



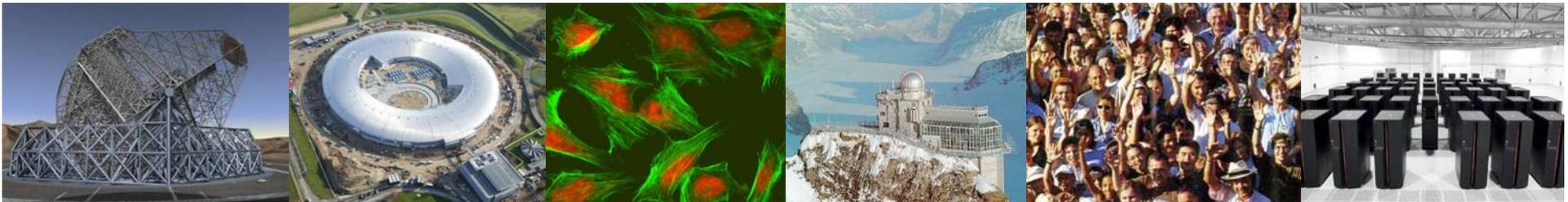
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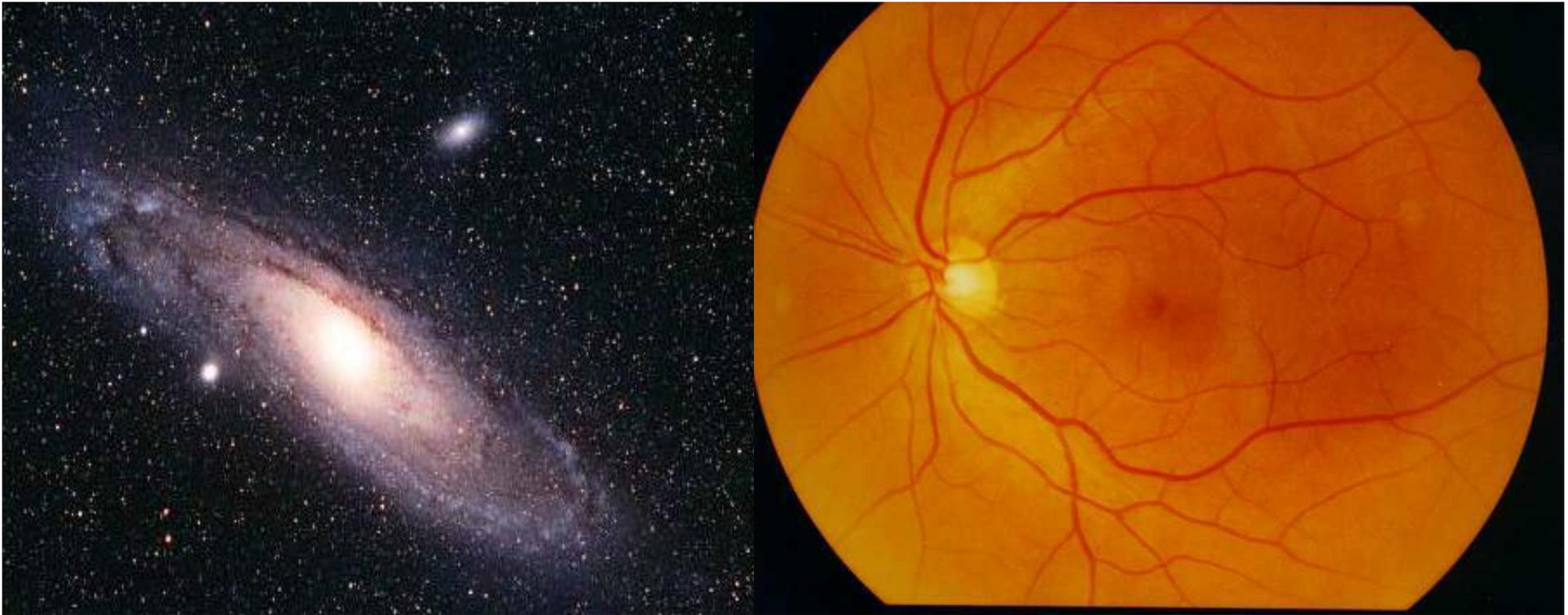
# Research Infrastructures (RI) *Challenges for EU actions*

Hervé Péro

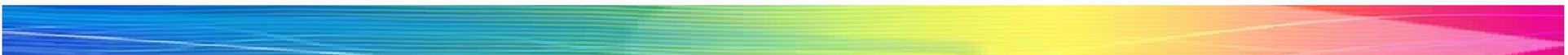
European Commission, Unit B3, DG Research & Innovation



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Research Infrastructures are facilities where **basic research** as well as **applied research** are interacting to generate knowledge and innovation for our daily life

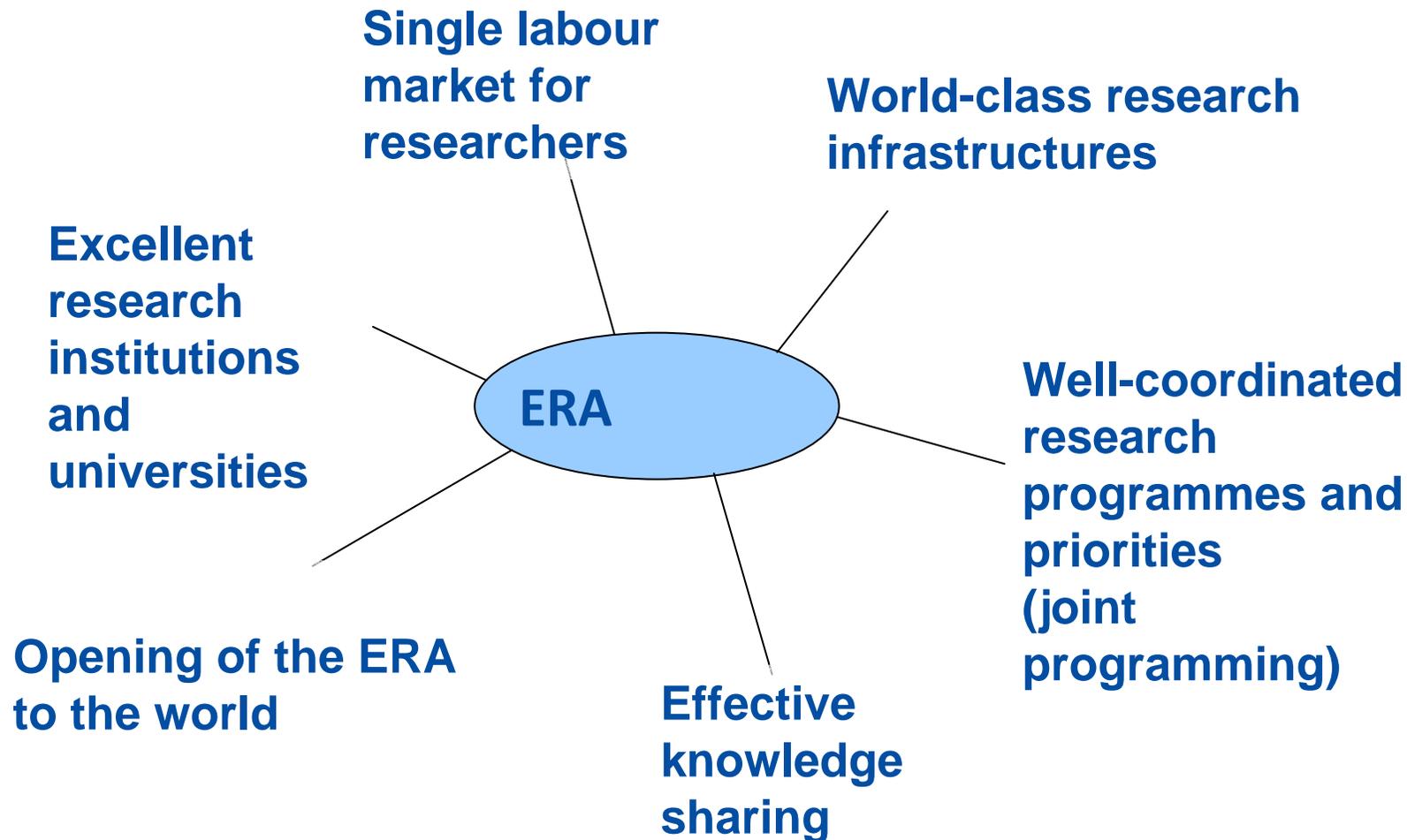




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## ***A key component of the EU strategy for ERA, (Green Paper 2007)***



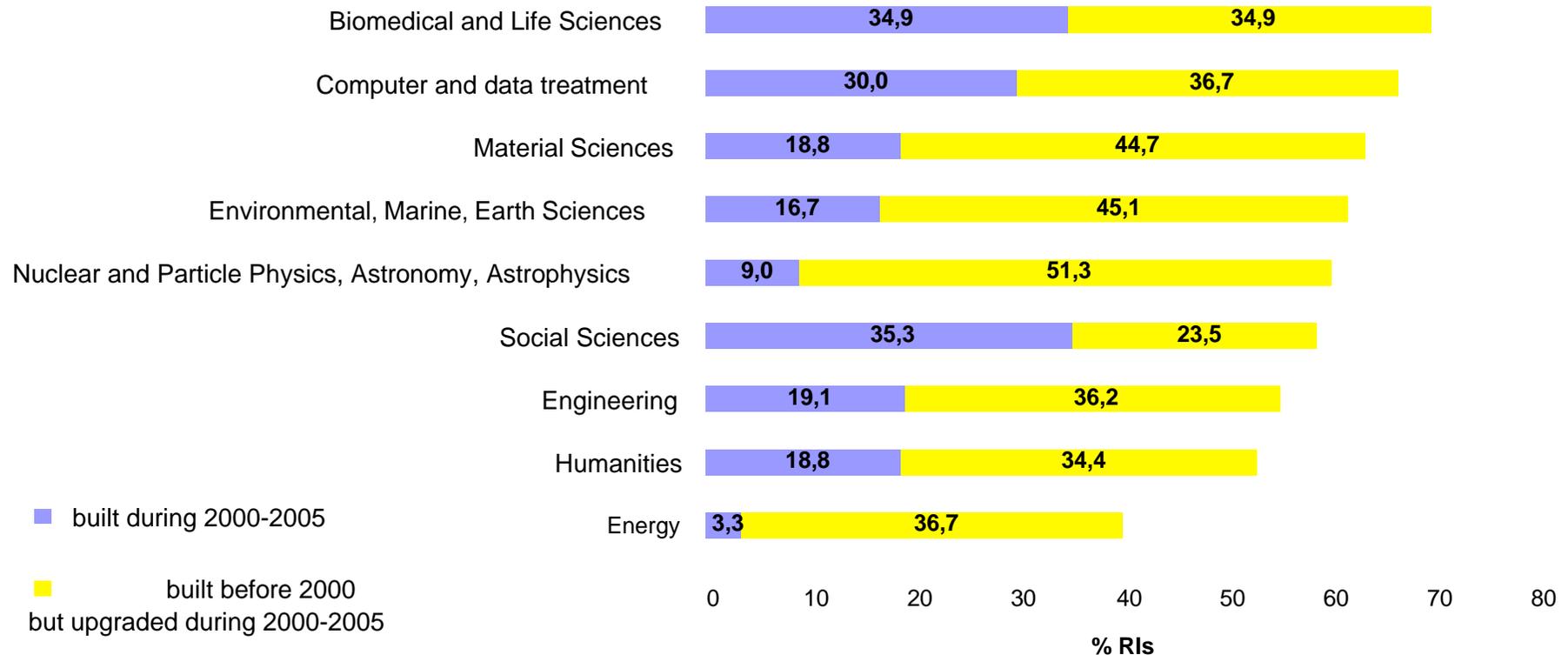


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# Research Infrastructures' Pattern is rapidly evolving in Europe(results from EC-ESF survey)

## Share of RIs Built or Upgraded between 2000 and 2005



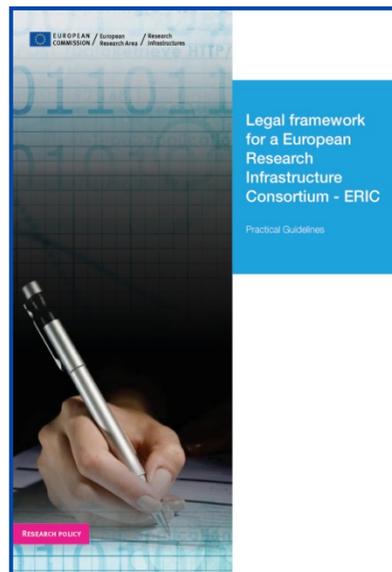


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## The European landscape is changing...

- ✓ The Commission has awarded **the first ERIC status to SHARE** on 17 March 2011
- ✓ About ten ERIC applications are currently under preparation
- ✓ These concern mainly distributed facilities and data services in the domains of life sciences (biological, medical), environment and social sciences and humanities



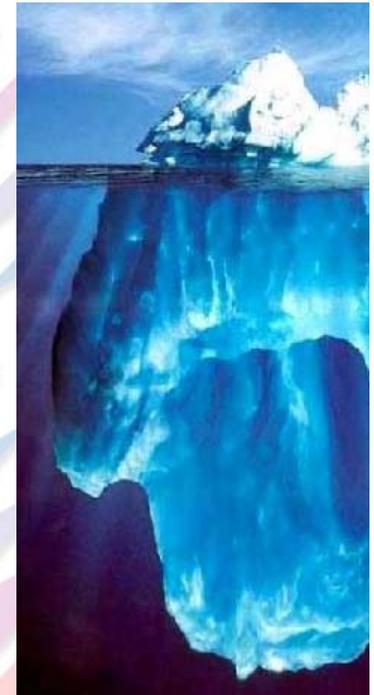


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## For new or existing RIs, the EU needs to pave the way towards an efficient research 'eco-system'

- a) Large facilities
- b) Distributed European Facilities
- c) Regional Partner Facilities
- d) Network of national facilities
- e) Linked with EU and national programmes,  
universities & schools
- f) Network of industrial suppliers / users



**Without the joint involvement of the scientific communities and the actors on e-infrastructures, the EU will not succeed in developing an efficient management of this 'eco-system'**

# ESFRI roadmap 2010

48 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)
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				

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



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# A European approach ESFRI and its roadmap

## *Observed impacts*

The ESFRI Roadmap ...

- Attracted Member State's attention to the importance of RIs and to the projects of the ESFRI roadmap
- Stimulated the development of national roadmaps (70% of MS) and the (starting) setting-up of priorities in relation to the ESFRI roadmap
- Mobilises many countries to host an ESFRI project or participate in others



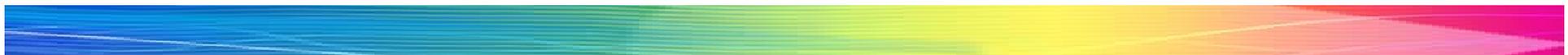


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## *Potential further impacts*

- Harmonization/standardization in operation of RIs
- Coordination and optimisation of national and European investments
- European projects stimulate complementary national investment (e.g. for development of pan-European databases, collections, analytical facilities)
- European projects are key partners for international initiatives and for global projects (e.g. SKA, E-ELT, Lifewatch or EuroArgo)





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## Role of the FP's Research Infrastructures actions

- Optimising the use and balanced development of the best **existing research infrastructures** in Europe
- **Structuring ERA** and helping to create in all fields of S & T **new & upgraded research infrastructures** of pan-European interest
- **Stimulating innovation**, including the **scientific instrument EU market**  
(worth more than 5B€ per year in Europe)
- Supporting **policy development**
  - e.g. ESFRI, e-IRG, impact studies
  - international cooperation





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The EU has been doing a lot since the last ten years... Is this sufficient?

**Facing Challenges... A formula:**

$$U \times V \times C \times F > R$$

Understanding, Vision,  
Capacity to Change, Feasibility,

**Resistance to change**

# EU - BUILDING AN INNOVATION UNION



*An important EU initiative  
Launched on October 6, 2010*

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## *RI in the Innovation Union Flagship*

- ✓ Opening of Member State operated research infrastructures to the full European user community
- ✓ By 2015, the Member States with the Commission, should have completed or launched the construction of the priority research infrastructures, ESFRI projects.
- ✓ The European Union should step up its cooperation on the roll-out of the global research infrastructures

*The Digital Agenda Flagship also highlights the importance of e-infrastructures*

# TOWARDS A **COMMON STRATEGIC FRAMEWORK** FOR EU RESEARCH AND INNOVATION – GREEN PAPER

The next CSF  
to contribute to the  
IU and digital agenda  
initiatives

*Launched on February 9, 2011*  
*Consultation closing on May 20*

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## The Green Paper highlights

Issues related to EU funding, e.g.:

- Need for clearer objectives, reduced complexity, increased added value, increased impacts for competitiveness and society (e.g. opportunity to merge FP, CIP, EIT)

Therefore questions on

- Funding mechanisms
- Orientation of EU research
- How to support excellence
- On **10 June 2011** wrapping-up / discussion on public consultation



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## Common Strategic Framework Key Drivers

- Underpin Europe 2020 & Innovation Union
- Address grand challenges, links to thematic policies
- Strengthen the science base & contribute to the European Research Area
- Couple research and innovation & contribute to increased competitiveness
- A globalised context
- To be driven by objectives, not instruments



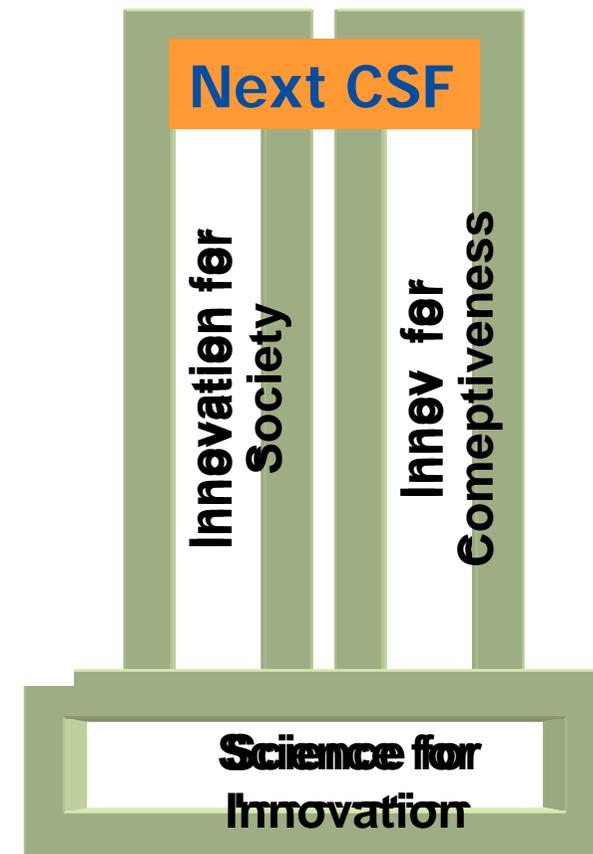
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# Common Strategic Framework A systems' approach

- Three main components
- RIs would be placed under “science for innovation”
- Milestones:
  - 10 June: Event concluding consultation
  - July: First draft legislative proposal
  - Nov/ Dec: Final legislative proposals

**Do not hesitate to contribute!**  
<http://ec.europa.eu/research/csfr>





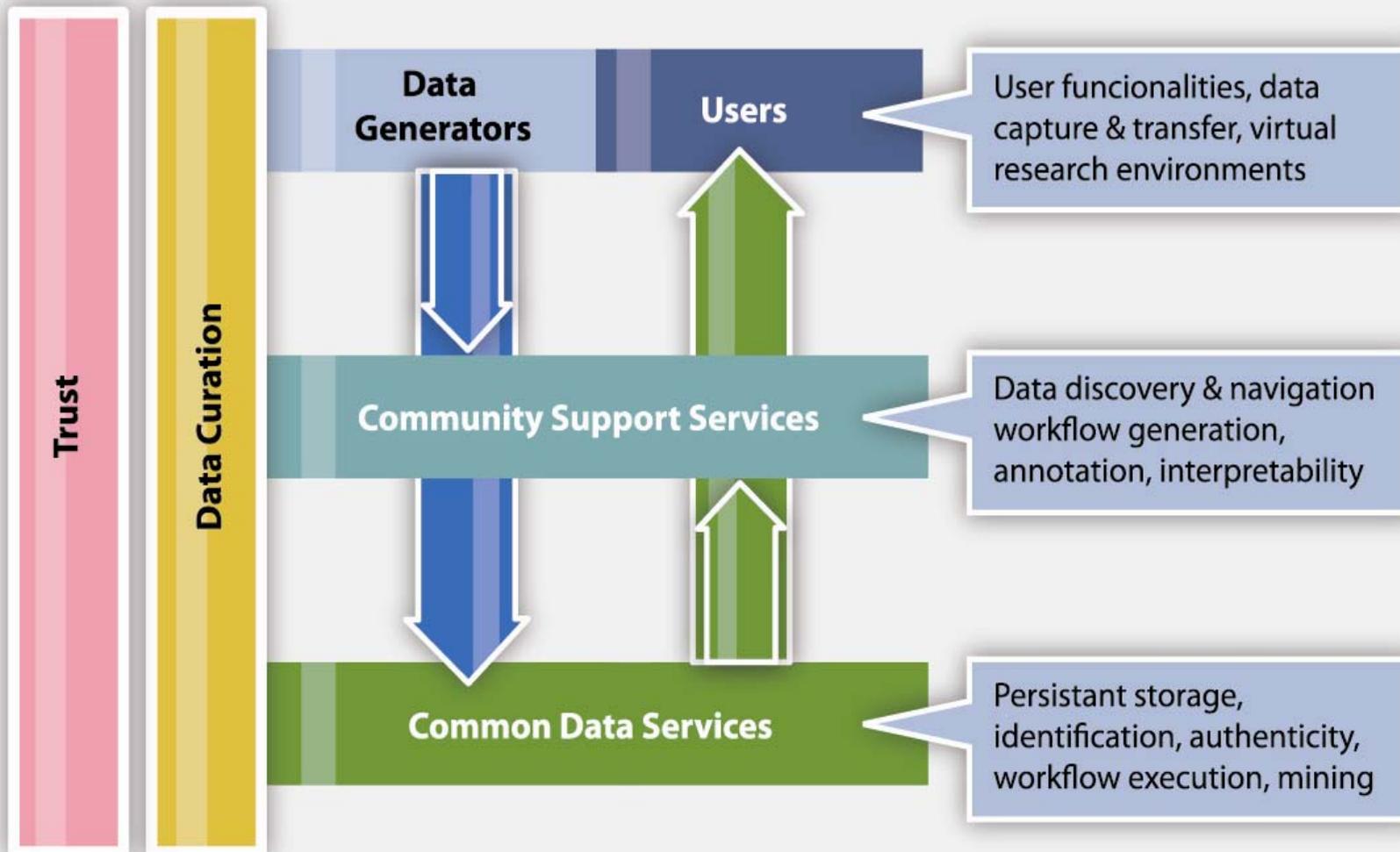
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# RIs, at the core of an efficient EU Research & Innovation strategy

- ❖ Designed and operated to attract and host **best researchers** in the world (open access - size of research facilities is not the issue, excellence is !)
- ❖ Help responding to **Grand Challenges** but need **world-level quality** in all aspects of their activities: scientific, educational, technical and managerial.
- ❖ Important role in the **advancement of knowledge** and technology, liberating creative potential of staff, users and providers, thus being crucial **socio-economic drivers**

# The Collaborative Data Infrastructure - a framework for the future





## We need addressing the key factors affecting the vision and the capacity to change

- Capacity (or not) to *work together / pool resources* (thus coordination / integration of strategies and projects) to face more complex problems / costly solutions
- Capacity (or not) to develop a *favorable / catalytic environment* for EU research & innovation (e.g. ERIC)
- Capacity (or not) to strengthen relations with *education*, the people, and with *industry*
- Capacity (or not) to face *research internationalization*

Three more EC communications  
to come within the next  
18 months



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## *Problems at Stake*

- Inherent *complexity* of developing major facilities in partnerships between several countries
- Urgent need to facilitate combined use of all available and new *public financial resources* for EU projects
- Lack of common approaches for *evaluation and impact assessment* of (existing and new) RIs
- Nationally operated RIs are *not sufficiently linked with, open or visible* to the full user community
- Many major RIs require massive investments and/or are of a more distributed nature, which can only be realized through *global cooperation*

*What could the EU propose (initiative 2012)  
to help you facing these challenges?*



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## Principles of a possible ERA framework (1)

- Investment in research infrastructures should be based on a *strategic and collaborative approach*
- Infrastructure investment should support high *quality* research from basic to applied research
- Funding programmes and processes should recognise the need for *coordination* of regional, national and European procedures



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## Proposed principles (2)

- Investment in a new RI (single sited or distributed) should be made in a *transparent manner* that provides efficient use of funds and ensures sustainability
- *Access regimes* should permit RIs to be broadly available to support users' research conducted across ERA as well as the one conducted in the international and *global context*
- *Governance* and a consistent RI policy should be ensured at EU level



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## *RI in ERA - Ideas for a Common Legal Framework...*

Systematic road-mapping

Need to harmonize funding procedures

Simplify the legal framework

Harmonized evaluation procedures

Harmonized access policy

Improved governance through clearer structures

Towards international agreements

Many thanks for your attention !