership

- Leadership in enabling and industrial technologies (ICT, space, nanotechnologies, advanced materials and advanced manufacturing and processing, biotechnology)
- Access to risk finance
- Innovation in SMEs

JRC (non-nuclear)

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**

Main actions

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

Specific actions

4.3. Reinforcing European RI policy and international cooperation

Policy actions

1.1 Developing new world-class RIs

- Objective: *To ensure 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, etc.)
 - ✓ development of **Regional Partner Facilities** in synergy with DG REGIO actions (structural funds and social funds)
 - ✓ the **operation phase** (e.g. access, data handling, outreach, training and international cooperation activities)
 - ✓ **design studies** for new RIs through a bottom-up approach

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

- Objective: ***Open up key national RIs to all European researchers and ensure optimal use and joint development***
- EU funding will support “**European Research Infrastructure 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*

1.3 Development, deployment and operation of ICT based e-Infrastructures

Objective: *To achieve by 2020 a single and **open European space** for online research*

- EU funding will support :
 - ✓ *Global research and education networks*
 - ✓ *Grid and cloud infrastructures*
 - ✓ *Ecosystem of supercomputing facilities progressing towards exa-scale*
 - ✓ *Software and service infrastructure for visualisation and simulation*
 - ✓ *Real-time collaborative tools for virtual research communities*
 - ✓ *Interoperable, open and rich scientific data infrastructure*

2014-2020: Thematic objectives

1. Research and innovation

2. Information and Communication Technologies

3. Competitiveness of Small and Medium-Sized Enterprises (SME)

4. Shift to a low-carbon economy

5. Climate change adaptation and risk management and prevention

6. Environmental protection and resource efficiency

7. Sustainable transport and disposal of congestion on major network infrastructure

8. Employment and support for labour mobility

9. Social inclusion and poverty reduction

10. Education, skills and lifelong learning

11. Increased institutional capacity and effectiveness of public administration

Thematic ex-ante conditionalities

... state-of-play regarding RIS3 conditionality...

Thematic objectives	<u>Ex ante</u> conditionality	Criteria for fulfilment
<p>1. Strengthening research, technological development and innovation (R&D target) (referred to in Article 9(1))</p>	<p>1.1. Research and innovation:</p> <p>The existence of a national or regional research and innovation <i>strategic policy framework</i> for smart specialisation in line with the National Reform Programme, to leverage private research and innovation expenditure.</p> <p>For research infrastructures only:</p> <p>1.2 The existence of a multi-annual plan for budgeting and prioritization of investments.</p>	<p>A national or regional research and innovation strategic policy framework is in place that:</p> <ul style="list-style-type: none"> – is based on a SWOT analysis to concentrate resources on a limited set of research and innovation priorities; – outlines measures to stimulate private RTD investment; – contains a monitoring mechanism. <p>An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities and, where appropriate, the European Strategy Forum on Research Infrastructures – ESFRI has been adopted</p>

Important novelties for R&I in proposed Regulations (1)

- **SMEs only! Large Firms only in connection with R&TD+I. Art.3 (ERDF Reg.):** *"The ERDF shall support productive investment, which contributes to creating and safeguarding sustainable jobs, through direct aid to investment in SMEs"*
- **No physical infrastructures in rich regions (except R&I): Art. 3 (ERDF Reg.):** *"In more developed regions, the ERDF shall not support investments in infrastructure providing basic services to citizens in the areas of environment, transport, and **Next Generation Access (NGA)/ICT**".*

Attention: under discussion in Council

Σας ευχαριστώ!