

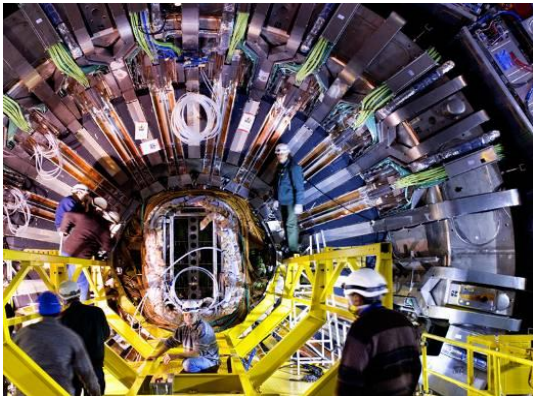


Research Infrastructures in Horizon 2020

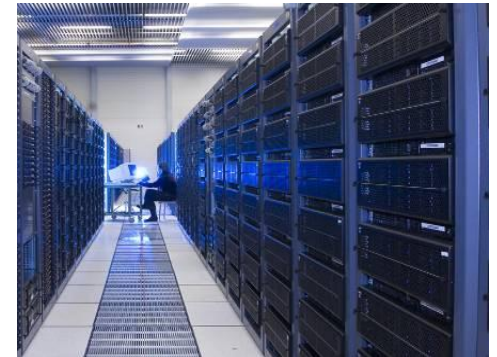
Bernhard Fabianek
European Commission – DG Research & Innovation
Research Infrastructures

"The views expressed in this presentation are those of the author and do not necessarily reflect the views of the European Commission"

Research Infrastructures



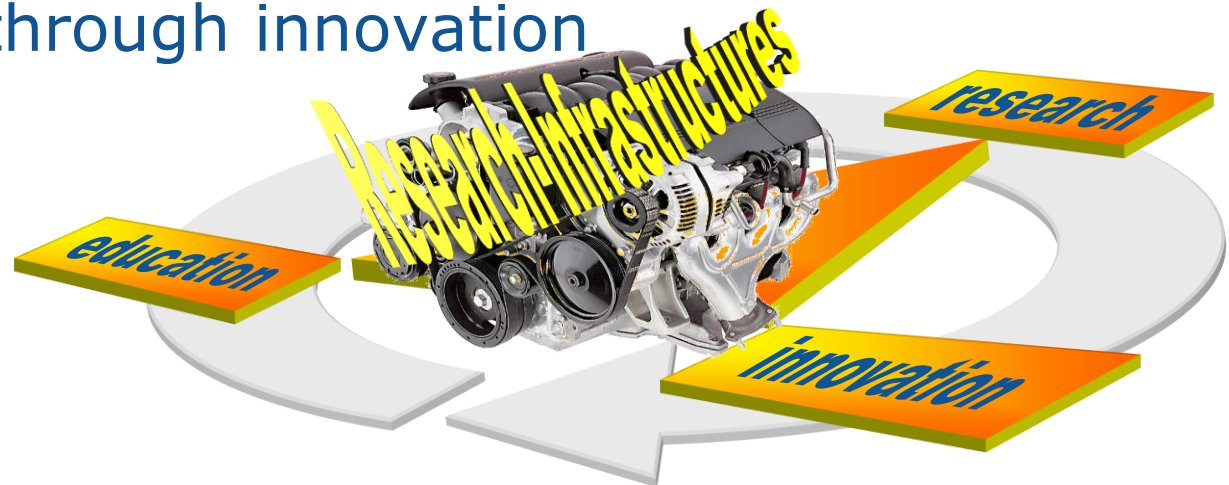
Facilities, resources, organisational systems and services that are used by the research communities to conduct research and innovation in their fields



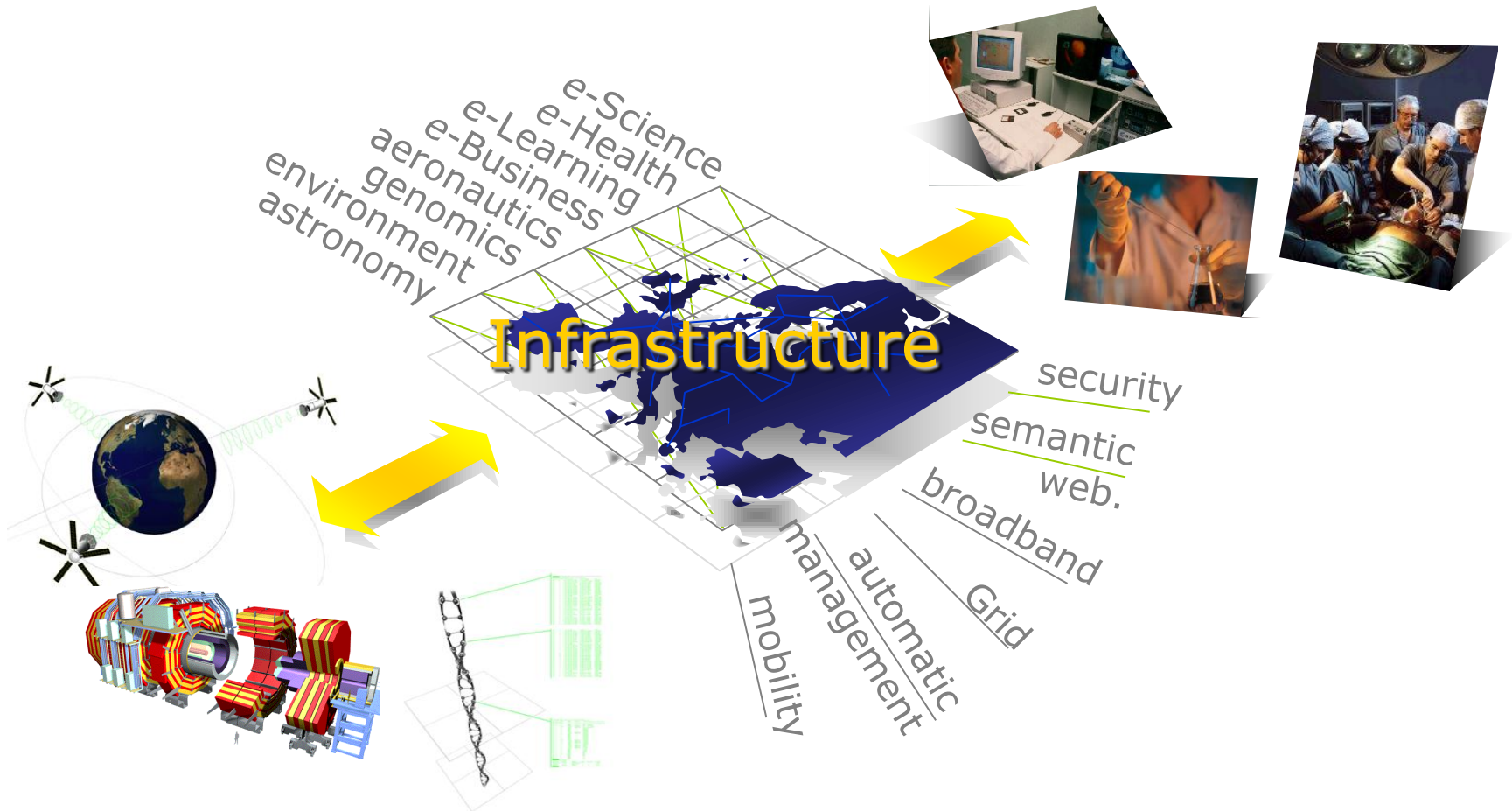
The Knowledge Triangle at Work

To be a genuinely competitive in the knowledge economy, one must be better:

- in producing knowledge through research
- in diffusing it through education
- in applying it through innovation



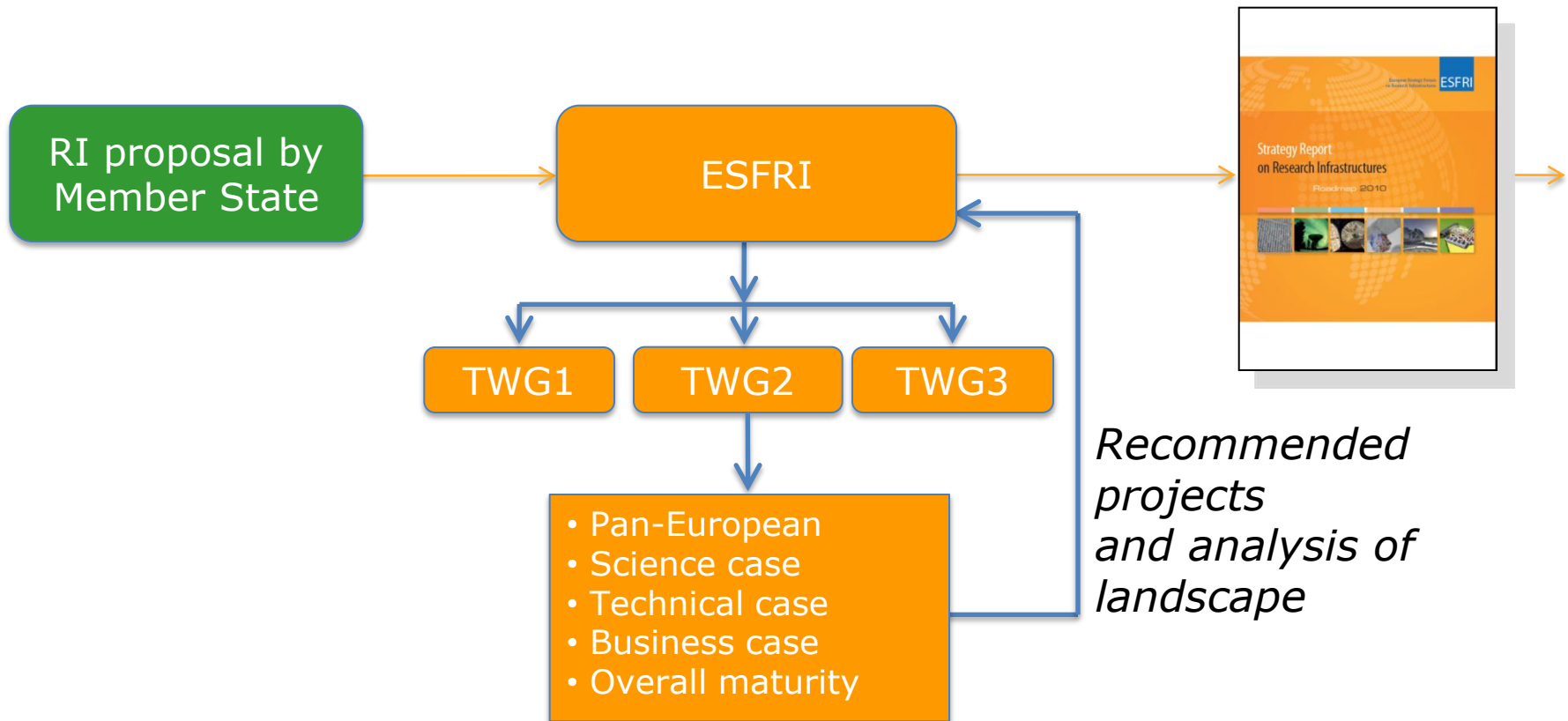
Global Virtual Research Community



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**

European Strategy Forum on Research Infrastructures - The Process







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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-Infra-structures (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	EMS	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				

 **Distributed research infrastructures**
 **Single sited research infrastructures**

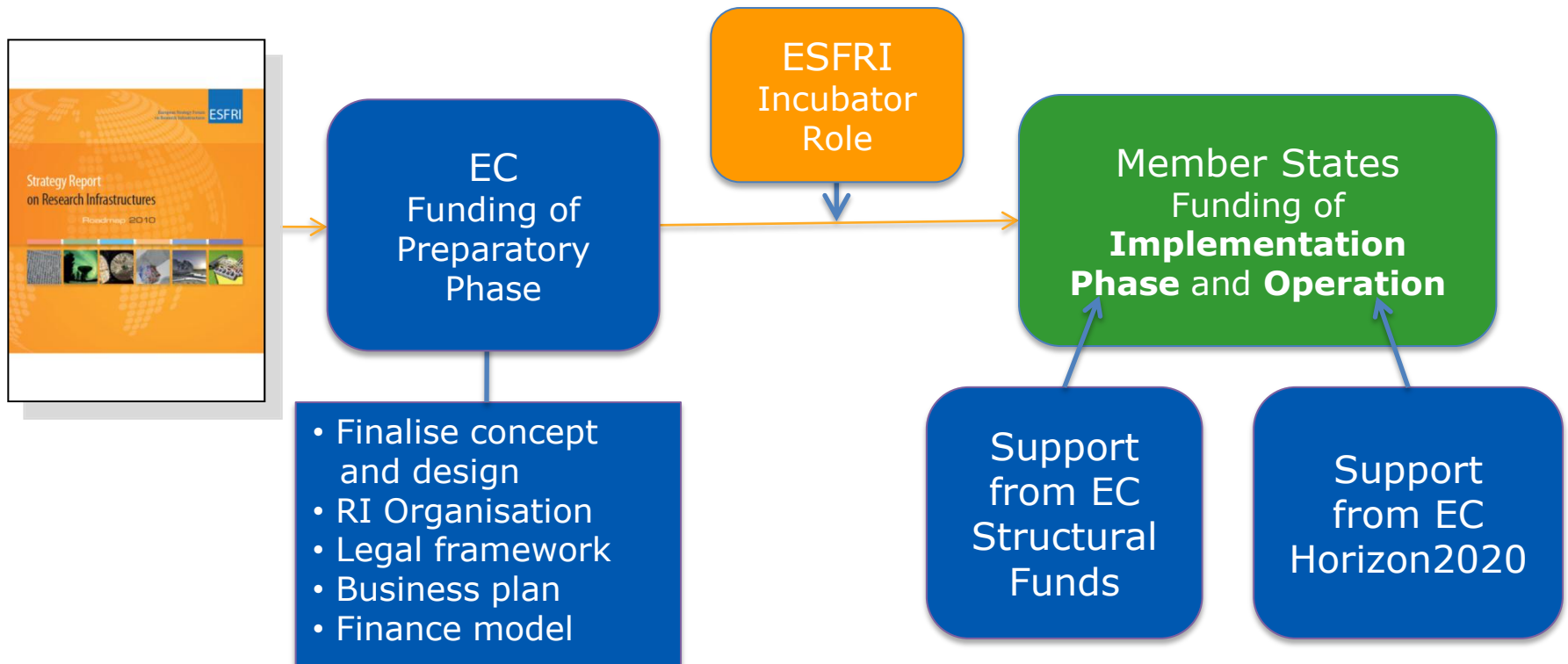


Implementation of ESFRI projects

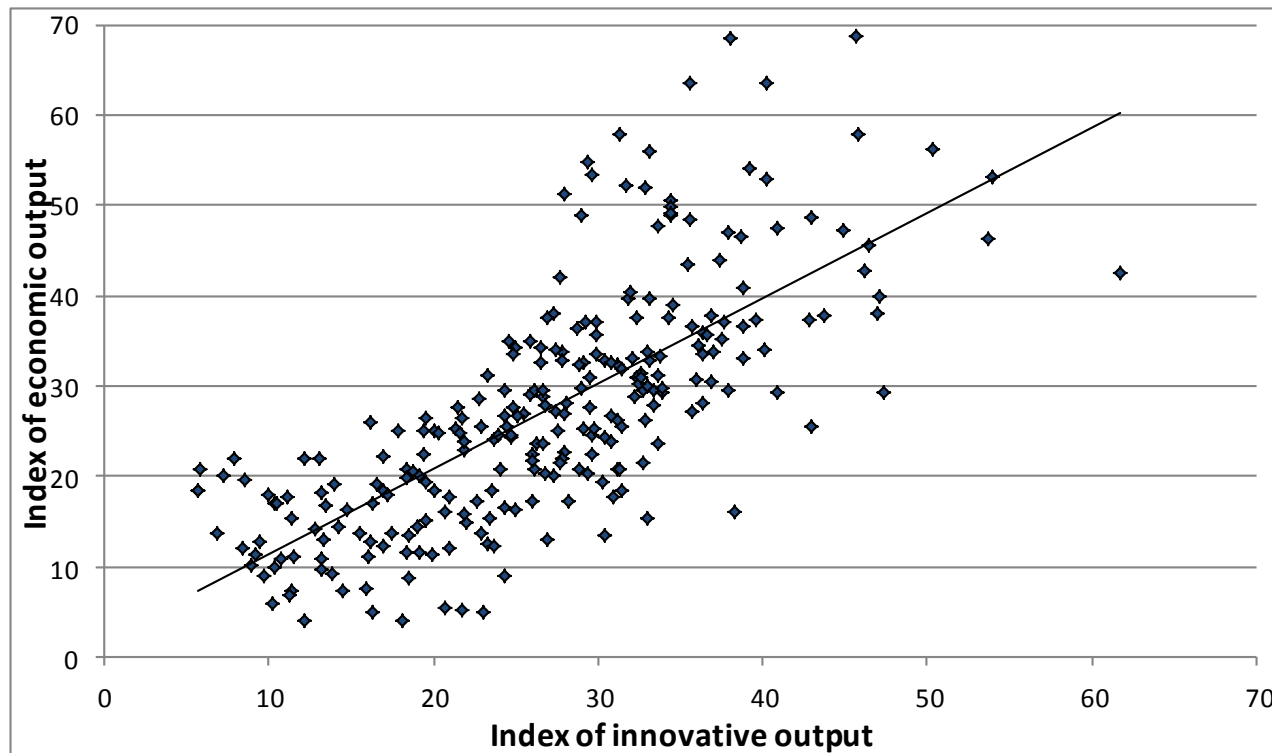
«A combination of resources from national budgets, Community programmes, EIB instruments and structural funds should lead to the development of excellent research infrastructures throughout Europe»

*EU Council of Research Ministers
March 2009*

The ESFRI Process cont.



Innovation vs. Economic Output



Source: Mikel Navarro et al, Basque Competitiveness Institute, 2010

Status of implementation

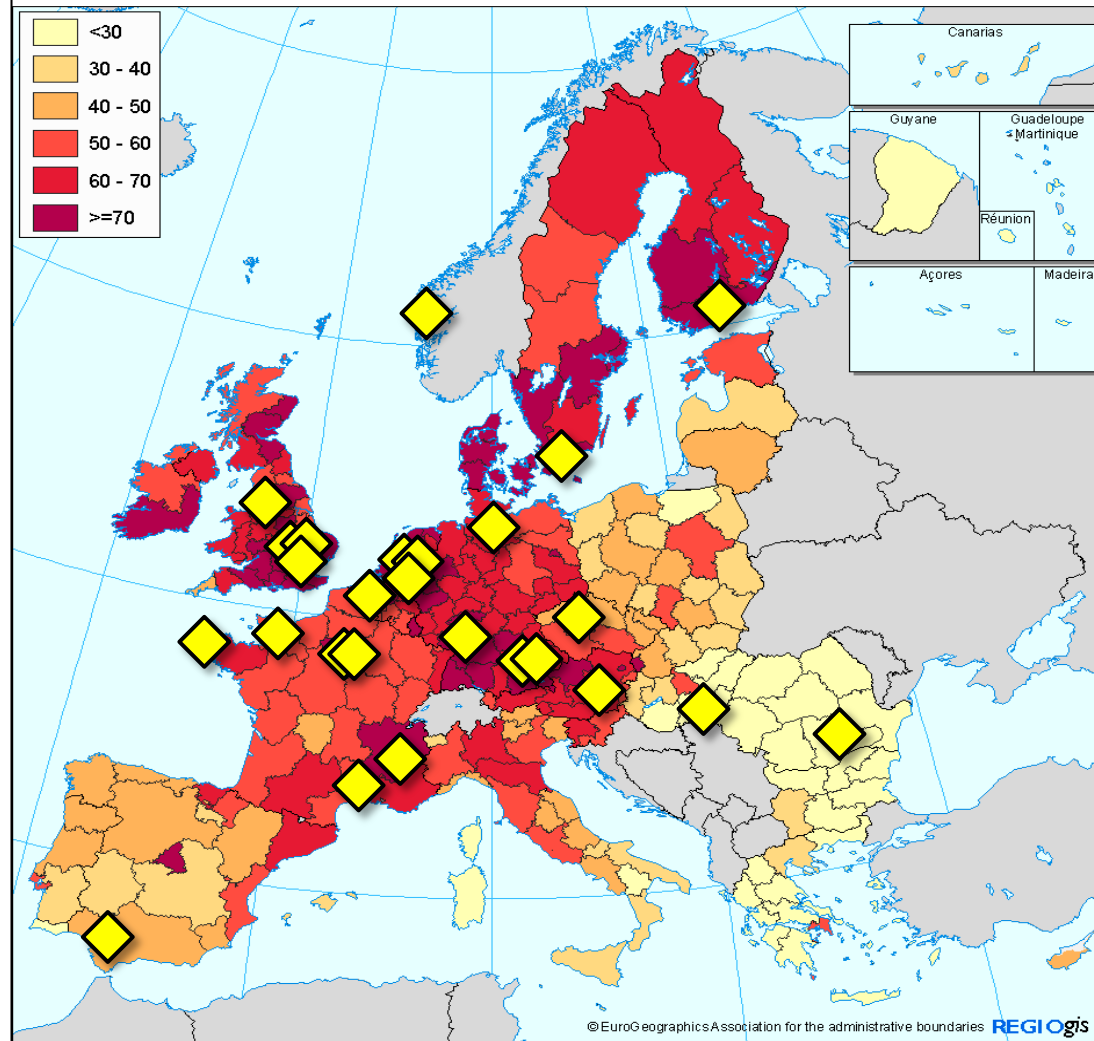
- **Social Science and Humanities (SSH):** SHARE (ERIC); CLARIN (ERIC); ESSurvey (ERIC application)
- **Environmental Sciences (ENV):** EURO-ARGO (ERIC application)
- **Biological and Medical Sciences (BMS):** EATRIS (ERIC application); ECRIN (ERIC application); INSTRUCT (ICA, Ltd); ELIXIR (ICA, EMBL special project)
- **Energy:** JHR (ICA)
- **Engineering, Physical Sciences, Materials and Analytical Facilities (EPS):** ESRF upgrade (EIRO, société civile); European XFEL (EIRO, GmbH); ILL 20/20 upgrade (EIRO, société civile); FAIR (GmbH); SPIRAL2 (CNRS/CEA)
- **e-Infrastructures:** PRACE (AISBL)



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Competitiveness Index, 2010

Index - Values range between 0 (low) and 100 (high)

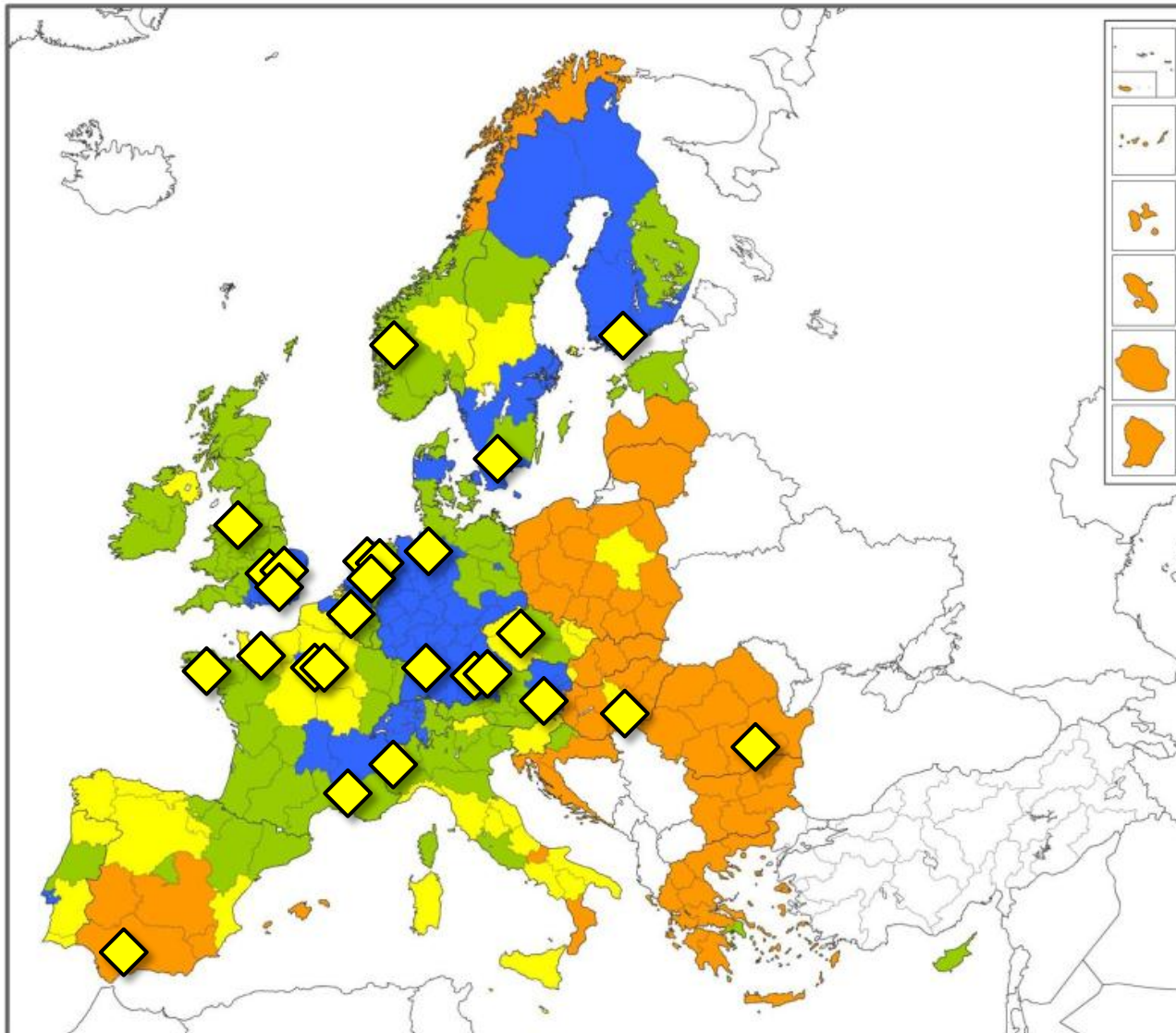


ESFRI Research
Infrastructures
under construction



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Regional Innovation Scoreboard 2012



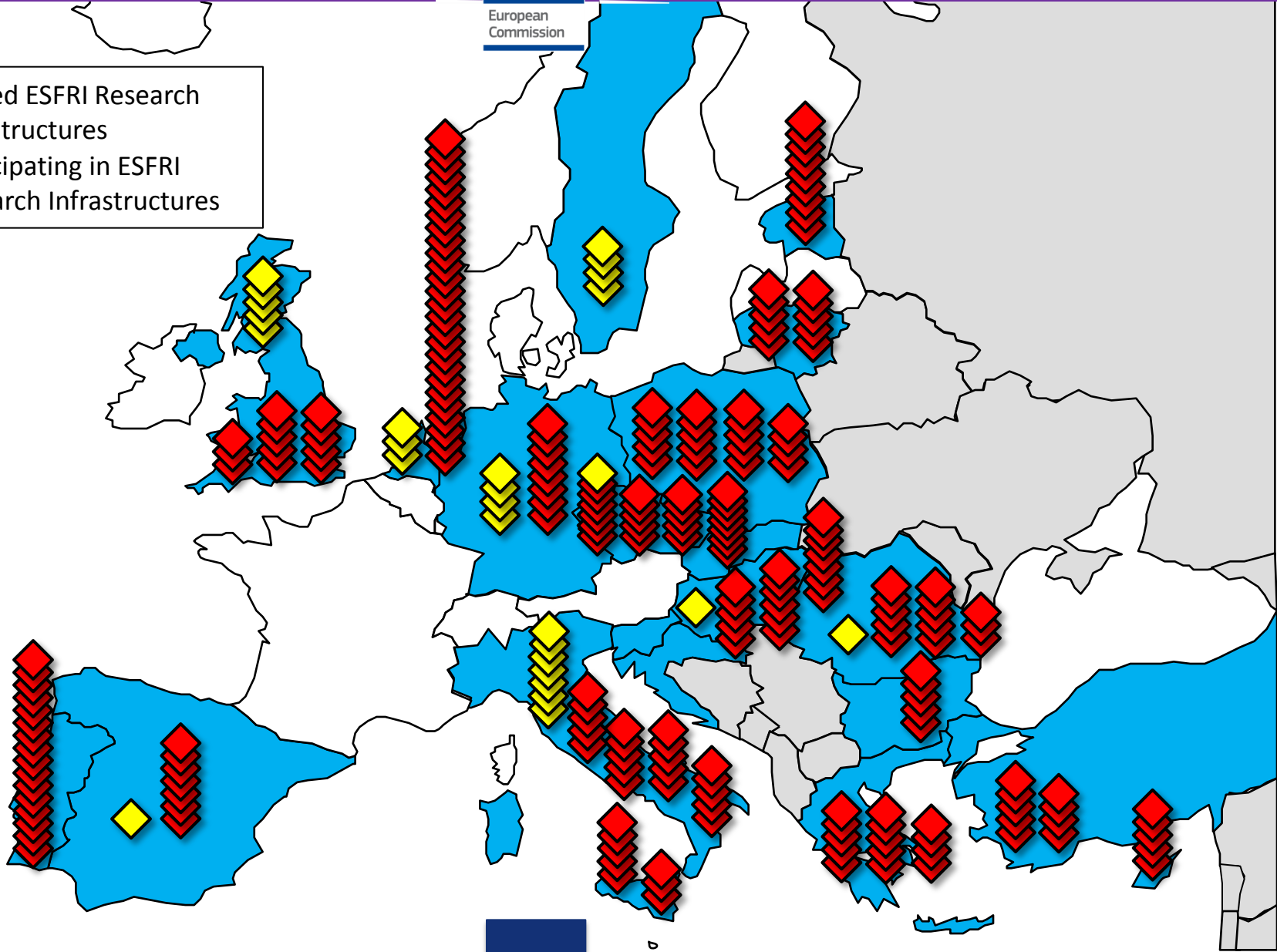
-  INNOVATION LEADER
-  INNOVATION FOLLOWER
-  MODERATE INNOVATOR
-  MODEST INNOVATOR

 ESFRI Research
Infrastructures
under construction

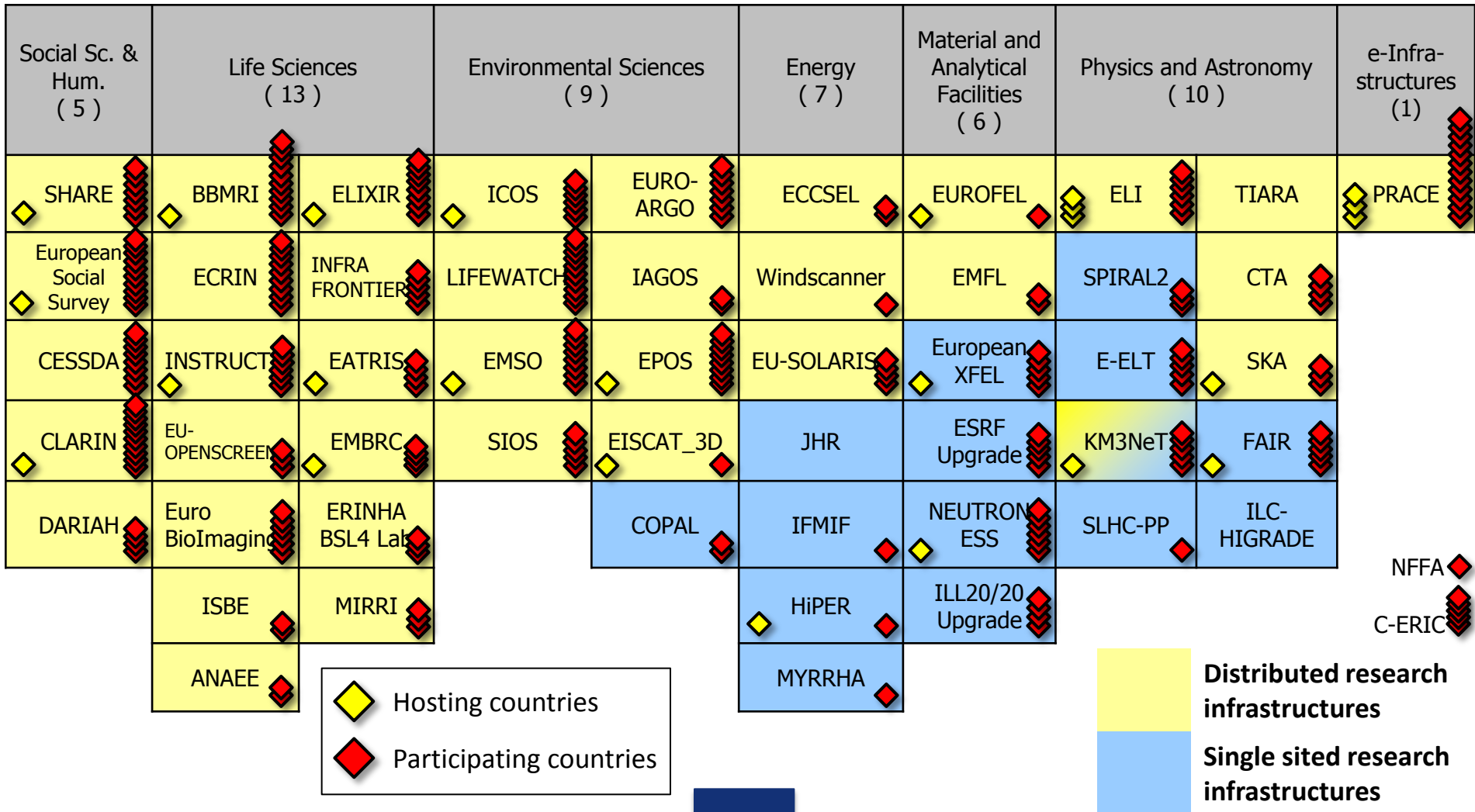


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-  Hosted ESFRI Research Infrastructures
-  Participating in ESFRI Research Infrastructures



National Support ESFRI Roadmap 2010



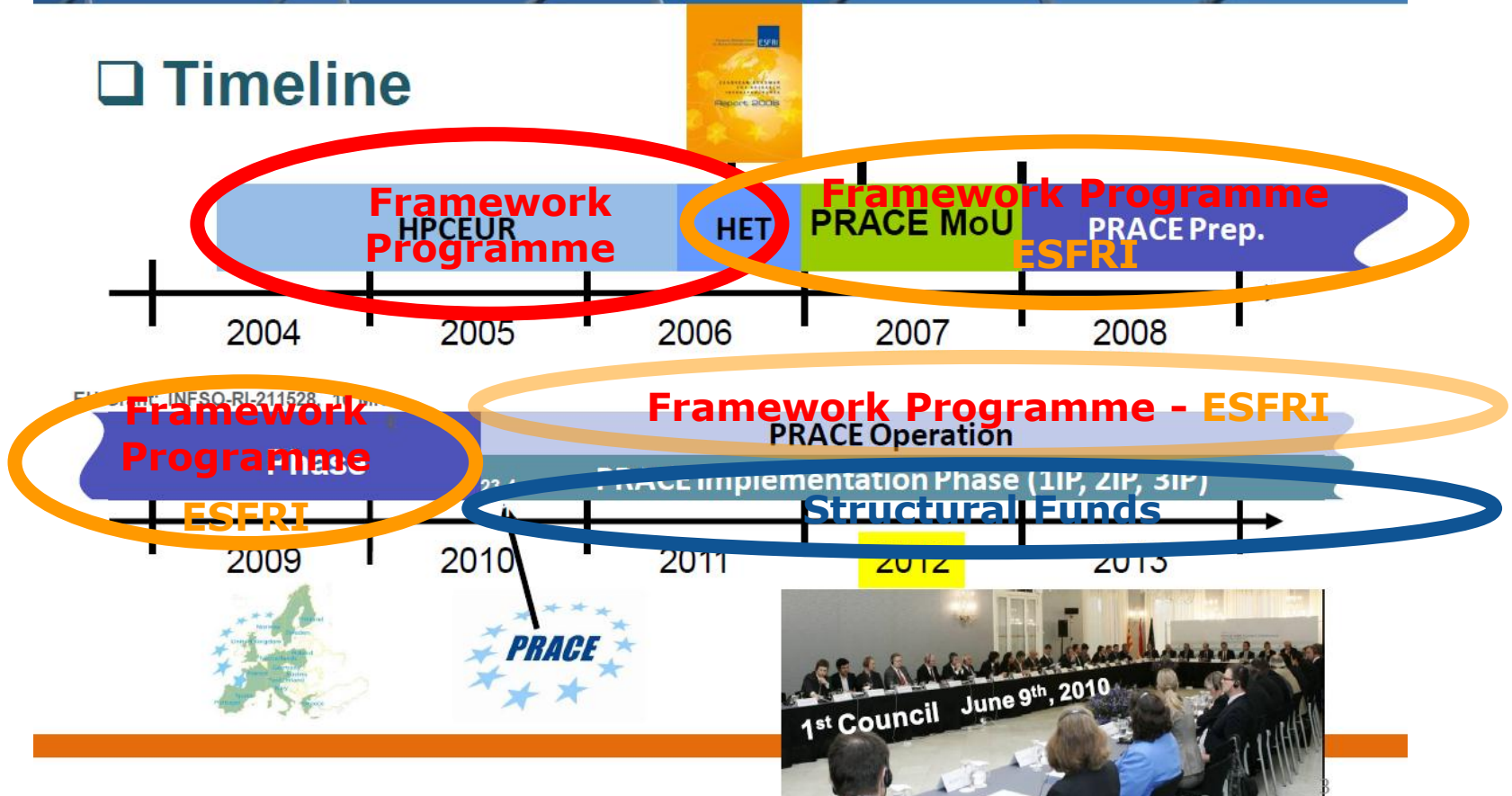
Commitments within the Innovation Union

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

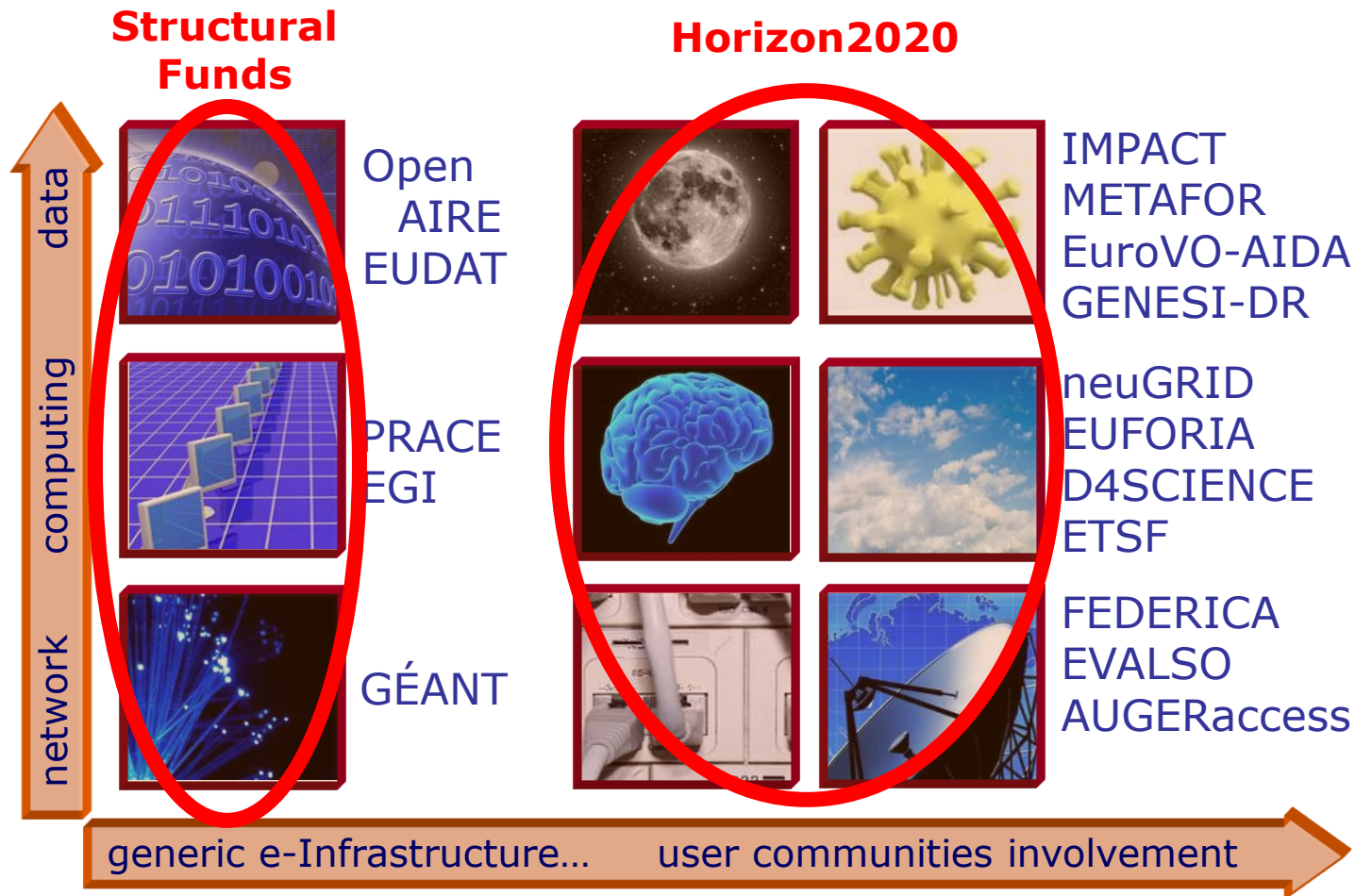


PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

Timeline



e-Infrastructures



ERIC: European Research Infrastructure Consortium

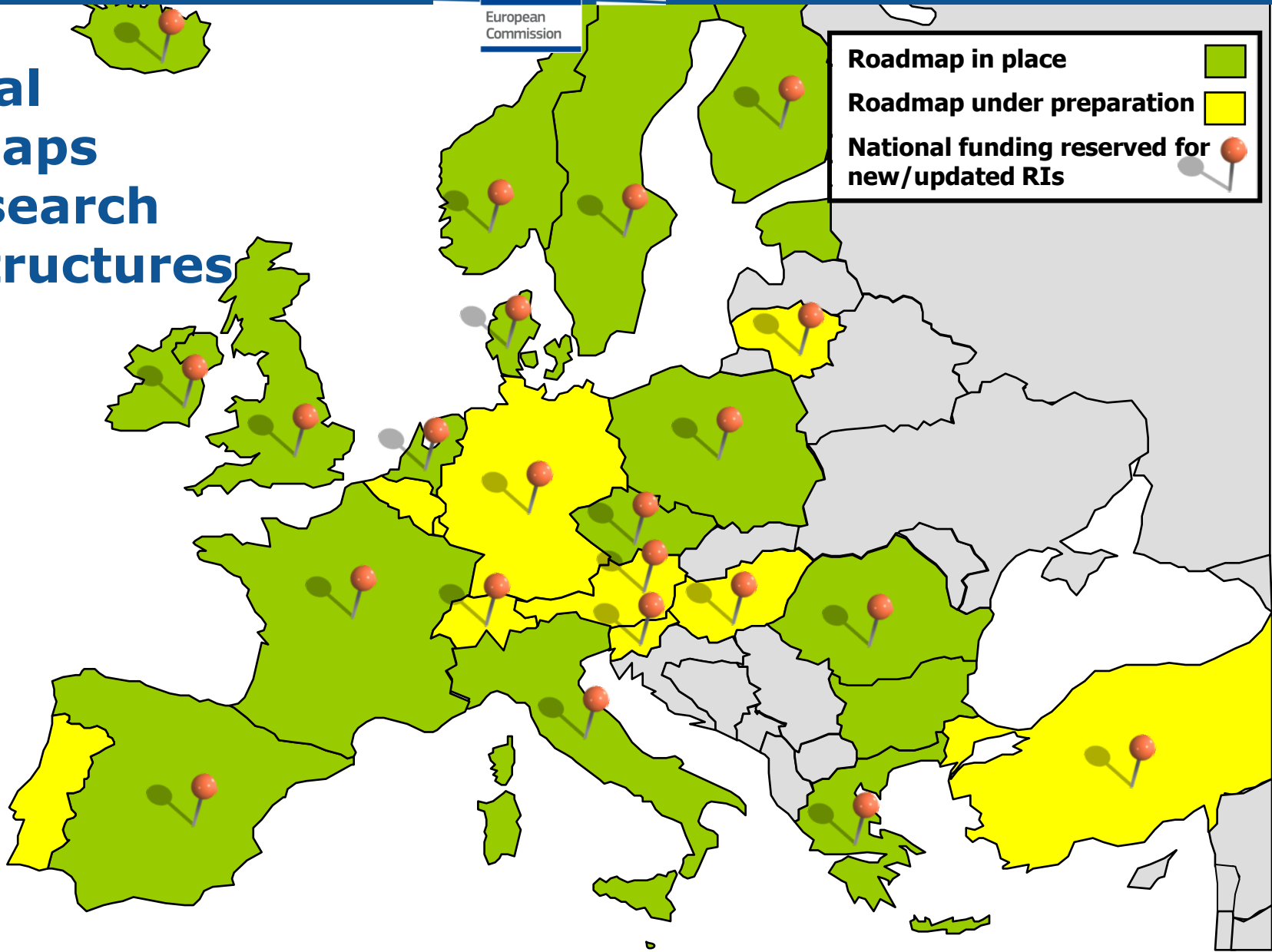


- A new legal framework, at EU level, to facilitate the joint establishment and operation of Research Infrastructures of European interest among several countries
- A legal personality recognised in all EU Member States
- **Current status:**
 - First ERIC status awarded to **SHARE** on 17 March 2011, hosted by NL
 - Second ERIC status awarded to **CLARIN** on 29 February 2012, hosted by NL



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National Roadmaps for Research Infrastructures



Cohesion policy 2014-2020 & EU 2020

Commission adopted its proposals 6 October 2011:

- **Cohesion policy** (ERDF, CF & ESF) will focus on Europe 2020 objectives for smart, sustainable and inclusive growth, along with rural development policy (EAFRD) and maritime and fisheries policy (EMFF),
- **List of thematic objectives** developed around the Europe 2020 headline targets and flagship initiatives
- **Thematic concentration** for maximising impact: minimum shares for research and innovation through ERDF
- **Ex-ante conditionality**, e.g. existence of a Research and Innovation Strategy for Smart Specialisation (RIS3).

Commission has adopted “Elements for a Common Strategic Framework 2014 to 2020” for cohesion. Linkages have been clarified with Horizon 2020.

Smart Specialisation

Research & Innovation Strategies for Smart Specialisation (RIS³) will lead to an economic transformation based on 4Cs:

- **(Tough) Choices:** select few priorities on the basis of international specialisation integration on international value chains
- **Competitive (Constructed) Advantage:** mobilize talent by matching Research & Innovation with business needs & capacities
- **Critical Mass:** provide arenas for cross-cutting links between sectors which drive specialised technological diversification; address generic technologies, based on cutting edge research, as well as their exploitation and adaptation to specific sectors
- **Collaborative Leadership:** efficient innovation systems as a collective endeavour based on public-private partnership (quadruple helix) and synergies between funding instruments from the EU, national and regional policies

Research Infrastructures in Horizon 2020

Developing the European RIs for 2020 and beyond

- Developing **new world-class RIs** – ESFRI+
- **Integrating and opening national RIs of pan-European interest** – Integrating Activities
- Development, deployment and operation of ICT based **e-Infrastructures**

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

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

Specific Implementation Aspects



Integrating and Opening existing National RIs of pan-European Interest

- To open up key national research infrastructures to all European researchers and to ensure their optimal use and joint development
 - Support to “European Research Infrastructures Networks” bringing together infrastructures in a given field
 - Continuation of the FP7 Integrating Activities and I3s
- Activities will cover: Transnational and virtual access; Networking to foster a culture of cooperation; Joint research to improve the services provided by the infrastructures

Exploiting the innovation potential of research infrastructures

- **R&D partnerships with industry** to develop Union capacities and industrial supply in high-tech areas such as scientific instrumentation or ICT;
- Stimulate the **use of research infrastructures by industry**, e.g. as experimental test facilities, innovation hubs, knowledge-based centres;
- Encourage the integration of research infrastructures into local, regional and global **innovation systems**;
- **Pre-commercial procurement** by research infrastructure actors to drive forward innovation and act as early adopters of technologies.

Priorities and Vision for Horizon 2020

- Adopt adequate organizational and governance models
- Pool and reinforce regional capacities
- Consolidate RIs as a multi-disciplinary platform for regional/global collaborations
- Support international collaborations that are strategic for European scientific partnerships

Thank you for your Attention!



HORIZON 2020

Find out more:

www.ec.europa.eu/research/horizon2020