



Research Infrastructures in Horizon 2020 and cultural heritage

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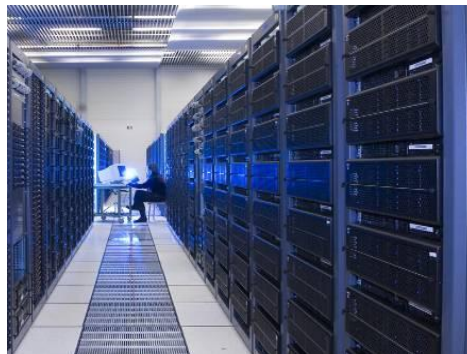
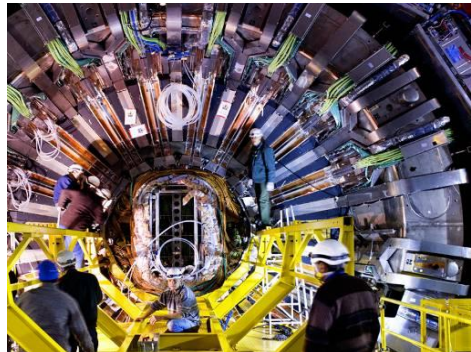
MIUR Delegate. Research Infrastructures

Research Infrastructures

*Research infrastructures are **facilities, resources and services** used by the research communities to conduct research and foster innovation.*

Major scientific equipments

Knowledge-based resources



e-infrastructures

Horizon 2020– Framework Programme for Research and Innovation (2014-2020)

Excellent science

- European Research Council
- Future and Emerging Technologies
- Marie Curie actions
- **European Research infrastructures (including e-infrastructures) – 2.488 M€**

Societal challenges

- Health, demographic change, 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 reflective societies
- Secure societies
- *Spreading excellence & Widening Participation*
- *Science with and for Society*

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

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 ...*


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 *)

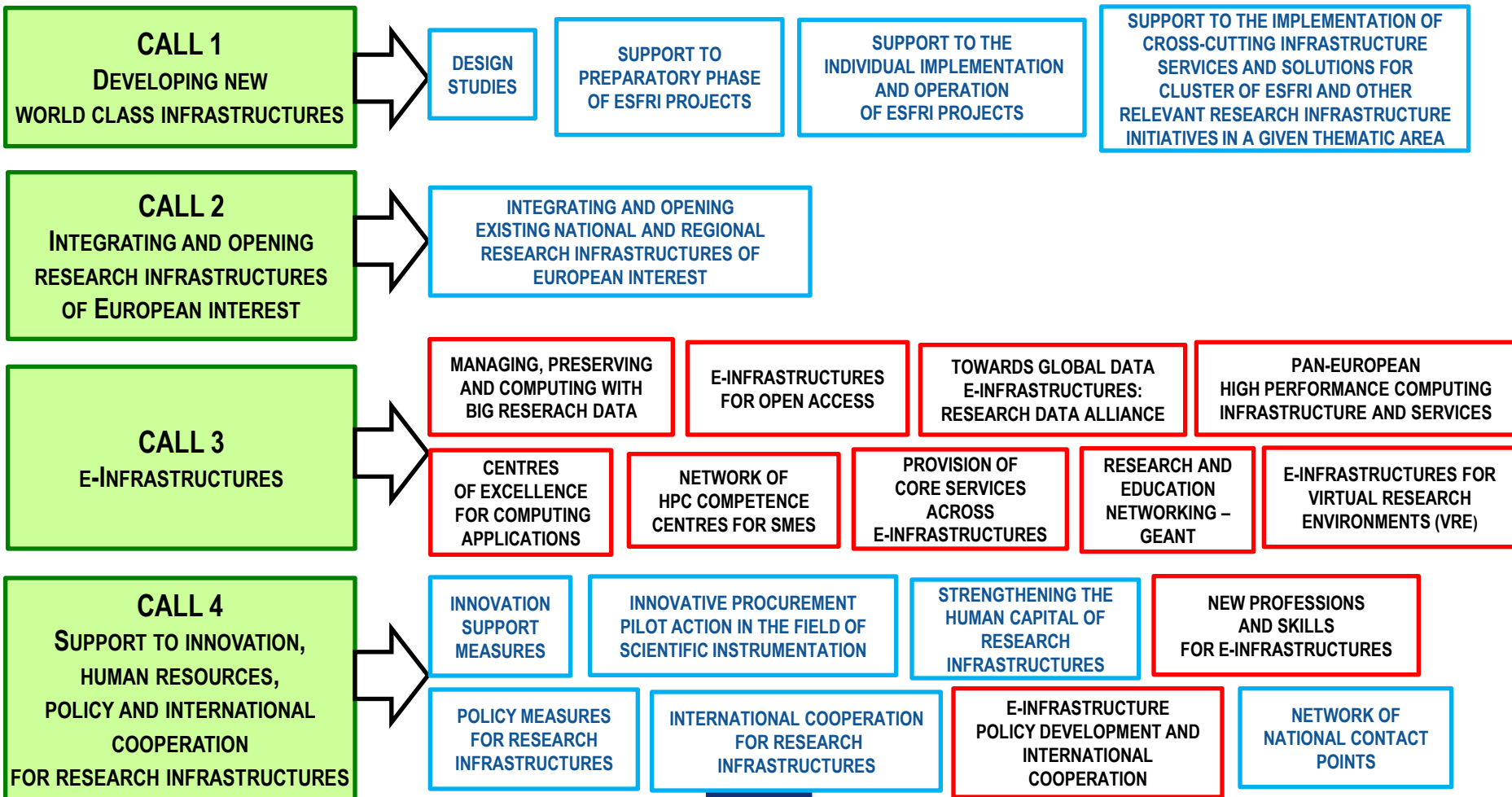
Social Sc. & Hum. (5)	Life Sciences (13)		Environmental Sciences (9)		Energy (7)	Material and Analytical Facilities (6)	Physics and Astronomy (10)		e-Infra-structures (1)
SHARE	BBMRI	ELIXIR	ICOS	EURO-ARGO	ECCSEL	EUROFEL	ELI	TIARA*	PRACE
ESS Survey	ECRIN	INFRA FRONTIER	LIFEWATCH	IAGOS	Windscanner	EMFL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

 Distributed research infrastructures

 Single sited research infrastructures

RI's in the implementation phase

RESEARCH INFRASTRUCTURE Work Programme 2014-2015



Call 1 Summary

Research Infrastructures (RTD)	2014	2015	TOTAL	Single grant
CALL 1 - H2020-INFRADEV-2014/2015	70	129	199	
Design studies	15		15	From 1 to 3 M€
Preparatory Phase		14	14	Up to 2 or 5 M€
Implementation & Operation - Individual		90	90	Up to 15 M€
Implementation & Operation - Cluster	55	25	80	From 6 to 15 M€

Deadlines:

2 September 2014

14 January 2015

Call 2 - Integrating & opening RI of Eur. interest

Distribution of targeted areas by domain and Summary

Domain	Starting communities	Advanced communities	Number of areas
Bio Medical Sciences	5	4	9
Energy	2	1	3
Environment	4	5	9
ICT	1	1	2
Material and Analytical Facilities	1	6	7
Physics	4	3	7
Social Sciences and Humanities	2	2	4
Total	19	22	41

Research Infrastructures (RTD)	2014	2015	TOTAL	Single grant
CALL 2 - H2020-INFRAIA-2014/2015	90	50	140	Up to 5 or up to 10 M€

Deadline: 2 September 2014

Call 3 Summary

Research Infrastructures (CNECT)	2014	2015	TOTAL	Single grant
CALL 3- H2020-INFRA supp-2014/2015	95	82	177	
Managing preserving & computing big research data	55		55	
e-Infrastructure for open access	13		13	One proposal
Towards global data e-infrastructures – RDA	4		4	
Pan-European HPC infrastructure and services	15		15	
Centres of Excellence for computing applications		40	40	From 4 to 5 M€
Network of HPC Competence Centres for SME	2		2	
Provision of core services across e-Infrastructures.	6		6	
Research and Education Networking – GÉANT	0		0	(25 M€ Specif.GA in 2015)
Virtual research environments (VRE)		42	42	From 2 to 8 M€

Deadlines: 15 April 2014

2 September 2014

14 January 2015

Call	Topic	Title	Regist. (incl. drafts)	Submit.	Eligible	Requested EC contrib	Available EC budget
H2020-INFRADEV-1-2014-1 Developing new world-class research infrastructures	INFRADEV-4-2014-2015	Clusters	28	12	9	€ 105.575.628	€ 80.000.000
	INFRADEV-1-2014	Design Studies	85	39	37	€ 91.656.002	€ 15.000.000
H2020-INFRAIA-2014/2015 Integrating Activities	INFRAIA-1-2014-2015		123	60	58	€ 425.234.720	€ 140.000.000
H2020-INFRA-SUPP-2014/2015 Support to innovation, human resources, policy and international cooperation	INFRASUPP-1	Innovation support measures	7	2	1	€ 1.995.667	€ 2.000.000
	INFRASUPP-3	Human Capital	10	3	2	€ 3.975.664	€ 2.000.000
	INFRASUPP-5	Policy measures	6	4	3	€ 4.489.117	€ 4.000.000
	INFRASUPP-6	International Cooperation	41	22	21	€ 35.284.631	€ 7.000.000
Total			300	142	131	€ 668.211.429	€ 250.000.000

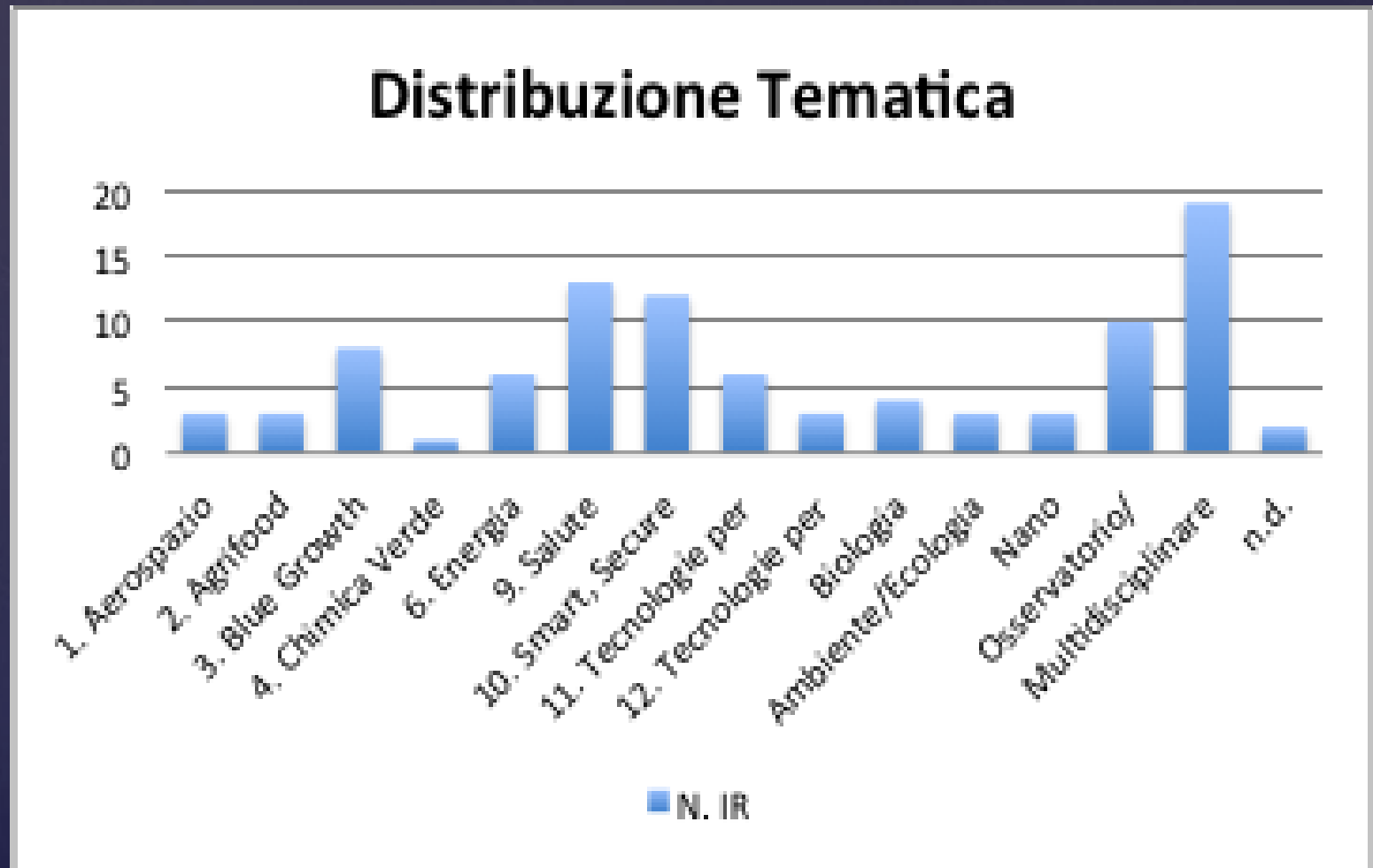
Informal meeting of EU Research Ministers,
Italian Presidency, Milano 22 July 2014
Conclusion on RIs

SUSTAINING
PLANNING
EVALUATING

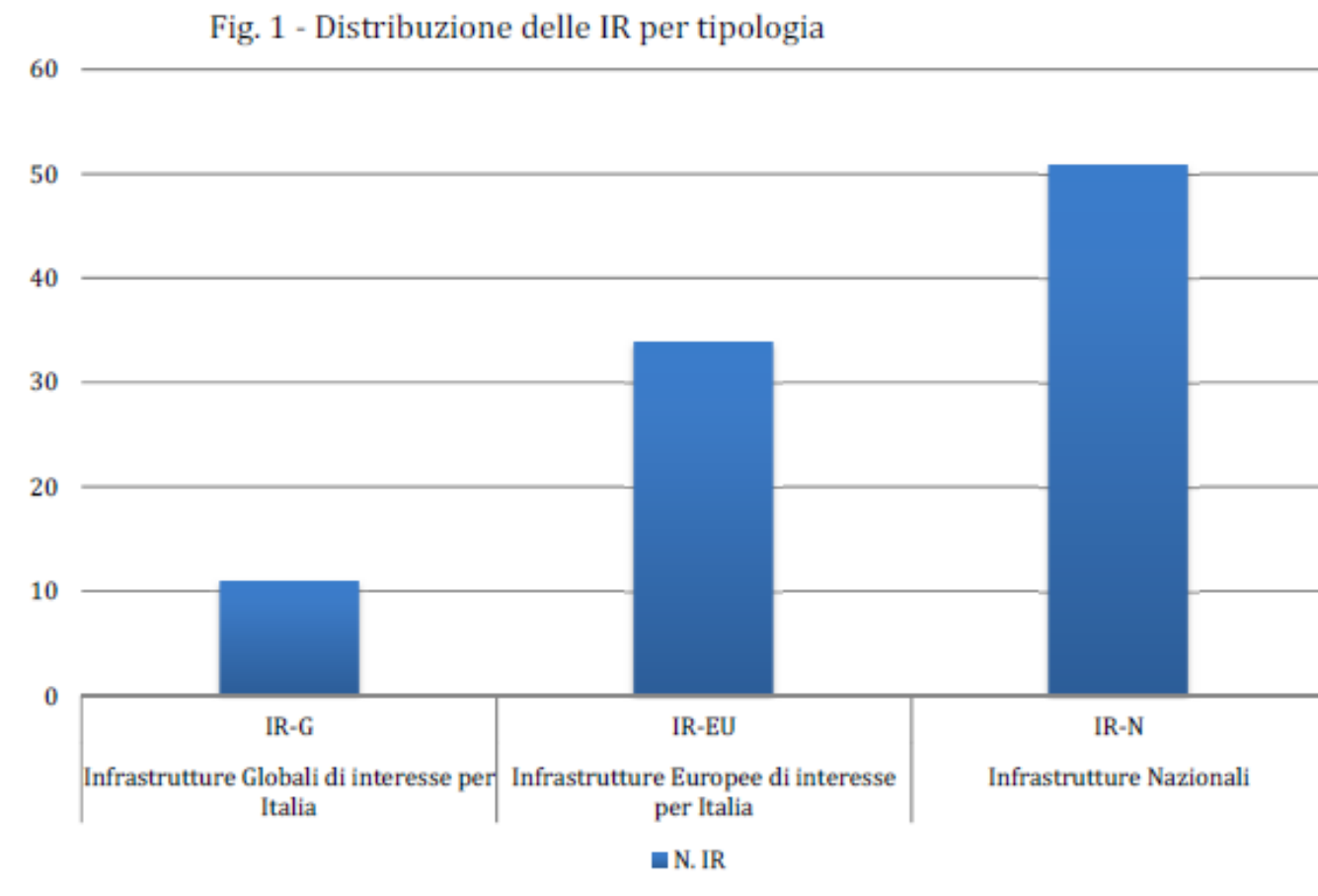
Sustainability

- Success related to level and quality of “openness”
- Underline the potential of research infrastructures for innovation
- Facilitate Income from service activity and “industrial use”
- Find adequate and novel funding instruments (long-term commitments for both funds and staff)
- Coordination between Member States and the Commission to ensure synchronization and synergies between the various instruments, at regional (smart specialization strategies), national, and EU level

Distribution of Ris in Italy on different thematic areas



Distribution of Ris in Italy on different type



Strategic orientations for the WP 2016-2017

- Fostering long term sustainability of Research Infrastructures
- Expanding the role of research infrastructures in the innovation chain, supporting Open Digital Science (widening access to scientific information – publications and data), improving skills and human capital
- Optimising the management and the exploitation of research data produced or collected by research infrastructures, including e-infrastructures (networking, high-performance and distributed computing, supporting research communities embracing data-intensive science paradigms)
- Harmonising evaluation procedures of Research Infrastructures

Fostering long term sustainability of Research Infrastructures - I

Challenge: to sustain and manage investment cycles in research infrastructures and e-infrastructures while ensuring scientific excellence and widening access to the key research and education resources.

This will entail developing a strategy with MS and EU to ensure:

- Coordination and complementarity of different sources of financing at MS, EU (H2020, ESIF) and, where relevant, at global levels
- ex-ante and ex-post evaluation procedures of RI
- regular monitoring of RI even after their implementation
- synchronisation of national roadmaps and corresponding budgetary commitments

Fostering long term sustainability of Research Infrastructures - II

H2020 support:

- to facilitate and support the preparation, implementation, long-term sustainability and efficient operation of the research infrastructures identified by ESFRI and of other world-class research infrastructures such as ERICs.
- to support to the coordination, integration of and trans-national access to the existing national RIs with a long lasting effect in term of harmonisation, structuring and optimisation of the services to users, essential to foster users' and stakeholders' trust in the services and to ensure a long term sustainability.

Expanding the role of research infrastructures in the innovation chain - I

Challenge: to stimulate innovation both in the RIs themselves and in their supplier and user industries

- Better exploit the opportunities provided by the development of components, instruments, services and knowledge for RI
- Stimulate the use of RIs by industry incl. SMEs

Expanding the role of research infrastructures in the innovation chain - II

H2020 support:

- Customised services to increase participation of industry incl. SMEs as users of RI.
- Support PCP/PPI or any other financial co-funding scheme that would enable synergies amongst the RI, academia and industry.
- Support technology transfer and joint development of high-tech components and solutions in the integrating activities and in the activities supporting the implementation and operation of ESFRI projects and e-infrastructures.
- Coordination and networking of technological infrastructures, which provide R&D platforms on key technology for RI and e-infrastructures so as to develop a partnership with industry and SMEs.

Exploitation of research data - I

Challenge:

To ensure appropriate management practises as well as technologies and methods for acquisition, curation/preservation, analysis and visualisation of the increasing amount of digital ("big and complex") research data made available by RI.

To address safety and quality of storage, access to data

To develop appropriate legal, social and technical frameworks for the novel ethical, privacy, security, copyright and Intellectual Property Rights (IPR) issues raised by the use of research data and data infrastructures.

Exploitation of research data - II

H2020 support:

- Develop new e-infrastructures and services to address the era of extreme-scale systems and meet the needs of future RIs
- Customize e-infrastructure services across several scientific domains to meet specific user requirements
- Integrate and open national research infrastructures also by means of "virtual" access to the research resources
- Raise awareness of the importance of research data for society and the economy via use of data management plans
- Improve usability of ICT resources for scientific and education networks
- Support Research Data Alliance (RDA) to engage communities in developing open standards for their different data types.

Evaluation procedures

Challenge: building an effective RI landscape in Europe requires long-term commitments by funders, efficient decision making processes and well-conceived governance and management practises for RI

Funders' commitment is based on quality criteria, evaluation procedures and opt-out options. Ex-ante evaluation processes should be based on rigorous metrics, carried out by experienced experts and scientists, and take into account development potential and societal impact. Assessment and strengthening of evaluation practices for RIs is therefore crucial.

H2020 support:

➤ coordination of national bodies/agencies involved in the evaluation of RIs, promotion of joint work to harmonise their ex-post evaluation and monitoring mechanisms as well as joint evaluation exercises.

Planning

- Role of ESFRI
 - guidelines for RIs prioritization (indicators)
 - European roadmap (compare global level)
- Role of e-infrastructures ('data infrastructures'): vehicle for diffuse innovation
- Special attention to RIs on social science and humanities , as they need the full european coverage being key to innovation

Thank you for your Attention!

HORIZON 2020

