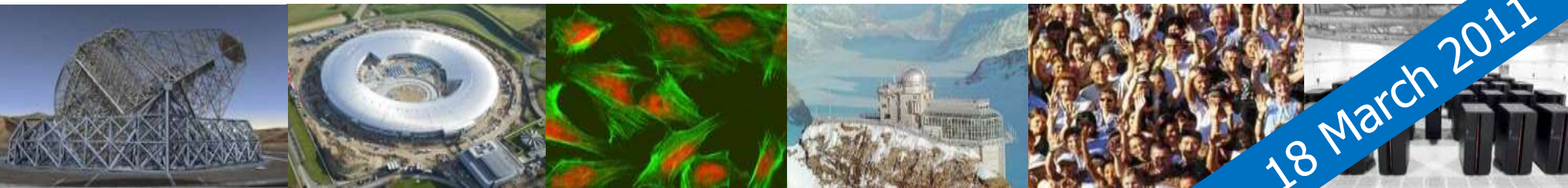


Research Infrastructures (RI)

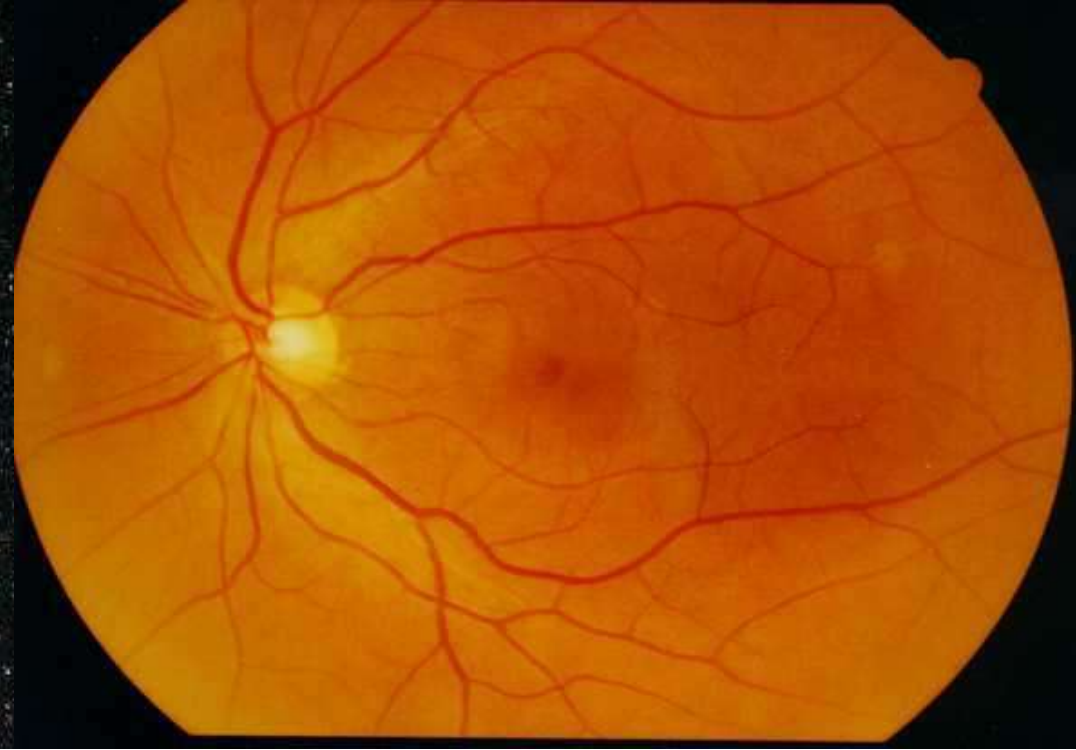
Challenges for EU actions

European Commission, Unit B3, DG Research & Innovation



Brussels, 18 March 2011

F A R I C R D L S H I G D A V V I **L D V E Q L G I P E Q E Y** S C V V K M P S G E F A R I C I G D A V V I HsPCNA
 F A R I C R D L A Q F S E S V V I L D Q E H L G I P E T D F S C V V R M P A M E F A R I A Q F S E S V V I DmPCNA
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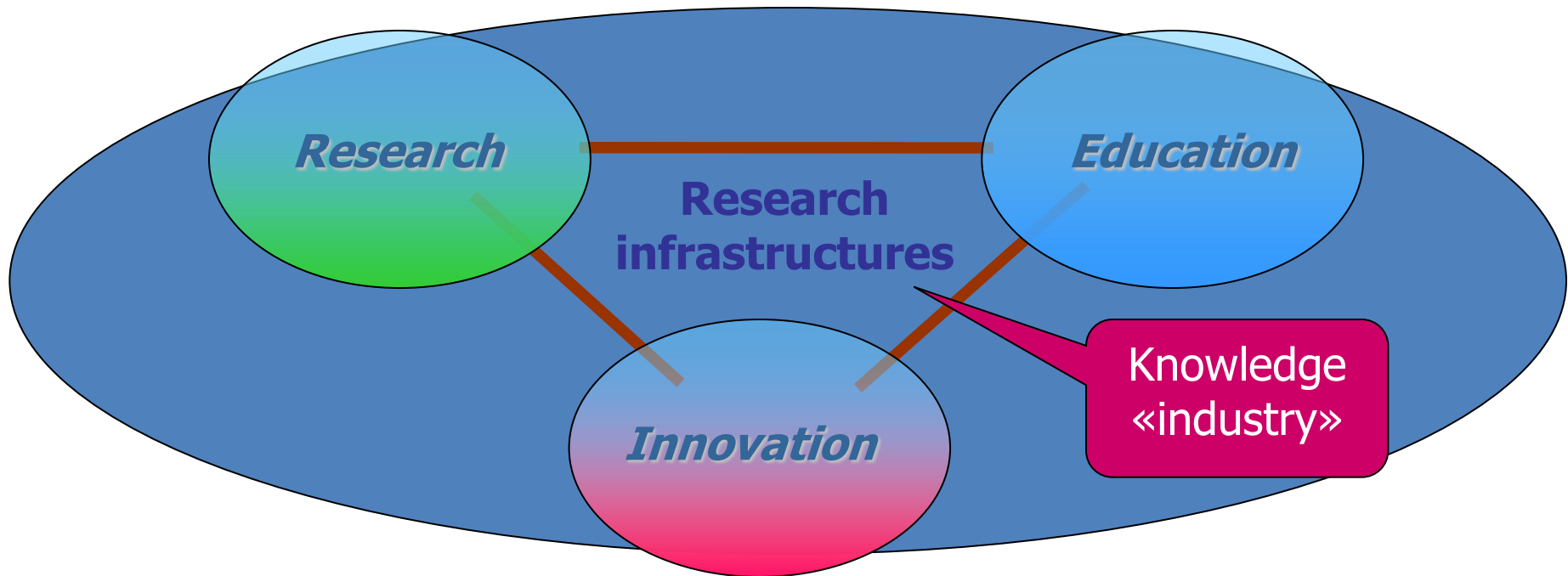


Research Infrastructures are facilities where **basic research** as well as **applied research** are interacting to generate knowledge and innovation for our daily life

e-Infrastructures: interconnecting communities



Research Infrastructures at centre of the knowledge triangle



RIs represent an unprecedented asset

- More than 500 of them, of which at least 300 have strong international visibility, attracting world class researchers
- These RIs represent an aggregate European investment of more than €100 billion, with a yearly operation & maintenance cost of €10 - 15 billion.
- Some 50,000 researchers / year use them to produce 3,000 to 6,000 high-impact research papers annually
- A chain of patents, spin-off companies and industrial contracts
- RIs can serve as high-performance platforms for cooperation among universities, enterprises and research institutes



Why supporting **RI**s at European level?

- Pan-European Research Infrastructures have a clear European added value, attracting and keeping the best researchers and technicians in the world, by excellence in frontier research and merit-based competition
- They are facilities to perform excellent, cutting-edge and world-level research, technology, education and management in unique and innovative ways, in all Science fields.
- Due to open merit-based access they are key drivers/engines of innovation and economy for the hosting Regions and for Europe.
- Backbone in the construction of the European Research Area (ERA)

... in addition...

- ❖ The scale and complexity of the resources needed makes necessary international collaboration in R&D / knowledge sharing
- ❖ Size of research facilities is not the issue, excellence is !
- ❖ Whether these RIs are single-sited, distributed, or virtual, they must offer top-level services to the scientific community
- ❖ Important role in the advancement of knowledge and technology, liberating creative potential of staff, users and providers, thus being crucial socio-economic drivers



The EU helps paving 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'

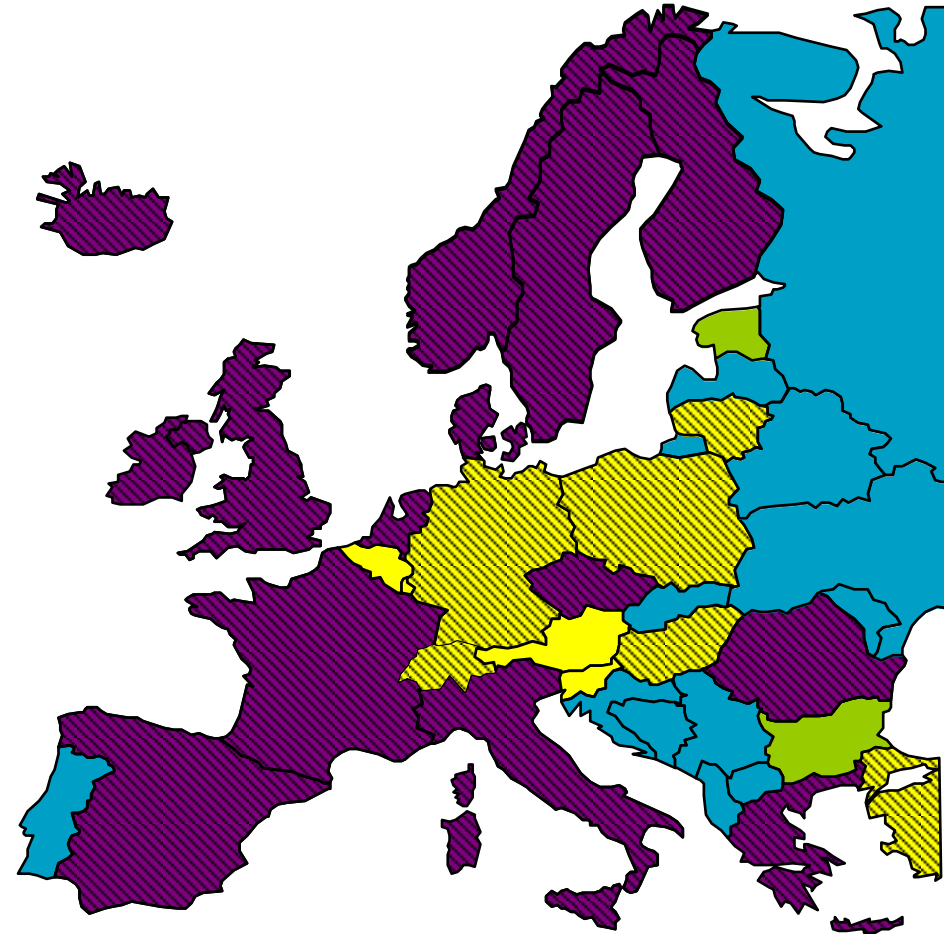
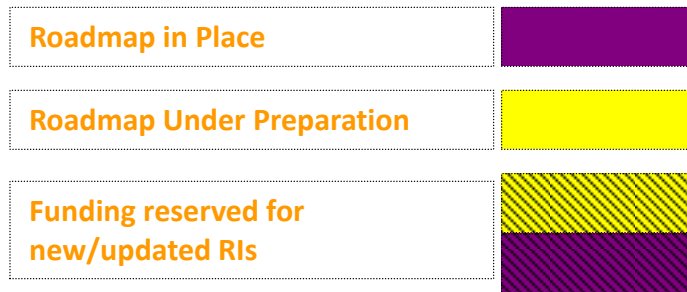
A European approach ESFRI and its roadmap

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



Emergence of National Roadmaps



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)	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-OPENSCREEN	EMBRC	SIAEOS	EISCAT_3D	JHR	ESRF Upgrade	KM3NeT	FAIR	
DARIAH	Euro Biolumaging	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

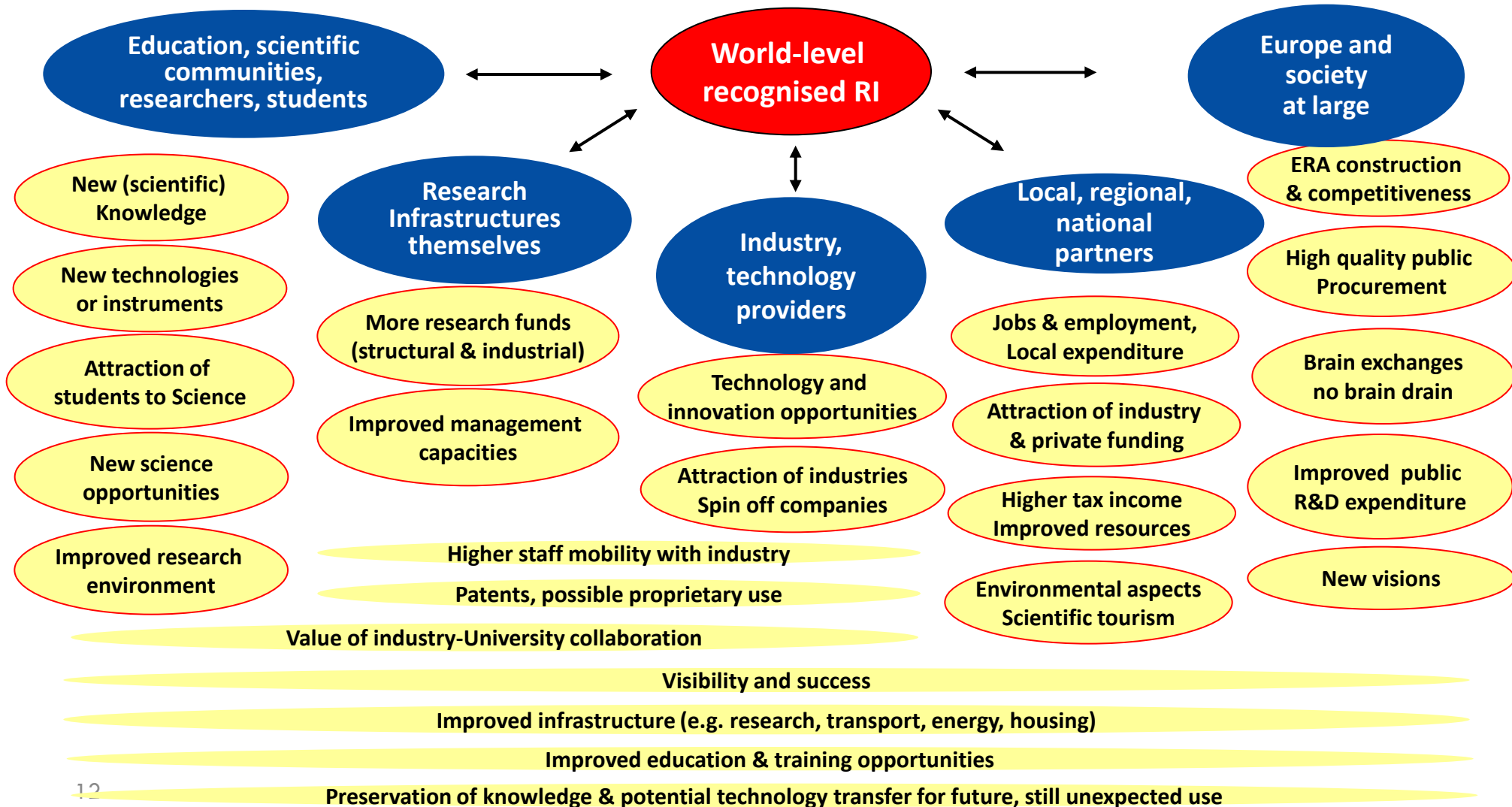
Potential further impacts

- 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)



A sectoral approach is welcome,
complementing national strategies

Many impacts at all levels



Role of the EU RI 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 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

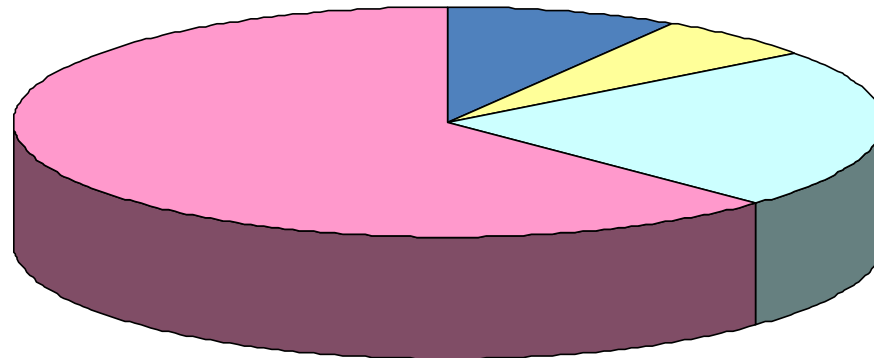


European researchers consider the EC action essential

90% of the FP users declare that they would not have been able to carry out their work at the RI **without** EU support

(Source: 5050 filled questionnaires

<http://www.cordis.lu/infrastructures/questionnaire.htm>)



Reasons:

■ NOT ELIGIBLE

■ APPLIC. TOO DIFFICULT

■ UNABLE TO PAY UF

■ UNABLE TO PAY T&S



Possible RIs for Transport Research:

- Main objective should be serving the scientific community, with the capacity to *work together / pool resources* (thus coordination / integration of strategies)
- the time scale is different than normal research projects (medium to long term versus short term),
- RIs encompass not only physical facilities but also scientific data bases & related services, thus need to develop a *favorable environment* for opening access (of physical facilities) based on scientific excellence / peer review, whereas open access to scientific data should be the rule...